

Fertility of women in the NLSY79

This article uses data from the National Longitudinal Survey of Youth 1979 (NLSY79)—a survey of people born between 1957 and 1964—to examine the fertility patterns of women up to age 46. Women in the NLSY79 cohort have two children, on average, and more than 80 percent of them give birth to at least one child by age 46. The bulk of first births occur before age 30. Fertility patterns differ markedly by education. Women with a college degree are more than twice as likely as those who never attended college to have no children, with this pattern being stronger among Black and Hispanic women. Fertility is delayed as education increases. Patterns of fertility related to labor market experience are evident, but they are weaker than those related to educational attainment.

Many changes in the last half century have affected women's decisions to have children. Increases in the availability of reliable birth control, in the rates of women's college attendance and completion, and in women's labor force participation have changed the costs and benefits of having a child and, hence, affected women's childbearing decisions. From the early 1970s to the late 1980s, the total fertility rate of women in the United States was remarkably stable, hovering around 1.9 children. Over the same period, however, female fertility shifted toward older ages, with the shift being most pronounced among college-educated women and those most attached to the labor force.¹

Using the National Longitudinal Survey of Youth 1979 (NLSY79)—a survey of people born during the 1957–64 period—this article examines the fertility patterns of women up to age 46. In general, women in the NLSY79 cohort are from a younger generation than that considered in other studies.² The article focuses on differences in fertility patterns by race/ethnicity, educational attainment (measured at age 46), and labor market experience. The analysis is descriptive and does not attempt to explain why fertility patterns differ across women. For example, it is unclear to what extent changes in fertility affect women's educational decisions or to what extent changes in



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women's educational attainment affect fertility decisions. A woman may obtain more education because she delayed having children or she may delay motherhood because she completed more education.

About 83 percent of the women in the NLSY79 cohort have a child by age 46, with 2.0 being the average number of children born to women in this cohort. The bulk of first births occur before age 30, with relatively few first births occurring after age 34. Children born to mothers over 30 are most often second or higher order births.

Fertility patterns differ most markedly by education and labor market experience. Compared with their counterparts with fewer years of schooling, college-educated women are less likely to have children and more likely to have their first child at older ages. This pattern is stronger for Black and Hispanic women. In addition, women who are more attached to the labor force (who work full time in 75 percent or more of the years between ages 25 and 46) have their first child at older ages, have fewer children, and are less likely to have children than women who are less attached to the labor force.

Background

The NLSY79 is well suited for studying fertility patterns. It is a nationally representative sample of men and women who were ages 14 to 22 when first interviewed in 1979. Respondents were interviewed annually until 1994 and biennially thereafter. The NLSY79 collects detailed information on fertility, marital transitions, and employment, in a format suitable for determining the dates of these specific events.

Because the NLSY79 collects data on many aspects of respondents' lives—including employment, marriage, and income—many researchers have used it to examine the relationship between fertility and a variety of other outcomes. Young-Hee Yoon and Linda Waite, for example, used NLSY79 data to examine whether the racial differentials in women's employment after childbirth narrowed in the 1960s and 1970s, a period in which the gap in employment between Black and White women closed dramatically. They found that education, family income other than own earnings, and residence in an urban area affect the decision to return to work differently for Black and White mothers.³

Researchers also have used the NLSY79 to examine how fertility affects wages. Hiromi Taniguchi found that, compared with women who delay childbearing, those who give birth at young ages are more vulnerable to an adverse impact of children on wages.⁴ This is likely due to early childbearers facing career interruptions during critical early periods of career building. For those with more education, the magnitude of the wage penalty is reduced. Kasey Buckles used the NLSY79 to investigate the wage-earning implications of delaying first birth.⁵ She found that, in 2003, an annual 3-percent wage premium existed for each year of delayed motherhood. Delayed childbirth also correlated with high test scores, education, and professional status of the mother.

Others have used the NLSY79 to examine how households adjust fertility in response to other factors. Carol Lehr looked at how households adjust fertility in response to changes in the return to education.⁶ Using wage premiums to measure the return to education, she found that increases in the expected returns to college and high school result in fertility declines for parents with more education, but not for parents with lower levels of education. Dawn Upchurch et al. found that the likelihood of nonmarital conception increases immediately after a woman leaves school, with the effect being smaller for Black women than for women of other racial groups.⁷ Further, the likelihood is lower for previously married women than for never-married women, even when controlling for age, although this reduction is only significant for Black women. Dawn et al. also found that the probability of nonmarital

childbearing increases with the number of children a woman has, and that this pattern is more pronounced if earlier births occurred during a previous marriage.

Data and characteristics of the sample

In this article, we use NLSY79 data collected through 2010, when the youngest sample members were age 46. At each interview, survey respondents report whether they have had a child since the date of their last interview. Respondents who have had a child are asked to report the child's gender and birthdate.

The sample for this article is restricted to respondents who are female, have participated in an NLSY79 interview at age 46 or older, and have reported a valid year of birth for all biological children, a valid year for marital changes, and highest degree completed in round 9 (1988) (or a later round) of data collection. To classify respondents by educational attainment, we use their most recent report of highest degree completed. To measure a woman's attachment to the labor force, we use the percentage of years from age 25 to age 46 during which she worked full time (i.e., at least 1,750 hours in a given year).

The sample used here consists of 3,149 women who had 7,967 children by age 46. The data are weighted with the use of custom weights that make the sample representative of the population from which the NLSY79 was drawn.⁸

Table 1 presents some descriptive statistics for the sample. Non-Black non-Hispanics (hereafter, for simplicity, referred to as White non-Hispanics) make up almost 80 percent of the sample, and Blacks and Hispanics compose the remainder, with 14 percent and 6 percent, respectively.⁹ (Note that, in the NLSY79, more than 90 percent of non-Black non-Hispanics are White, but Asians, Pacific Islanders, and Native Americans are also included in this category.) The educational distribution shows that 12 percent of the women in the NLSY79 cohort did not complete high school, 35 percent completed high school but did not go to college, 26 percent attended some college or earned an associate's degree, and 27 percent earned a bachelor's degree or higher. The distribution of years of full-time employment shows that roughly a quarter of women fall into each of four categories: 26 percent of women worked full time in 25 percent or fewer of the years between ages 25 and 46, 25 percent worked full time in more than 25 percent and up to 50 percent of the years, 22 percent worked full time in more than half and up to 75 percent of the years, and 27 percent worked full time in more than 75 percent of the years.

Table 1. Sample characteristics

Characteristic	Weighted percentage
Race/ethnicity	
Hispanic or Latino	6.37
Black non-Hispanic	14.14
White non-Hispanic	79.49
Education	
Less than high school diploma	12.17
High school graduate, no college	34.52
Some college or associate's degree	25.92
Bachelor's degree or higher	27.39
Percentage of years worked full time between ages 25 and 46	
0 to 25 percent	25.55

See footnotes at end of table.

Table 1. Sample characteristics

Characteristic	Weighted percentage
More than 25 percent to 50 percent	24.88
More than 50 percent to 75 percent	22.18
More than 75 percent	27.39

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

In subsequent sections, we examine women's fertility outcomes along the three dimensions mentioned earlier: race/ethnicity, educational attainment, and percentage of years in full-time employment. Although we compare fertility outcomes separately for each of these dimensions, the three are related. The relationships can be seen in tables 2 through 4.

Tables 2 and 3 break down the sample by educational attainment and percentage of years in full-time employment, respectively, for each race/ethnicity group.¹⁰ Black and Hispanic women have lower educational attainment than White women. The minority groups are overrepresented among those with less than a high school diploma and underrepresented among those with a bachelor's degree. The opposite is true for Whites. Racial composition also varies with the percentage of years worked full time, but a consistent pattern does not emerge across employment categories. Both Blacks and Hispanics are overrepresented in the category with the least full-time employment, which consists of those who work full time in 25 percent or less of the years between ages 25 and 46. In addition, both groups are overrepresented among women who work full time in over 50 percent and up to 75 percent of the years. However, they are underrepresented among those working full time in more than 25 percent and up to 50 percent of the years. For the category with the most full-time employment, which includes those working full time in over 75 percent of the years, the racial distribution approximates that of the sample.

Table 2. Percentage in sample, by race/ethnicity and educational attainment

Race/ethnicity	Full sample	Less than high school diploma	High school graduate, no college	Some college or associate's degree	Bachelor's degree or higher
Hispanic or Latino	6.37	13.37	5.03	8.06	3.34
Black non-Hispanic	14.14	19.68	13.06	18.36	9.07
White non-Hispanic	79.49	66.95	81.91	73.58	87.59

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey.

Source: U.S. Bureau of Labor Statistics.

Table 3. Percentage in sample, by race/ethnicity and percentage of years in full-time employment between ages 25 and 46

Race/ethnicity	Full sample	0 to 25 percent	More than 25 percent to 50 percent	More than 50 percent to 75 percent	More than 75 percent
Hispanic or Latino	6.37	7.78	5.24	6.45	6.00
Black non-Hispanic	14.14	14.84	11.94	15.10	14.73
White non-Hispanic	79.49	77.38	82.82	78.45	79.28

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

Table 4 shows a cross-tabulation of the sample by education and percentage of years in full-time employment. Looking across the table reveals that the two dimensions are positively correlated. The proportion of women with less than a high school diploma decreases as the percentage of years in full-time employment increases; women with this level of education make up just 4 percent of the category with the most full-time employment. In addition, the share of women with less than a high school diploma is 2 times larger in the subsample with the least full-time employment than in the full sample. In contrast, the percentage of women with a bachelor's degree or higher is about 40 percent higher in the subsample with the most full-time employment than in the full sample. The shares of women who have some college or a bachelor's degree increase as time in full-time employment increases. Almost 35 percent of the highest employment category is composed of women with a bachelor's degree or higher.

Table 4. Percentage in sample, by educational attainment and percentage of years in full-time employment between ages 25 and 46

Educational attainment	Full Sample	0 to 25 percent	More than 25 percent to 50 percent	More than 50 percent to 75 percent	More than 75 percent
Less than high school diploma	12.17	23.50	13.75	7.64	3.83
High school graduate, no college	34.52	37.51	38.33	30.19	31.79
Some college or associate's degree	25.92	23.23	22.32	28.15	29.88
Bachelor's degree or higher	27.39	15.76	25.60	34.02	34.50

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

It is important to stress that the characteristics by which we describe the women in our sample are related and change together. Women with a college degree tend to be White and to work full time in at least 50 percent of the

years between ages 25 and 46. Black and Hispanic women tend to have less education, but their percentage of years in full-time work does not appear to be closely related to their race or ethnicity.

Fertility through age 46

As shown in table 5, by age 46, 83 percent of women have had at least one child, about 36 percent have had two children (the modal, most often observed, category), and over 30 percent have had three or more children, with the average number of children for the sample being 2.0.¹¹ Although the mean number of children does not vary much by race or ethnicity, there are some racial and ethnic differences in the distributions of number of children. Hispanic women are slightly more likely to have children than Black and White women. In addition, Black and Hispanic women are more likely to have larger families. While approximately 9 percent of White women have four or more children by age 46, 15 percent of Black women and 17 percent of Hispanic women do.

Table 5. Fertility outcomes of women from age 15 to age 46, by educational attainment, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
Total, up to 46	16.91	16.39	35.91	20.09	10.69	1.97
Less than high school diploma	10.09	14.70	31.53	24.91	18.77	2.47
High school graduate, no college	12.15	18.15	38.66	20.39	10.65	2.00
Some college or associate's degree	16.16	17.90	35.04	21.32	9.58	1.94
Bachelor's degree or higher	26.65	13.50	35.21	16.42	8.22	1.68
White non-Hispanic	17.29	16.38	37.30	19.67	9.36	1.92
Less than high school diploma	11.17	18.19	35.65	24.10	10.88	2.14
High school graduate, no college	12.11	18.48	39.85	19.96	9.60	2.03
Some college or associate's degree	16.28	17.67	35.31	21.63	9.11	1.92
Bachelor's degree or higher	26.29	12.26	36.45	16.28	9.72	1.71
Black non-Hispanic	16.93	17.05	29.19	21.48	15.35	2.15
Less than high school diploma	9.36	8.01	21.14	29.10	32.39	3.16
High school graduate, no college	14.10	17.48	29.79	23.39	15.24	2.18
Some college or associate's degree	15.91	18.72	35.45	18.03	11.88	1.99
Bachelor's degree or higher	31.30	21.80	23.90	17.28	5.72	1.47
Hispanic or Latino	12.10	15.14	33.44	22.26	17.06	2.29
Less than high school diploma	5.78	7.08	26.23	22.82	38.09	3.11

See footnotes at end of table.

Table 5. Fertility outcomes of women from age 15 to age 46, by educational attainment, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
High school graduate, no college	7.79	14.58	42.43	19.58	15.62	2.33
Some college or associate's degree	15.63	18.13	31.61	26.04	8.59	1.97
Bachelor's degree or higher	23.48	23.72	33.41	17.73	1.65	1.52

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey.

Source: U.S. Bureau of Labor Statistics.

The differences by educational attainment are apparent. The average number of children falls as education increases. Women with a bachelor's degree have no children at rates more than twice as high (27 percent) as those of women who did not attend college (10 to 12 percent). These patterns are even stronger within the subsamples of Black and Hispanic women. For both subsamples, the mean number of children declines with education, from more than 3 children for women with less than a high school diploma to about 1.5 for women with a bachelor's degree. Within these minority groups, women with a bachelor's degree have no children at rates 2 to 3 times those of women who completed high school but did not attend college. In addition, Black women with a bachelor's degree are substantially more likely to have no children than are White or Hispanic women with a bachelor's degree.¹²

The number of children declines as the percentage of years spent in full-time employment increases. (See table 6.) Women who worked full time in more than 75 percent of the years between ages 25 and 46 have 1.4 children, on average, compared with 2.5 children for women who worked full time in 25 percent or less of the years. Moreover, women in the category with the most full-time employment are more likely to have no children or one child than are women who worked full time in fewer years. They are also less likely to have three or more children. Although these patterns are present for all three racial and ethnic groups considered, they are more pronounced for White women.

Table 6. Fertility outcomes of women from age 15 to age 46, by number of years in full-time employment between ages 25 and 46, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
Total, up to 46	16.91	16.39	35.91	20.09	10.69	1.97
0 to 25 percent	7.90	12.04	33.41	26.23	20.42	2.54

See footnotes at end of table.

Table 6. Fertility outcomes of women from age 15 to age 46, by number of years in full-time employment between ages 25 and 46, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
More than 25 percent to 50 percent	10.57	14.65	38.49	22.81	13.49	2.21
More than 50 percent to 75 percent	18.54	16.60	38.00	20.42	6.45	1.82
More than 75 percent	29.77	21.88	34.21	11.63	2.51	1.36
White non-Hispanic	17.29	16.38	37.30	19.67	9.36	1.92
0 to 25 percent	8.06	12.17	36.25	26.36	17.15	2.41
More than 25 percent to 50 percent	10.13	14.01	40.55	22.66	12.64	2.20
More than 50 percent to 75 percent	19.16	16.86	38.97	19.54	5.47	1.77
More than 75 percent	31.01	22.07	33.85	10.84	2.23	1.32
Black non-Hispanic	16.93	17.05	29.19	21.48	15.35	2.15
0 to 25 percent	8.08	11.81	24.31	24.99	30.81	2.98
More than 25 percent to 50 percent	13.64	20.56	23.01	25.62	17.18	2.22
More than 50 percent to 75 percent	17.26	15.37	33.69	23.21	10.46	2.00
More than 75 percent	27.40	20.80	34.61	13.71	3.49	1.45
Hispanic or Latino	12.10	15.14	33.44	22.26	17.06	2.29
0 to 25 percent	5.98	11.20	22.50	27.32	33.00	3.00
More than 25 percent to 50 percent	10.39	11.22	41.13	18.73	18.54	2.34
More than 50 percent to 75 percent	13.96	16.31	36.31	24.51	8.92	2.01
More than 75 percent	19.26	22.00	38.10	16.99	3.66	1.65

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

Fertility outcomes at selected ages

This section describes total fertility at selected ages of the respondent, by race/ethnicity, educational attainment, and percentage of years in full-time employment. As seen in table 7, at age 18, almost 15 percent of the women in the NLSY79 cohort have at least one child. This quickly changes with age. About 23 percent of the women move out of childlessness between ages 18 and 22, and another 18 percent do so between ages 22 and 26. At age 26, more than half (55 percent) of the women have at least one child, with 24 percent having one child, 21 percent two children, 8 percent three children, and 2 percent four or more children. Between ages 26 and 30, another 15 percent of women move out of childlessness, shrinking the ranks of those without a child by age 30 to 30 percent. By age 34, two children becomes the modal number, as opposed to no children, as was the case at the younger

ages examined. The chances of having a child after 34 are low for women who have not yet had one, with just over 4 percent of women having their first child between ages 34 and 46.

Table 7. Fertility outcomes at selected ages, by race and Hispanic or Latino ethnicity

Race/ethnicity and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
Total	16.91	16.39	35.91	20.09	10.69
18	85.77	11.47	2.42	.33	.01
22	62.47	21.82	12.41	2.57	.74
26	44.56	24.26	20.88	8.01	2.28
30	29.79	22.40	29.60	13.41	4.81
34	21.25	19.36	34.07	17.36	7.96
38	18.26	16.54	35.86	19.64	9.70
42	17.00	16.33	36.21	19.80	10.66
46	16.91	16.39	35.91	20.09	10.69
White non-Hispanic	17.29	16.38	37.30	19.67	9.36
18	88.97	9.20	1.60	.23	—
22	66.78	19.72	11.13	2.03	.33
26	48.06	23.58	20.11	6.91	1.33
30	31.33	22.90	30.12	12.02	3.62
34	22.03	19.33	35.56	16.48	6.60
38	18.72	16.49	37.38	19.11	8.29
42	17.40	16.33	37.71	19.34	9.22
46	17.29	16.38	37.30	19.67	9.36
Black non-Hispanic	16.93	17.05	29.19	21.48	15.35
18	71.19	22.31	5.70	.74	.06
22	43.67	31.13	17.95	4.80	2.46
26	30.94	26.53	23.78	13.01	5.74
30	24.67	21.11	25.77	19.08	9.36
34	19.03	20.93	25.96	21.27	12.81
38	17.55	17.76	28.50	21.54	14.66
42	16.99	17.37	28.97	21.43	15.24
46	16.93	17.05	29.19	21.48	15.35
Hispanic or Latino	12.10	15.14	33.44	22.26	17.06
18	78.27	15.82	5.32	.60	—
22	50.38	27.30	15.96	4.26	2.09
26	31.21	27.81	23.98	10.60	6.41
30	21.83	18.98	31.69	18.19	9.31
34	16.45	16.31	33.40	19.76	14.08
38	14.16	14.36	33.21	22.02	16.25
42	12.10	15.28	33.59	21.97	17.06
46	12.10	15.14	33.44	22.26	17.06

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics.

Source: U.S. Bureau of Labor Statistics.

At least three differences across racial and ethnic groups emerge from examining the patterns of fertility at selected ages. First, comparable percentages of White and Black women have children (83 percent for both), whereas slightly more Hispanic women have children (88 percent). Second, Black and Hispanic women have children at younger ages than White women, with 69 percent of these minority women having a first child by age 26, compared with 52 percent of White women. Third, higher order births also occur at younger ages for Black and Hispanic women. At age 26, 28 percent of White women have two or more children, compared with 43 percent of Black women and 41 percent of Hispanic women.

Table 8 shows that fertility is delayed as education increases.¹³ As seen in the table, age at first birth rises with educational attainment. Among women without a high school diploma, 47 percent have a child by age 18 and 75 percent have one or more children by age 22. Women in this educational group complete the bulk of their childbearing by age 30. Among women whose highest level of education is a high school diploma, 46 percent have a child by age 22 and 67 percent by age 26. Their childbearing is mostly complete by age 34, with 15 percent of them having no children at that age, 21 percent having one child, 37 percent two children, 19 percent three children, and 9 percent four or more children.

Table 8. Fertility outcomes at selected ages, by educational attainment

Educational attainment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
Total	16.91	16.39	35.91	20.09	10.69
Less than high school diploma	10.09	14.70	31.53	24.91	18.77
18	53.01	33.43	11.79	1.77	—
22	25.04	32.42	27.32	11.25	3.97
26	16.18	24.67	29.94	20.54	8.67
30	12.36	18.46	32.92	22.72	13.55
34	11.35	15.72	33.66	22.02	17.25
38	10.45	14.54	32.24	24.28	18.49
42	10.09	14.70	32.13	24.32	18.76
46	10.09	14.70	31.53	24.91	18.77
High school graduate, no college	12.15	18.15	38.66	20.39	10.65
18	84.69	13.08	2.10	.11	.02
22	53.71	28.33	15.46	2.05	.45
26	33.33	29.05	26.73	9.01	1.88
30	20.51	24.04	36.22	13.99	5.24
34	14.88	20.73	36.99	18.72	8.67
38	12.57	18.76	38.22	20.49	9.96
42	12.15	18.25	38.71	20.27	10.62
46	12.15	18.15	38.66	20.39	10.65
Some college or associate's degree	16.16	17.90	35.04	21.32	9.58
18	89.45	9.73	.68	.15	—
22	61.59	25.33	11.37	1.62	.19
26	40.44	27.13	23.24	7.70	1.49
30	27.22	23.36	28.82	17.01	3.58
34	20.36	20.79	31.96	19.33	7.55
38	17.88	17.91	34.71	20.64	8.85

See footnotes at end of table.

Table 8. Fertility outcomes at selected ages, by educational attainment

Educational attainment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
42	16.19	17.93	35.69	20.63	9.55
46	16.16	17.90	35.04	21.35	9.55
Bachelor's degree or higher	26.65	13.50	35.21	16.42	8.22
18	98.21	1.34	.31	.13	—
22	90.97	5.67	2.91	.25	.19
26	75.24	15.33	7.25	1.49	.70
30	51.65	21.17	20.53	5.13	1.52
34	34.50	17.89	32.55	11.72	3.33
38	29.28	13.32	35.58	15.56	6.26
42	26.95	13.39	35.39	16.43	7.84
46	26.65	13.50	35.21	16.42	8.22

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Educational attainment is as of the most recent survey.

Source: U.S. Bureau of Labor Statistics.

Women with some college have their first child at older ages, with about 49 percent of them having their first child between ages 22 and 34. Most of these women complete their childbearing by age 38. Those with a bachelor's degree have their first child at still older ages, with only about 25 percent of them having a child by age 26 and about another 24 percent having a child between ages 26 and 30. An additional 17 percent give birth to a first child between ages 30 and 34, so that about 65 percent of these women have had at least one child by age 34. As is the case for women with some college, the bulk of childbearing for women with a bachelor's degree is complete by age 38.

Examining fertility patterns at selected ages on the basis of the percentage of years in full-time employment reveals some key differences across groups. (See table 9.) Women with the smallest percentage of years in full-time employment (25 percent or less) tend to start their families at younger ages, with about 50 percent of them having their first child by age 22. Among those who work full time in more than 25 percent and up to 50 percent of the years, over 60 percent have their first child by age 26. Of women who are most attached to the labor force (those who work full time in more than 75 percent of the years), about 38 percent transition into motherhood by age 26 and about 54 percent do so by age 30. Only 3 percent of women in this employment category have four or more children.

Table 9. Fertility outcomes at selected ages, by percentage of years in full-time employment

Employment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
Total	16.91	16.39	35.91	20.09	10.69
None to 25 percent	7.90	12.04	33.41	26.23	20.42
18	78.25	16.22	4.81	.69	.03
22	50.10	26.99	16.93	4.03	1.95

See footnotes at end of table.

Table 9. Fertility outcomes at selected ages, by percentage of years in full-time employment

Employment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
26	26.26	26.96	27.73	13.86	5.20
30	13.08	18.73	35.69	21.70	10.79
34	9.86	13.92	33.68	25.94	16.60
38	8.50	12.37	33.14	26.98	19.00
42	7.90	12.25	33.19	26.43	20.22
46	7.90	12.04	33.41	26.23	20.42
More than 25 percent to 50 percent	10.57	14.65	38.49	22.81	13.49
18	87.02	10.11	2.32	.55	—
22	59.03	23.81	13.17	3.19	.80
26	38.37	26.41	23.45	9.55	2.22
30	24.35	24.02	32.23	14.40	5.00
34	13.35	20.27	37.33	20.22	8.82
38	10.88	15.95	39.09	22.43	11.65
42	10.57	14.69	39.28	22.21	13.25
46	10.57	14.65	38.49	22.81	13.49
More than 50 percent to 75 percent	18.54	16.60	38.00	20.42	6.45
18	88.64	9.57	1.72	.08	—
22	65.67	20.19	12.02	1.94	.19
26	51.38	21.91	19.63	5.55	1.53
30	35.17	22.68	28.58	10.91	2.66
34	23.68	19.83	36.66	14.71	5.12
38	20.07	17.02	37.03	19.71	6.17
42	18.54	16.72	37.88	20.42	6.45
46	18.54	16.60	38.00	20.42	6.45
More than 75 percent	29.77	21.88	34.21	11.63	2.51
18	89.33	9.82	.85	—	—
22	74.55	16.50	7.80	1.14	—
26	61.75	21.71	13.17	3.15	.22
30	45.95	24.12	22.36	6.79	.78
34	37.08	23.23	29.36	8.91	1.42
38	32.61	20.57	34.51	10.20	2.11
42	30.10	21.59	34.90	10.91	2.51
46	29.77	21.88	34.21	11.63	2.51

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

Age at birth and birth spacing

Table 10 shows that a woman's age at first birth falls with her total fertility. The average age at first birth is 27 years for women with one child, 25 years for women with two children, and 22 years for women with three or more children. The births of women in the latter group are spaced more closely than those of women with two children. On average, the time between first and second births is 4.3 years for women with two children, compared with 3.2 years for those with three or more children. These patterns generally hold for Black, White, and Hispanic women.

However, the age at first birth for Hispanic women falls more precipitously as total fertility increases. On average, Hispanic women who have only one child are age 28 at the birth of their child. Hispanic women who have three or more children are age 20 at their first birth.

Table 10. Period between births by age 46, by number of children, race/ethnicity, educational attainment, and percentage of years in full-time employment

Characteristic	All	Race/ethnicity			Education				Percentage of years in full-time employment			
		Black non-Hispanic	White non-Hispanic	Hispanic	Less than high school diploma	High school graduate, no college	Some college or associate's degree	Bachelor's degree or higher	0 to 25 percent	More than 25 percent to 50 percent	More than 50 percent to 75 percent	More than 75 percent
Among those with one child												
Average age at first birth	27.25	24.74	27.64	28.26	22.19	25.94	27.09	32.09	25.42	25.32	28.48	28.60
Among those with two children												
Average age at first birth	24.57	22.36	24.98	23.26	20.16	23.28	24.28	28.40	23.33	24.56	25.31	25.06
Average age at second birth	28.81	27.99	28.96	28.37	24.83	27.74	28.85	31.85	27.46	28.90	29.18	29.63
Years between first and second child	4.25	5.62	3.99	5.15	4.69	4.50	4.52	3.46	4.17	4.37	3.90	4.52
Among those with three or more children												
Average age at first birth	22.08	19.27	22.91	20.26	17.99	21.38	22.18	26.29	21.18	22.87	22.19	22.83
Average age at second birth	25.27	22.93	25.97	23.69	21.36	24.62	25.48	29.14	24.23	25.57	26.18	26.42
Average age at third birth	29.25	26.81	29.94	27.95	25.56	28.86	29.23	32.78	27.89	29.71	30.30	30.73
Years between first and second child	3.19	3.67	3.06	3.43	3.41	3.25	3.28	2.85	3.07	2.71	3.93	3.57
Years between second and third child	3.95	3.87	3.94	4.27	4.20	4.24	3.69	3.62	3.66	4.10	4.11	4.28

See footnotes at end of table.

Table 10. Period between births by age 46, by number of children, race/ethnicity, educational attainment, and percentage of years in full-time employment

Characteristic	All	Race/ethnicity			Education				Percentage of years in full-time employment			
		Black non-Hispanic	White non-Hispanic	Hispanic	Less than high school diploma	High school graduate, no college	Some college or associate's degree	Bachelor's degree or higher	0 to 25 percent	More than 25 percent to 50 percent	More than 50 percent to 75 percent	More than 75 percent
Years between first and third child	7.15	7.55	7.00	7.69	7.60	7.49	6.97	6.47	6.73	6.81	8.04	7.85

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.

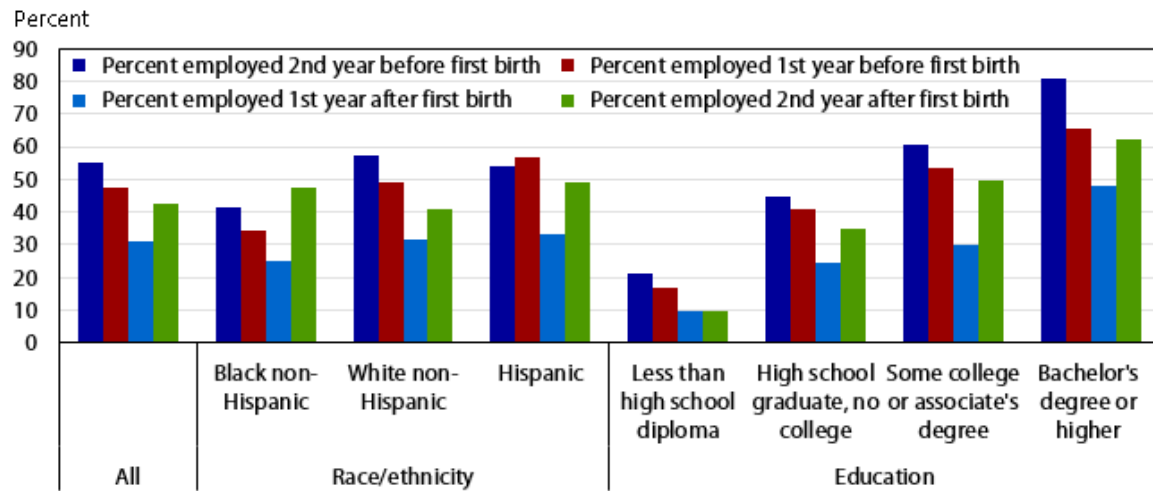
Source: U.S. Bureau of Labor Statistics.

As is the case with other aspects of fertility, a strong gradient for age at first birth emerges by education. Women with a bachelor's degree tend to give first birth at significantly older ages. These ages are 32 for women with one child, 28 for women with two children, and 26 for women with three or more children. At first birth, for a given number of children, women with a bachelor's degree are 8 to 10 years older than those with less than a high school diploma and 4 to 5 years older than those with some college but no bachelor's degree. In addition, women with a bachelor's degree and multiple children space their births more closely together than do their counterparts with less education.¹⁴ For instance, among women with three or more children, the spacing between first and third births is 6.5 years for those with a bachelor's degree and 7 to 8 years for those with less education.

Age at birth increases with the percentage of years a woman spends working full time, with this pattern being strongest among women who have one child. Birth spacing, on the other hand, does not vary consistently with the percentage of years in full-time employment.

Employment around births

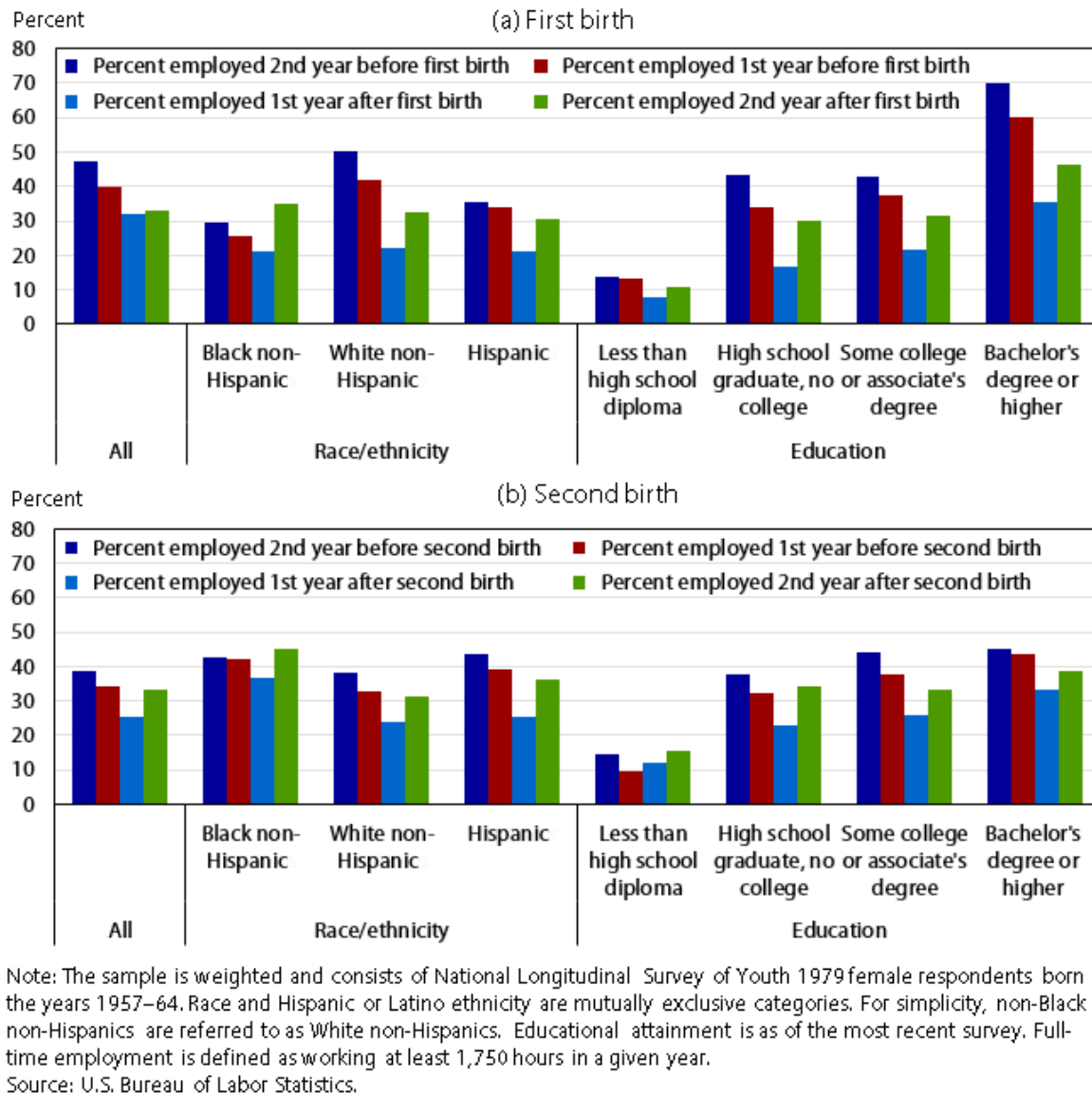
Figure 1. Employment around births, women with one child



Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.
Source: U.S. Bureau of Labor Statistics.

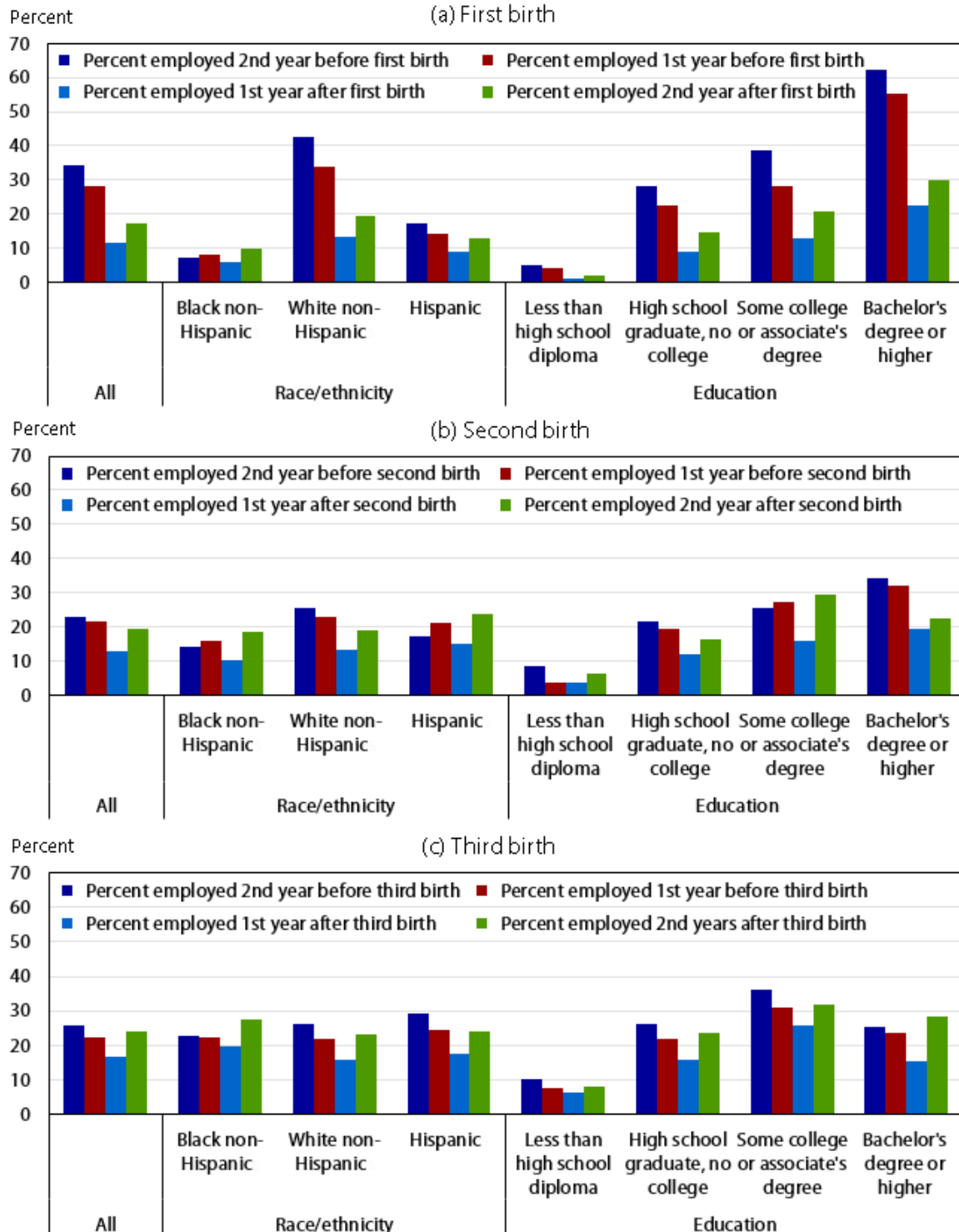
Figures 1 through 3 present the percentage of women working full time in the years preceding and following the births of their children. Each figure consists of up to three panels, with the first panel showing the rates of full-time employment around first births, the second around second births, and the third around third births.

Figure 2. Employment around births, women with two children



Women's full-time employment falls after the birth of a child. For women with one child, the likelihood of working full time falls by almost 17 percentage points from the year preceding the child's birth to the year following it. For women with multiple children, the greatest decline in full-time employment is seen around first births. The levels of full-time employment in the 2 years preceding higher order births are lower than they are following first births. However, full-time employment climbs faster after second and third births and approaches levels observed 2 years before those births.

Figure 3. Employment around births, women with three or more children



Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.
Source: U.S. Bureau of Labor Statistics.

Black and Hispanic women differ from White women in that, for a given number of children, their full-time employment increases with each successive child. In contrast, the full-time employment of White women never returns to prebirth levels. Two years before first births, the full-time employment of White women is much higher than that for Black or Hispanic women, but the difference shrinks after the births of children. For example, among those who have two children, 50 percent of White women work full time during the second year before their first birth, compared with 30 percent of Black women and 36 percent of Hispanic women. Two years after the first birth, these rates range from 31 to 35 percent across the three groups. However, while the rates for Black and Hispanic women return to those observed 2 years before the first birth, the rates for White women do not. For White women, the full-time employment rates following higher order births approximate the rates preceding those births, but remain well below what they were in the 2 years before the first birth.¹⁵

In general, full-time employment rates, both before and after the births of children, increase with educational attainment. Regardless of education, rates decline with parity. The full-time employment rates of women with a bachelor's degree exceed 60 percent 2 years before the birth of a first child and 55 percent a year before it. In contrast, the rates of women with a high school diploma but no college range from 28 to 45 percent 2 years before the birth of a first child and from 23 to 41 percent a year before it. Like White women, for a given number of children, women with a bachelor's degree see their full-time employment rates decline as subsequent children are born; this pattern does not hold for women with less education.

Conclusion

More than 80 percent of women in the NLSY have at least one child by age 46; two children is the average for the cohort. Fertility patterns differ by educational attainment. Women with a college degree are more than twice as likely as those who never attended college to have no children; this pattern is stronger among Black and Hispanic women. Fertility is delayed as education increases. For example, at age 26, 84 percent of women without a high school diploma and 66 percent of women with a high school diploma but no college have at least one child, compared with just 25 percent of women with a college degree.

Patterns of fertility related to race/ethnicity and percentage of time spent in full-time work are present, but they are weaker than those related to educational attainment. The mean number of children does not vary by race/ethnicity, although Hispanic women are slightly less likely to have no children. The number of children falls as the percentage of years a woman spends in full-time work rises. Women in the category with the highest percentage of years in full-time employment have 1.4 children, on average, compared with 2.5 children for women in the lowest employment category. Those most attached to the labor force are also more likely to be childless and to delay childbearing.

Although fertility patterns are examined separately by race/ethnicity, educational attainment, and attachment to the labor force, these characteristics do not change in isolation from one another. Because education is more closely related to women's fertility than either race/ethnicity or years in full-time work and because some of the patterns by education are stronger for Black and Hispanic women, it may be that the relationship between education and fertility outcomes underlies the patterns between fertility and these other characteristics.

Alison Aughinbaugh and Hugette Sun, "Fertility of women in the NLSY79," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, April 2016, <https://doi.org/10.21916/mlr.2016.17>

NOTES

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- ³ Young-Hee Yoon and Linda J. Waite, "Converging employment patterns of Black, White, and Hispanic women: return to work after first birth," *Journal of Marriage and Family*, vol. 56, no. 1, February 1994, pp. 209–217.
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- ⁷ Dawn M. Upchurch, Lee A. Lillard, and Constantijn W.A. Panis, "Nonmarital childbearing: influences of education, marriage, and fertility," *Demography*, vol. 39, no. 2, May 2002, pp. 311–329.
- ⁸ For more information on the custom weights, see Jay Zagorsky, "Custom weighting program documentation," <http://www.nlsinfo.org/pub/usersvc/CustomWeight/CustomWeightingProgramDocumentation.htm>.
- ⁹ As defined in this article, race and Hispanic or Latino ethnicity are mutually exclusive categories. The NLSY79 sample was drawn such that it was representative of Blacks, Hispanics, and non-Black non-Hispanics living in the United States in 1979. In this article, these are the three race/ethnic groups considered.
- ¹⁰ The smallest subsamples are those for college-educated Hispanics (90 women) and for Hispanic, Black non-Hispanic, and White women who did not have a year of full-time employment (52, 69, and 77 women, respectively).
- ¹¹ These numbers closely match those for women ages 45 to 50 as of June 2012; a Census Bureau report by Lindsey M. Monte and Renee E. Ellis, "Fertility of women in the United States: June 2012," *Current Population Reports*, P20-575 (U.S. Census Bureau, 2014), shows that 83 percent of women in that age group had a child, with 18 percent having one child, 35 percent two children, and 30 percent three or more children. The women in the NLSY79 sample are somewhat older, ages 47 to 56 in 2012.
- ¹² Similarly, using the NLSY79, Jennie E. Brand and Dwight Davis ("The impact of college education on fertility: evidence for heterogeneous effects," *Demography*, vol. 48, no. 3, August 2011, pp. 863–887) showed that the finding that college decreases fertility is concentrated among women from comparatively disadvantaged social backgrounds and low levels of early achievement. The effects of college on fertility attenuate as women from backgrounds more predictive of college attendance and completion are observed.
- ¹³ Daniel Aaronson, Fabian Lange, and Bhashkar Mazumder ("Fertility transitions along the extensive and intensive margins," *American Economic Review*, vol. 124, no. 3, November 2014, pp. 3701–3724) have examined how improved education affects fertility. Using data for a large-scale school construction program, they found that women who obtained more schooling because of the program delayed childbearing along both the extensive and intensive margins.

[14](#) Using evidence from natural experiments, Rafael Lalive and Josef Zweimüller (“How does parental leave affect fertility and return to work? Evidence from two natural experiments,” *The Quarterly Journal of Economics*, vol. 124, no. 3, August 2009, pp. 1363–1402) found that improved education and earnings result in compressing the time between births.

[15](#) Lalive and Zweimüller (“How does parental leave affect fertility and return to work?”) also found that increases in job-protected parental leave affect both return to work postbirth and the likelihood of having additional children. Mothers who gave birth to first children immediately after reform were more likely to have second children, and extended parental leave significantly reduced return to work.

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