Supplemental Appendices to "Breastfeed, If You Choose: Parental Context and the Long-Term Legacy of Lactation"

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A Theory

Breastfeeding has costs and benefits. Having peers who breastfeed can alter this calculus. In this section, I sketch a model of breastfeeding choices and consequences, with an emphasis on peer effects. The presentation is deliberately informal, as its purpose is to structure the empirical analysis to follow, not to provide detailed proofs. My theoretical approach to breastfeeding is inspired by Rothstein (2013), which itself builds on the more detailed models of Cunha and Heckman (2007).

Mothers face a scarcity of time. During the single period comprising their children's infancy, they may apportion their limited time among labor, L, leisure (R; "recreation"), and direct investments in their children, B, which, to fix ideas, consists exclusively of time spent breastfeeding. These time inputs produce things that mothers' value: present consumption (C), present leisure (R), and their children's outcomes (Y), which are realized in a future period. Preferences depend upon mother observables, $\mathbf{Z}$, and unobservables ν.

Mother's maximize utility

$$U(C, R, Y, \mathbf{Z}, \nu)$$

subject to a time constraint, normalized to sum to one,

$$L + p_R R + p_B B = 1$$

and a resource constraint

$$C \leq w_0 + wL$$

p_R is the price (opportunity cost) of leisure and p_B is the price of breastfeeding, both in units of the price of labor, which bears an inverse relationship to a mother's market wage ($w \propto 1/p_L$). These prices reflect a mother's comparative productivity at performing these activities (greater efficiency means lower price). w_0 is an exogenous resource endowment.

Children's outcomes, Y, are a function of breastfeeding and labor inputs, as well as child birth period observables, $\mathbf{X}$, and unobservables, ε, realized in expectation:

$$Y = E(f_Y(B, \mathbf{X}, \varepsilon)|I(\mathbf{Z}, \nu))$$

with the information set, I, determined by a mother's characteristics. Mother ($\mathbf{Z}$) and child ($\mathbf{X}$) observables overlap; the "at-birth" nature of the latter means maternal traits and circumstances bear greater weight; in particular, $\mathbf{X}$ includes both maternal traits (e.g., education, race, and age), *as well as* realized labor L and leisure R choices. Symmetrically, ε may include unobserved mother characteristics.

Assuming the usual regularity conditions, there exists a solution such that choices can be written in terms of the exogenous primitives of the model. In particular, the reduced-form breastfeeding decision is given by:

$$B = f_B(\mathbf{Z}, \varepsilon, \nu, p_R, p_B, w, w_0)$$

Women breastfeed up until the point the marginal benefits of breastfeeding equal its marginal costs, relative to competing uses of time. The benefits of breastfeeding include documented improvements infant and mother health, speculative gains in longer-term cognitive outcomes, and the enjoyment of time spent together. The costs involve physical hardships and competing uses of time, like returns to work. Especially relevant are corner solutions: no breastfeeding will occur unless the value of its first unit exceeds its opportunity cost at that point: $\partial U/\partial Y \times \partial Y/\partial B(B = 0) > p_B(B = 0)$, where, for simplicity, the relative (to consumption and leisure) nature of the inequality is left implicit. In the absence of breastfeeding, the child is fed with formula, which is captured through consumption, C. There are three basic trade-offs. The first is that, while breastfeeding directly improves children's outcomes, it necessitates a reduction labor and its attendant human-capital augmenting consumption benefits for mother and child. Second, breastfeeding reduces mothers' leisure opportunities. And third, costs are immediate and certain, while benefits are stochastic and asynchronous.

A point bearing emphasis is that breastfeeding is not unambiguously beneficial. All else equal, human milk may be superior to formula, but when time costs are factored the solution is not straightforward. Put differently, breastfeeding is a local optimum where the goal is a global solution. While there are many ways heterogeneity can enter the model, a particularly tractable place is through p_B, the opportunity cost of breastfeeding. To fix ideas, let there be two types of mothers, highly educated (H) and lowly educated (L). H types enjoy white-collar jobs with paid family leave and extensive lactation support, while L types lack these benefits and effectively must not work if breastfeeding; that is, $p_B(H) < p_B(L)$. When a type L mother breastfeeds, more is lost. This basic point extends to many other characteristics.

Related to this insight is a second reminder: mothers are not optimizing child outcomes, they are maximizing their own utility, of which child outcomes, which are influenced by breastfeeding, are one component. A woman who chooses to give up working to breastfeed—due, in part, to a intrinsic or exogenously-influenced preference for breastfeeding—may compromise rather than bolster long-term child outcomes. In other words, breastfeeding may be net beneficial for some children and net detrimental for others.

Correspondingly, the realized (to the econometrician) child outcomes can be written:

$$Y = f_Y(B, \mathbf{X}, \varepsilon)$$

That breastfeeding is the outcome of an maternal optimization problem is, of course, the

central challenging in identifying its causal impact on child outcomes. One hope is that the observed data ($\mathbf{X}$) is sufficiently rich and the error (ε) sufficiently small that conditioning on observables renders a valid contrast, $B \perp \varepsilon|\mathbf{X}$. A second possibility is to limit the comparison to children with plausibly similar ε—for example, siblings or cousins. The downside is that such narrowed comparisons may not generalize—or, more problematic still, the refinement may increase the confounding influence of ν in the choice equation.

A more promising option is to find an instrument $Z \in \mathbf{Z}$ that exogenously shifts the relative price of breastfeeding without directly influencing outcomes ($Z \notin \mathbf{X}$, $Z \perp \varepsilon|\mathbf{X}$). One way to think about the effect of instruments is in changing relative prices (i.e., $\partial p_B/\partial Z$, $\partial p_L/\partial Z$, and/or $\partial p_R/\partial Z$). Finding convincing instruments is difficult and is a topic for future research.

B Data

The raw NLSY-CYA data contains one variable for each question response in each survey round, in addition to "created" variables derived from responses or aggregated across answers—tens of thousands in total[1]. As packaged, variables are attached to survey rounds, not respondent ages. My central data task is to "age normalize" outcomes across survey rounds. The result is five "age-outcome" groups: ages 5, 10, 13, 21, and 25. That is,

The NLSY-CYA measures children's ages in months and years. I define a child's i's age in survey round r as $age_{ir} = year_r - birthyear_i$, irrespective of whether the interview took place before a child's birthday. I transform round-responses to age-responses by assigning age-outcome Y_{ia} at age a for child i the value of the child's response, Y_{ir} in the earliest survey round for which $0 \leq age_{ir} - age_a \leq 2$ and the child was successfully interviewed (given this definition, there are a maximum of two possible interview rounds for each age). The idea is to maximize the sample size of successful responses, while using the outcomes from the interview most proximate to the pivotal age without going younger, given that aging above specific thresholds, like 21 years, can come with important social and legal changes.

B.0.1 Child Outcomes

The NLSY-CYA encompasses an extensive ensemble of enquiries evaluating respondents' early-life experiences. In my main results, I focus on a handful of summary educational and health measures, selected so as to balance breadth with parsimony and familiarity. Alternative outcome metrics, some of which are constituent to the summary outcomes considered here, are available in the Appendix.

I assess the following child outcomes at ages 5, 10, and 13 years:

[1] As is standard in high-quality surveys, responses undergo extensive validation checks within and between survey rounds, and raw responses may be edited or imputed for quality assurance.

- **Peabody Individual Achievement Test (PIAT)**: The PIAT is a common cognitive assessment, popular because it is brief, but know to have high reliability and validity. While the full battery spans five subjects, the NLSY-CYA includes three subtests listed below, administered to children from ages 5–14 years. Scores are normed by age from a 1968 reference sample with mean 100 and standard deviation 15. I standardize these scores to have mean 0 and standard deviation 1 by subtracting 100 and dividing by 15. Consequently, regression results are measured in standard deviation units. Note that these statistics refer to the norming sample; due, presumably, to educational advancements since the 1960's, the weighted NLSY-CYA has PIAT means somewhat higher than 0.

  - **PIAT Math**: The Math subtest is comprised of 84 increasingly difficult multiple choice questions, ranging from number recognition to trigonometry. The lower of five consecutive correct answers or one constitutes a child's "basal"; the child's ceiling is reached when five of seven questions are answered incorrectly. The child's raw score is calculated as $raw\ score = ceiling - postbasal\ incorrects$.
  - **PIAT Reading Recognition**: Also consisting of 84 ascending multiple-choice questions, the Recognition subtest requires children to pronounce written words. Scoring is the same as Math, with the starting point determined by the Math basal.
  - **PIAT Reading Comprehension**: The Comprehension subtest, which consists of 66 ascending-difficulty questions, requires children to read sentences silently and select pictures that best describe the meaning. Scoring is similar to Math, except that children scoring less than 19 on Reading Recognition also receive a 19 for Reading Comprehension; those scoring above 19 have their Recognition score serve as their Comprehension basal.

- **Peabody Picture Vocabulary Test (Revised Edition) (PPVT)**: The PPVT measures children's hearing vocabularies, assessed through 175 questions of increasing difficulty. The interviewer reads words aloud and children select the picture from a set of four that best describes the word's meaning. As with the PIAT, raw scores are computed as $raw\ score = ceiling - postbasal\ incorrects$. The "basal," or baseline, is the highest question number among eight straight correct responses; the "ceiling" is the highest question number attained when a child answers six of eight questions incorrectly. The PPVT is appropriate for children three years and above. However, over the years, the NLSY-CYA has varied as to which children are administered the test; frequently, testing has been limited to younger children or those without a prior test result. The PPVT was normed in 1979, to have age-graded standard scores with mean 100 and standard deviation 15. As with the PIAT, I transform these scores to

be mean 0, standard deviation 1. Unlike the PIAT, NLSY-CYA means coincide closely with the normed sample. Like the PIAT, the PPVT is knwon to have high reliability and validity.

- **Health Problem**: The NLSY-CYA has questions spanning many aspects of health. To create a reasonably comprehensive marker of health challenges, I define an indicator equal to one if a child's mother reported any of: (a) a school attendance limiting health condition, (b) a school work limiting health condition, (c) any illness requiring medical attention, or (d) fair or poor heath (with good and excellent the omitted categories). If none of these apply, the health issue indicator is equal to zero.

- **Behavioral Problems Index (BPI)**; BPI measures behavioral problems in children four years and older through a series of 28 questions administered to their mothers. It covers six topics: (1) antisocial behavior, (2) anxiousness and depression, (3) headstrongness, (4) hyperactivity, (5) immature dependency, and (6) peer conflict and social withdrawal. Single-year age norms were developed through the 1981 National Health Interview Survey (NHIS) Child Supplement, with national means of 100 and standard deviation 15. I transform these scores to have national mean 0 and standard deviation 1, though as with the PIAT, the within-NLSY-CYA mean is somewhat higher than zero.

- **Overweight**: An indicator equal to one if a child has a Body Mass Index (BMI) of 25 or greater and zero otherwise. BMI is calculated as weight (in kilograms) divided by squared height (in meters).

  In the Appendix, I consider several alternative outcome measures for robustness. These are percentiles for cognitive assessments and BPI, as well as disaggregated health issue indicators (school-limiting conditions, medical illness, and fair or poor health), BMI, and an indicator for obesity.

B.0.2 Young Adult Outcomes

I evaluate the following young adult outcomes at ages 21 and 25 years:

- **High School Graduate+**: An indicator equal to one if a young adult has completed 12th grade or higher, or reports having graduated high school, and zero otherwise.

- **Some College+**: An indicator equal to one if a young adult has completed at least one year of college and zero otherwise.

- **Years of Education**: The precise manner in which the NLSY-CYA has asked respondents about years of completed education has evolved over time. For the 1994–2012

rounds, it is equal to highest grade completed. For the 2014–2016 rounds, I impute from educational attainment categories (e.g., 8th grade or less = 8 years; some high school = 10; high school grad = 12; post-high-school training = 13; some college or associate degree = 14; bachelor's degree = 16; some grad school = 17; master's degree = 18;; some post-master's = 19; doctoral or professional degree = 20).

- **Employed**: An indicator equal to one if a young adult reports usually working at a job at least one hour per week and zero otherwise.

- **In School or Working**: An indicator equal to one if a young adult is attending or enrolled in school, or employed.

- **Log Earned Income**: The natural logarithm of total income from wages, salary, commission, or tips in 2019 dollars, plus one.

- **Public Benefits**: An indicator equal to one if a young adult reports receiving any of public assistance/welfare, Food Stamps, or Medicaid/publicly-assisted health insurance, and zero otherwise.

- **Health Problem**: Analogous to the child health issue outcome, I define an indicator equal to one if a young adult reports any of: (a) a school or work limiting condition, (b) a condition requiring medical attention, regular medication, or special equipment, (c) any illness requiring medical attention, or (d) fair or poor heath (with good, very good, and excellent the omitted categories). If none of these apply, the health issue indicator is equal to zero.

- **Overweight**: An indicator equal to one if a young adult has a BMI of 25 or greater and zero otherwise. BMI is calculated as weight (in kilograms) divided by squared height (in meters).

- **Premarital Childbearing**: An indicator equal to one if a young adult had a child before marriage and the outcome age in question, and zero otherwise.

These outcomes collectively encompass a broad range of educational, labor market, health, and family formation behaviors. In the Appendix, I investigate additional outcomes—entailing either disaggregations of compound measures or alternative definitions—for robustness and clarity. By domain, they are: **educational attainment** (mutually exclusive indicators for less than HS, HS graduate, some college, college 4+ years, as well as an indicator for college graduation)[2]; **labor market** (an indicator for employment based on reported work status, an indicator for employment based on positive income, and earned income in 2019 dollars); **public benefits** (indicators for receipt of public assistance, Food Stamps, and

[2]Prior to 2014, the NLSY-CYA data for college graduation was somewhat sparse.

Medicaid (or other public health insurance)); **health** (indicators for school limiting health condition, medical condition, medical illness, and fair or poor health; raw BMI; and an indicator for obesity); and **family formation** (indicators for living in parents' household, having children, ever marrying, and ever cohabiting).

Much more detail about these outcomes is available in the NLSY documentation.

C Sample Nonresponse

Beyond definitions, another concern is the self-reported nature of survey data. In particular, not every individual responds to every question in every survey round—if they respond at all. If the nature of the missing data is not random, it may bias the results.

Table A.9 investigates sample selection in the context of survey nonresponse. (Table A.10 repeats the analysis without using survey weights[3].) It follows a similar layout as earlier tables, except with interview responses at outcome ages of interest as the dependent variables (indexed by rows). Column 1 gives the overall response rate, while the cells in Cols 2–4 give the coefficients on breastfeeding from separate regressions using the column-enumerated estimation method (as in the main analysis, all regressions control for full covariates and are weighted using custom longitudinal weights). Response rates are around 80 percent during childhood and drop to about 75 percent during the young adult years, in part because not all NLSY-CYA are 21 or 25 years old by 2016. Only about half of respondents participate at all ages I consider. Beyond the prevalence of nonresponse, what is especially notable is that breastfed individuals are significantly more likely to participate, by 3–4 pp at all ages except 25 (Col 2). This is also true within the extended family fixed effects sample, particularly at early ages.

Table A.11 further underscores the non-random nature of survey response. Among both breastfed and non-breastfed groups, outcomes are notably better among those who respond at all five outcome ages I study. While this does not say anything about the outcomes of those not responding at particular ages, it is strongly indicative of positive selection: nonresponders have, on average, worse outcomes.

Together, these facts— higher response rates among the breastfed and worse outcomes for nonresponders—suggests the main results could be understated, since the breastfeeding sample is more complete and presumably includes more individuals with worse outcomes. On the other hand, if nonresponding breastfeeders perform significantly worse than nonresponding non-breastfeeders, the bias could operate in the opposite direction (e.g., breastfeeding is associated with positive traits, so to be breastfed and still not respond implies greater disadvantage).

Tables A.12 (children) and A.13 (young adults) study this question, repeating the OLS

[3] I do not investigate item nonresponse separately.

specifications from the main analysis for the sample limited to those who responding to all five interviews. An instructive pattern emerges. While qualitatively consistent with the main analysis, results for ages 5–21 are somewhat muted, while age 25 results are mildly accentuated. This is in keeping with a modest upward bias imparted by differential nonresponse: positive selection is stronger among breastfed individuals, but, as Table A.9 indicates, appears to disappear by age 25. In other words, limiting the sample to consistent-responders is an additional control, implicitly holding constant traits, like diligence, associated with responsiveness. If this story is true, it would help explain the observed diminution of breastfeeding effects with time: perhaps the early effects are exaggerated to begin with.

D Supplementary Tables

Table A.1: NLSY-CYA (1986-2016 Cycles)
Ages at Interview

Age at Interview	Count	Pct.
A. Age 5 Interview		
5	3,837	46.6
6	3,812	46.3
7	581	7.1
Total	8,230	100.0
B. Age 10 Outcomes		
10	3,951	47.6
11	4,041	48.7
12	308	3.7
Total	8,300	100.0
C. Age 13 Outcomes		
13	3,869	48.9
14	3,720	47.1
15	317	4.0
Total	7,906	100.0
D. Age 21 Outcomes		
21	3,410	50.4
22	3,119	46.1
23	238	3.5
Total	6,767	100.0
E. Age 25 Outcomes		
25	2,901	50.3
26	2,667	46.2
27	204	3.5
Total	5,772	100.0

Each panel gives the age distribution of respondents at the given age-interview survey. Ages are computed as calendar interview year minus calendar birth year.

Table A.2: NLSY-CYA Births and Breastfeeding Rates by Birth Year

	Births	% Breastfed
1970	1	0.0
1971	3	33.3
1972	10	0.0
1973	39	15.4
1974	77	7.8
1975	156	12.8
1976	234	19.7
1977	292	20.2
1978	374	26.2
1979	513	34.3
1980	599	31.9
1981	700	40.0
1982	696	40.7
1983	708	47.6
1984	635	42.4
1985	650	47.8
1986	540	50.4
1987	553	48.1
1988	538	50.4
1989	606	46.0
1990	477	49.3
1991	403	56.3
1992	257	55.6
1993	206	61.2
1994	297	64.0
1995	242	62.4
1996	229	61.1
1997	212	67.9
1998	154	70.1
1999	127	69.3
2000	98	71.4
2001	75	68.0
2002	45	77.8
2003	33	78.8
2004	23	82.6
2005	15	60.0
2006	10	30.0
2007	4	75.0
2008	3	33.3
2009	3	100.0
2010	2	100.0
2011	2	0.0
2014	1	100.0
Total	10,842	45.6

NLSY-CYA births and (unweighted) breastfeeding rates by year of birth (1986-2016 cycles).

Table A.3: Child Alternative Outcomes

	Age 5			Age 10			Age 13		
	(1) OLS	(2) MOM	(3) EXT	(4) OLS	(5) MOM	(6) EXT	(7) OLS	(8) MOM	(9) EXT
Math Pct.	2.430**	3.748*	2.405	3.209**	-1.276	-0.754	3.334**	0.371	0.909
	(0.975)	(2.068)	(2.121)	(0.909)	(1.543)	(1.639)	(0.938)	(1.631)	(1.729)
	{5,710}	{906}	{1,319}	{7,105}	{1,448}	{1,903}	{6,315}	{1,256}	{1,679}
Read Recog. Pct.	2.026**	0.922	-1.001	2.247**	1.661	1.301	3.116**	0.410	-0.073
	(0.859)	(1.735)	(1.759)	(0.960)	(1.559)	(1.687)	(1.018)	(1.671)	(1.833)
	{5,600}	{881}	{1,293}	{7,101}	{1,442}	{1,896}	{6,323}	{1,255}	{1,675}
Read Comp. Pct.	0.717	6.183**	3.764	3.251**	0.075	-0.023	3.425**	-0.621	-0.541
	(0.742)	(2.737)	(3.130)	(0.909)	(1.557)	(1.645)	(0.933)	(1.557)	(1.701)
	{1,957}	{118}	{182}	{6,989}	{1,409}	{1,857}	{6,269}	{1,227}	{1,636}
Vocab. Pct.	2.573**	-2.694	-0.472	2.936**	0.236	-0.811	-3.112	-10.686	-16.313
	(1.163)	(2.593)	(2.529)	(1.038)	(1.657)	(1.845)	(2.616)	(6.672)	(11.105)
	{4,237}	{518}	{801}	{6,024}	{1,076}	{1,444}	{857}	{40}	{45}
Limiting Condition	0.002	-0.015	-0.015	0.003	-0.006	-0.007	0.008	-0.001	-0.005
	(0.006)	(0.015)	(0.015)	(0.007)	(0.016)	(0.017)	(0.007)	(0.016)	(0.017)
	{6,514}	{1,061}	{1,561}	{7,730}	{1,594}	{2,125}	{7,011}	{1,432}	{1,926}
Medical Illness	0.014	-0.025	0.001	-0.002	0.011	0.024	0.026*	0.048*	0.046
	(0.017)	(0.030)	(0.031)	(0.015)	(0.028)	(0.030)	(0.016)	(0.029)	(0.030)
	{7,744}	{1,497}	{2,104}	{7,766}	{1,611}	{2,143}	{7,097}	{1,450}	{1,945}
Fair-Poor Health	-0.010	-0.009	-0.025	-0.010	-0.004	-0.003	-0.015**	0.007	0.011
	(0.011)	(0.024)	(0.029)	(0.006)	(0.017)	(0.017)	(0.007)	(0.018)	(0.018)
	{1,631}	{94}	{165}	{4,676}	{659}	{980}	{4,933}	{840}	{1,145}
BPI Pct.	-0.013	-0.027*	-0.037**	-0.009	0.009	-0.001	0.018*	-0.002	0.000
	(0.010)	(0.015)	(0.016)	(0.010)	(0.014)	(0.015)	(0.010)	(0.015)	(0.016)
	{7,347}	{1,337}	{1,910}	{7,376}	{1,475}	{1,988}	{6,764}	{1,337}	{1,793}
BMI	0.046	0.037	0.037	-0.355**	-0.000	-0.083	-0.252	-0.201	-0.185
	(0.437)	(0.988)	(0.953)	(0.156)	(0.253)	(0.279)	(0.162)	(0.300)	(0.324)
	{7,138}	{1,308}	{1,862}	{7,225}	{1,436}	{1,917}	{6,721}	{1,332}	{1,810}
Obese	0.002	0.001	0.001	-0.003	-0.000	0.000	-0.019**	-0.022	-0.024
	(0.002)	(0.002)	(0.003)	(0.005)	(0.011)	(0.011)	(0.007)	(0.015)	(0.016)
	{7,790}	{1,513}	{2,130}	{7,874}	{1,659}	{2,204}	{7,490}	{1,601}	{2,144}

Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes all births with nonmissing breastfeeding status and outcomes. All regressions are weighted using NLSY-CYA longitudinal custom weights for the age-interview sample. Standard errors clustered by mother in parentheses. Number of observations in braces; for fixed effects specifications, counts refer to observations contributing to breastfeeding identification. * $p < 0.10$, ** $p < 0.05$

Table A.4A: Young Adult: Alternative Outcomes

	Age 21			Age 25		
	(1) OLS	(2) MOM	(3) EXT	(4) OLS	(5) MOM	(6) EXT
Less than HS	-0.025**	-0.008	-0.001	-0.027**	0.010	-0.000
	(0.012)	(0.024)	(0.025)	(0.012)	(0.025)	(0.026)
	{5,751}	{1,069}	{1,489}	{5,267}	{965}	{1,291}
High School Grad	-0.020	0.014	-0.001	-0.004	-0.021	-0.021
	(0.017)	(0.035)	(0.037)	(0.018)	(0.037)	(0.040)
	{5,751}	{1,069}	{1,489}	{5,267}	{965}	{1,291}
Some College	0.047**	-0.003	0.004	0.027	-0.027	-0.013
	(0.018)	(0.031)	(0.033)	(0.018)	(0.034)	(0.037)
	{5,751}	{1,069}	{1,489}	{5,267}	{965}	{1,291}
College 4+ Years	-0.014	-0.022	-0.019	-0.004	0.004	0.002
	(0.009)	(0.017)	(0.017)	(0.017)	(0.027)	(0.030)
	{5,751}	{1,069}	{1,489}	{5,267}	{965}	{1,291}
College Grad	-0.004	-0.009	-0.007	0.004	0.017	0.020
	(0.007)	(0.013)	(0.013)	(0.016)	(0.028)	(0.030)
	{5,751}	{1,069}	{1,489}	{5,278}	{969}	{1,295}
Employed (Status)	0.008	-0.034	-0.021	0.013	-0.045	-0.007
	(0.017)	(0.036)	(0.039)	(0.017)	(0.030)	(0.034)
	{5,835}	{1,146}	{1,541}	{4,862}	{875}	{1,152}
In School	0.045**	0.007	0.010	0.011	0.007	-0.008
	(0.017)	(0.029)	(0.031)	(0.013)	(0.027)	(0.030)
	{6,351}	{1,277}	{1,726}	{5,585}	{1,088}	{1,424}
Earnings (2019$)	134.295	-816.631	-569.452	-651.200	-624.538	-75.553
	(561.643)	(1085.803)	(1176.002)	(1016.843)	(1765.590)	(1910.398)
	{5,294}	{934}	{1,266}	{4,946}	{902}	{1,174}
Employed (Income)	-0.005	0.017	0.015	-0.006	0.006	0.005
	(0.013)	(0.029)	(0.031)	(0.012)	(0.025)	(0.028)
	{5,294}	{934}	{1,266}	{4,946}	{902}	{1,174}
Public Assistance	0.004	0.009	0.008	-0.005	-0.008	-0.011
	(0.005)	(0.011)	(0.011)	(0.006)	(0.014)	(0.015)
	{6,333}	{1,269}	{1,714}	{5,568}	{1,084}	{1,419}
Food Stamps	-0.011	-0.003	0.008	0.005	0.005	-0.002
	(0.009)	(0.022)	(0.023)	(0.012)	(0.023)	(0.026)
	{6,336}	{1,274}	{1,720}	{5,571}	{1,085}	{1,420}
Medicaid	-0.011	-0.045	-0.036	-0.008	-0.027	-0.023
	(0.012)	(0.028)	(0.029)	(0.012)	(0.026)	(0.028)
	{5,189}	{917}	{1,280}	{5,515}	{1,065}	{1,399}

Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes all births with nonmissing breastfeeding status and outcomes. All regressions are weighted using NLSY-CYA longitudinal custom weights for the age-interview sample. Standard errors clustered by mother in parentheses. Number of observations in braces. * $p < 0.10$, ** $p < 0.05$

Table A.4B: Young Adult: Alternative Outcomes

	Age 21			Age 25		
	(1) OLS	(2) MOM	(3) EXT	(4) OLS	(5) MOM	(6) EXT
Limiting Condition	0.003	-0.006	-0.001	0.004	0.009	0.007
	(0.005)	(0.011)	(0.011)	(0.005)	(0.013)	(0.014)
	{6,007}	{1,166}	{1,584}	{5,202}	{953}	{1,266}
Medical Condition	-0.001	-0.016	-0.025	-0.007	-0.001	-0.005
	(0.009)	(0.022)	(0.022)	(0.010)	(0.021)	(0.022)
	{5,897}	{1,121}	{1,528}	{5,114}	{917}	{1,222}
Medical Illness	0.008	0.021	0.002	0.027	0.062	0.053
	(0.017)	(0.040)	(0.042)	(0.017)	(0.039)	(0.043)
	{4,415}	{674}	{952}	{4,930}	{897}	{1,196}
Fair-Poor Health	0.002	0.023	0.010	-0.004	-0.005	-0.015
	(0.010)	(0.025)	(0.026)	(0.012)	(0.023)	(0.025)
	{6,090}	{1,176}	{1,616}	{5,579}	{1,088}	{1,423}
BMI	-0.155	0.390	0.260	-0.486**	-0.285	-0.356
	(0.182)	(0.387)	(0.404)	(0.244)	(0.480)	(0.532)
	{6,281}	{1,253}	{1,691}	{5,523}	{1,063}	{1,396}
Obese	-0.015	-0.016	-0.006	-0.014	-0.017	-0.017
	(0.012)	(0.024)	(0.026)	(0.013)	(0.027)	(0.029)
	{6,353}	{1,277}	{1,726}	{5,587}	{1,088}	{1,424}
In Parents' Household	-0.033*	0.052	0.027	-0.026	0.003	-0.021
	(0.017)	(0.035)	(0.037)	(0.016)	(0.032)	(0.036)
	{6,352}	{1,276}	{1,725}	{5,585}	{1,087}	{1,423}
Has Child	-0.014	-0.000	0.014	-0.011	-0.007	0.006
	(0.013)	(0.023)	(0.025)	(0.017)	(0.032)	(0.036)
	{6,354}	{1,277}	{1,726}	{5,587}	{1,088}	{1,424}
Ever Married	-0.003	-0.022	-0.003	0.017	-0.020	-0.000
	(0.012)	(0.020)	(0.021)	(0.017)	(0.032)	(0.035)
	{6,354}	{1,277}	{1,726}	{5,587}	{1,088}	{1,424}
Ever Cohabitated	0.015	0.015	0.031	-0.022	-0.031	-0.017
	(0.017)	(0.032)	(0.033)	(0.018)	(0.035)	(0.039)
	{6,354}	{1,277}	{1,726}	{5,587}	{1,088}	{1,424}

Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes all births with nonmissing breastfeeding status and outcomes. All regressions are weighted using NLSY-CYA longitudinal custom weights for the age-interview sample. Standard errors clustered by mother in parentheses. Number of observations in braces; for fixed effects specifications, counts refer to observations contributing to breastfeeding identification.
* $p < 0.10$, ** $p < 0.05$

Table A.5: Descriptive Alternative Child Outcome Statistics, NLSY-CYA 1986-2016 Breastfeeding Sample

	Overall			Breastfeeding Comparison				
	Mean	SD	Obs	Yes	No	Diff	SE	T-Stat
A. Age 5 Outcomes								
Math Pct.	54.90	27.88	5,710	59.70	48.58	11.12**	0.97	11.51
Read Recog. Pct.	65.24	25.17	5,600	69.48	59.64	9.84**	0.87	11.28
Read Comp. Pct.	75.81	16.75	1,957	78.12	72.73	5.38**	0.91	5.92
Vocab. Pct.	42.32	30.54	4,237	48.53	33.90	14.63**	1.23	11.90
Limiting Condition	0.03	0.17	6,514	0.03	0.03	-0.00	0.01	-0.77
Medical Illness	0.42	0.49	7,744	0.45	0.38	0.07**	0.02	4.81
Fair-Poor Health	0.02	0.14	1,631	0.02	0.03	-0.01	0.01	-1.20
BPI Pct.	0.55	0.28	7,347	0.52	0.58	-0.06**	0.01	-6.16
BMI	14.26	18.19	7,138	14.78	13.59	1.19**	0.32	3.69
Obese	0.00	0.06	7,790	0.00	0.00	0.00	0.00	0.31
B. Age 10 Outcomes								
Math Pct.	59.54	28.39	7,105	66.26	51.33	14.93**	0.89	16.81
Read Recog. Pct.	62.30	28.45	7,101	67.86	55.51	12.35**	0.93	13.21
Read Comp. Pct.	55.54	27.30	6,989	61.01	48.84	12.17**	0.89	13.73
Vocab. Pct.	47.75	30.36	6,024	55.15	38.89	16.26**	1.06	15.39
Limiting Condition	0.05	0.22	7,730	0.05	0.05	-0.01	0.01	-0.97
Medical Illness	0.30	0.46	7,766	0.31	0.27	0.04**	0.01	2.84
Fair-Poor Health	0.03	0.16	4,676	0.02	0.04	-0.02**	0.01	-3.23
BPI Pct.	0.58	0.28	7,376	0.56	0.62	-0.06**	0.01	-6.03
BMI	18.62	5.74	7,225	18.64	18.60	0.04	0.16	0.26
Obese	0.02	0.15	7,874	0.02	0.03	-0.01**	0.00	-2.92
C. Age 13 Outcomes								
Math Pct.	56.28	27.91	6,315	62.93	48.28	14.65**	0.94	15.64
Read Recog. Pct.	61.15	28.94	6,323	67.41	53.63	13.78**	0.99	13.86
Read Comp. Pct.	48.75	27.02	6,269	54.71	41.59	13.12**	0.91	14.35
Vocab. Pct.	38.42	30.90	857	44.03	34.25	9.78**	2.95	3.31
Limiting Condition	0.05	0.21	7,011	0.05	0.05	-0.00	0.01	-0.30
Medical Illness	0.27	0.44	7,097	0.29	0.24	0.05**	0.01	3.68
Fair-Poor Health	0.04	0.19	4,933	0.03	0.05	-0.03**	0.01	-3.78
BPI Pct.	0.60	0.28	6,764	0.58	0.61	-0.03**	0.01	-3.01
BMI	21.38	5.42	6,721	21.04	21.80	-0.75**	0.17	-4.40
Obese	0.05	0.23	7,490	0.04	0.08	-0.04**	0.01	-6.31

This table summarizes outcomes for the 1986–2016 NLSY-CYA sample with reported breastfeeding statuses. Columns 1–3 give overall means, standard deviations, and sample sizes. Cols 4–8 give mean comparisons by breastfeeding status, with respective group means for breastfed and not breastfed in Cols 4 and 5, point estimates for the mean differences in Col 6, and associated standard errors and test statistics in Cols 7 and 8. Results are obtained from separate bivariate OLS regressions of each outcome on the breastfeeding treatment indicator. Unit of observation is individual child. All statistics are weighted using NLSY-CYA longitudinal custom weights for the corresponding age-outcome sample. * $p < 0.10$, ** $p < 0.05$

Table A.6: Descriptive Alternative Young Adult Outcome Statistics, NLSY-CYA 1986-2016 Breastfeeding Sample

	Overall			Breastfeeding Comparison				
	Mean	SD	Obs	Yes	No	Diff	SE	T-Stat
A. Age 21 Outcomes								
Less than HS	0.13	0.34	5,751	0.08	0.19	-0.10**	0.01	-9.25
High School Grad	0.33	0.47	5,751	0.28	0.38	-0.10**	0.02	-6.62
Some College	0.51	0.50	5,751	0.60	0.41	0.18**	0.02	10.50
College 4+ Years	0.07	0.25	5,751	0.08	0.05	0.03**	0.01	3.39
College Grad	0.04	0.19	5,751	0.05	0.02	0.03**	0.01	3.78
Employed (Status)	0.67	0.47	5,835	0.69	0.65	0.04**	0.02	2.68
In School	0.42	0.49	6,351	0.50	0.33	0.17**	0.02	10.37
Earnings (2019$)	13620	14220	5,294	13571	13676	-105	504	-0.21
Employed (Income)	0.86	0.34	5,294	0.88	0.84	0.04**	0.01	3.86
Public Assistance	0.02	0.15	6,333	0.02	0.03	-0.01**	0.00	-2.14
Food Stamps	0.09	0.28	6,336	0.06	0.12	-0.07**	0.01	-7.69
Medicaid	0.13	0.34	5,189	0.10	0.17	-0.07**	0.01	-6.54
Limiting Condition	0.02	0.14	6,007	0.02	0.02	0.00	0.00	0.23
Medical Condition	0.06	0.24	5,897	0.07	0.05	0.02**	0.01	2.27
Medical Illness	0.22	0.41	4,415	0.23	0.20	0.03**	0.02	2.19
Fair-Poor Health	0.10	0.30	6,090	0.09	0.10	-0.01	0.01	-1.56
BMI	21.98	9.74	6,281	20.63	23.44	-2.81**	0.32	-8.89
Obese	0.14	0.34	6,353	0.11	0.17	-0.06**	0.01	-5.47
In Parents' Household	0.54	0.50	6,352	0.54	0.53	0.01	0.02	0.58
Has Child	0.21	0.41	6,354	0.14	0.28	-0.14**	0.01	-10.74
Ever Married	0.12	0.32	6,354	0.10	0.13	-0.02**	0.01	-2.26
Ever Cohabitated	0.38	0.48	6,354	0.34	0.41	-0.07**	0.02	-4.22
B. Age 25 Outcomes								
Less than HS	0.12	0.32	5,267	0.08	0.16	-0.08**	0.01	-7.25
High School Grad	0.32	0.47	5,267	0.27	0.36	-0.09**	0.02	-5.47
Some College	0.45	0.50	5,267	0.49	0.40	0.09**	0.02	5.04
College 4+ Years	0.27	0.44	5,267	0.34	0.20	0.14**	0.02	7.99
College Grad	0.25	0.43	5,278	0.32	0.18	0.14**	0.02	8.18
Employed (Status)	0.75	0.43	4,862	0.79	0.72	0.07**	0.02	4.42
In School	0.16	0.36	5,585	0.18	0.14	0.04**	0.01	3.23
Earnings (2019$)	29292	25628	4,946	31383	27274	4110**	989	4.15
Employed (Income)	0.88	0.33	4,946	0.89	0.86	0.03**	0.01	3.06
Public Assistance	0.03	0.17	5,568	0.02	0.04	-0.02**	0.01	-3.70
Food Stamps	0.15	0.35	5,571	0.11	0.18	-0.07**	0.01	-6.53
Medicaid	0.14	0.35	5,515	0.11	0.17	-0.06**	0.01	-5.61
Limiting Condition	0.02	0.14	5,202	0.02	0.02	0.00	0.01	0.50
Medical Condition	0.06	0.24	5,114	0.07	0.06	0.01	0.01	0.81
Medical Illness	0.23	0.42	4,930	0.24	0.21	0.03**	0.01	2.18
Fair-Poor Health	0.12	0.32	5,579	0.10	0.13	-0.03**	0.01	-3.05
BMI	20.07	12.59	5,523	18.45	21.60	-3.16**	0.43	-7.29
Obese	0.17	0.37	5,587	0.14	0.20	-0.06**	0.01	-4.92
In Parents' Household	0.26	0.44	5,585	0.23	0.28	-0.05**	0.02	-3.30
Has Child	0.40	0.49	5,587	0.32	0.48	-0.16**	0.02	-9.31
Ever Married	0.32	0.47	5,587	0.34	0.31	0.03*	0.02	1.80
Ever Cohabitated	0.61	0.49	5,587	0.57	0.65	-0.08**	0.02	-4.36

This table summarizes outcomes for the 1986–2016 NLSY-CYA sample with reported breastfeeding statuses. Columns 1–3 give overall means, standard deviations, and sample sizes. Cols 4–8 give mean comparisons by breastfeeding status, with respective group means for breastfed and not breastfed in Cols 4 and 5, point estimates for the mean differences in Col 6, and associated standard errors and test statistics in Cols 7 and 8. Results are obtained from separate bivariate OLS regressions of each outcome on the breastfeeding treatment indicator. Unit of observation is individual child. All statistics are weighted using NLSY-CYA longitudinal custom weights for the corresponding age-outcome sample. * $p < 0.10$, ** $p < 0.05$

Table A.7: Child Outcomes: Unweighted

	Age 5			Age 10			Age 13		
	(1) OLS	(2) MOM	(3) EXT	(4) OLS	(5) MOM	(6) EXT	(7) OLS	(8) MOM	(9) EXT
Math	0.085**	0.030	0.005	0.086**	-0.049	-0.033	0.104**	-0.017	0.002
	(0.028)	(0.055)	(0.058)	(0.026)	(0.045)	(0.049)	(0.027)	(0.049)	(0.054)
	{5,710}	{906}	{1,319}	{7,105}	{1,448}	{1,903}	{6,315}	{1,256}	{1,679}
Reading Recog.	0.071**	0.029	-0.057	0.075**	0.059	0.043	0.084**	-0.032	-0.054
	(0.026)	(0.054)	(0.058)	(0.029)	(0.048)	(0.053)	(0.032)	(0.052)	(0.057)
	{5,600}	{881}	{1,293}	{7,101}	{1,442}	{1,896}	{6,323}	{1,255}	{1,675}
Reading Comp.	0.012	0.166	0.061	0.104**	0.021	0.020	0.117**	-0.032	-0.018
	(0.033)	(0.113)	(0.137)	(0.026)	(0.043)	(0.048)	(0.025)	(0.043)	(0.047)
	{1,964}	{120}	{184}	{6,989}	{1,409}	{1,857}	{6,269}	{1,227}	{1,636}
Vocabulary	0.108**	-0.101	-0.028	0.144**	0.036	0.018	-0.029	-0.230	-0.534
	(0.043)	(0.092)	(0.098)	(0.037)	(0.068)	(0.074)	(0.086)	(0.303)	(0.457)
	{4,237}	{518}	{801}	{6,024}	{1,076}	{1,444}	{857}	{40}	{45}
Health Problem	0.027**	-0.046*	-0.027	0.012	0.013	0.014	0.038**	0.030	0.041*
	(0.013)	(0.024)	(0.025)	(0.013)	(0.021)	(0.023)	(0.013)	(0.024)	(0.025)
	{7,759}	{1,505}	{2,114}	{7,806}	{1,629}	{2,164}	{7,123}	{1,458}	{1,953}
Behavior (BPI)	-0.033	-0.108**	-0.113**	0.008	0.055	0.040	0.041	-0.011	-0.011
	(0.029)	(0.046)	(0.049)	(0.029)	(0.041)	(0.045)	(0.030)	(0.046)	(0.050)
	{7,347}	{1,337}	{1,910}	{7,376}	{1,475}	{1,988}	{6,764}	{1,337}	{1,793}
Overweight	-0.005	-0.002	-0.001	-0.007	0.023	0.018	-0.000	0.027	0.022
	(0.004)	(0.008)	(0.008)	(0.008)	(0.015)	(0.016)	(0.010)	(0.019)	(0.021)
	{7,790}	{1,513}	{2,130}	{7,874}	{1,659}	{2,204}	{7,490}	{1,601}	{2,144}

This table repeats Table 5 without sample weights. Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates; the difference from the main text is that the regressions are not weighted. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes all births with nonmissing breastfeeding status, outcomes, and covariates. Standard errors clustered by mother in parentheses. Number of observations in braces; for fixed effects specifications, counts refer to observations contributing to breastfeeding identification. * $p < 0.10$, ** $p < 0.05$

Table A.8: Young Adult Outcomes: Unweighted

	Age 21			Age 25		
	(1) OLS	(2) MOM	(3) EXT	(4) OLS	(5) MOM	(6) EXT
High School Grad+	0.026**	0.006	0.005	0.027**	-0.025	-0.009
	(0.011)	(0.021)	(0.023)	(0.011)	(0.023)	(0.024)
	{5,751}	{1,069}	{1,489}	{5,267}	{965}	{1,291}
Some College+	0.042**	-0.025	-0.010	0.042**	0.000	0.016
	(0.014)	(0.025)	(0.027)	(0.015)	(0.028)	(0.031)
	{5,751}	{1,069}	{1,489}	{5,267}	{965}	{1,291}
Years of Education	0.122**	-0.056	-0.015	0.114*	-0.071	-0.013
	(0.049)	(0.090)	(0.093)	(0.066)	(0.110)	(0.120)
	{5,751}	{1,072}	{1,492}	{5,267}	{965}	{1,291}
Employed	0.009	-0.013	0.005	-0.002	-0.027	-0.001
	(0.015)	(0.030)	(0.032)	(0.015)	(0.028)	(0.032)
	{5,927}	{1,169}	{1,569}	{4,922}	{892}	{1,174}
In School or Working	0.017	-0.027	-0.012	0.001	-0.013	0.003
	(0.012)	(0.026)	(0.027)	(0.014)	(0.027)	(0.030)
	{6,140}	{1,210}	{1,631}	{5,014}	{917}	{1,203}
Log Earned Income	0.056	0.197	0.268	-0.092	-0.118	-0.046
	(0.111)	(0.238)	(0.259)	(0.122)	(0.249)	(0.272)
	{5,294}	{934}	{1,266}	{4,946}	{902}	{1,174}
Public Benefits	-0.004	-0.007	-0.002	0.000	-0.014	-0.022
	(0.011)	(0.022)	(0.023)	(0.013)	(0.027)	(0.029)
	{6,349}	{1,275}	{1,723}	{5,579}	{1,087}	{1,422}
Health Problem	0.022*	0.012	-0.000	0.027*	0.043	0.030
	(0.013)	(0.027)	(0.028)	(0.015)	(0.029)	(0.031)
	{6,337}	{1,271}	{1,718}	{5,583}	{1,088}	{1,423}
Overweight	-0.016	0.007	-0.001	-0.015	0.036	0.018
	(0.014)	(0.026)	(0.028)	(0.014)	(0.027)	(0.029)
	{6,353}	{1,277}	{1,726}	{5,587}	{1,088}	{1,424}
Premarital Child	-0.023*	-0.019	-0.009	-0.028*	-0.016	-0.022
	(0.012)	(0.024)	(0.025)	(0.014)	(0.029)	(0.031)
	{6,354}	{1,277}	{1,726}	{5,587}	{1,088}	{1,424}

This table repeats Table 5 without sample weights. Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates; the difference from the main text is that the regressions are not weighted. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes all births with nonmissing breastfeeding status, outcomes, and covariates. Standard errors clustered by mother in parentheses. Number of observations in braces; for fixed effects specifications, counts refer to observations contributing to breastfeeding identification. * $p < 0.10$, ** $p < 0.05$

Table A.9: Interview Responses

	(1) Mean	(2) OLS	(3) MOM	(4) EXT
Interview Response Age 5	0.811**	0.034**	0.048**	0.038**
	(0.572)	(0.010)	(0.016)	(0.017)
	{10,841}	{10,841}	{2,501}	{3,292}
Interview Response Age 10	0.821**	0.035**	0.035**	0.030*
	(0.599)	(0.012)	(0.016)	(0.017)
	{10,827}	{10,827}	{2,499}	{3,283}
Interview Response Age 13	0.795**	0.037**	0.021	0.026
	(0.656)	(0.013)	(0.014)	(0.017)
	{10,779}	{10,779}	{2,476}	{3,256}
Interview Response Age 21	0.748**	0.029**	0.012	0.013
	(0.664)	(0.014)	(0.019)	(0.020)
	{9,806}	{9,806}	{2,168}	{2,813}
Interview Response Age 25	0.738**	0.008	-0.006	-0.017
	(0.656)	(0.014)	(0.019)	(0.021)
	{8,804}	{8,804}	{1,895}	{2,415}
Responded to All Interviews	0.533**	0.022	0.010	0.015
	(0.751)	(0.015)	(0.020)	(0.022)
	{8,804}	{8,804}	{1,895}	{2,415}

Rows enumerate outcomes and columns indicate estimation methods. Outcomes are binary indicators for having responded to the age-interview in question. Column 1 gives outcome means with standard deviations in parentheses. Columns 2–4 give main results. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes all births with nonmissing breastfeeding status and outcomes. All regressions are weighted using NLSY-CYA longitudinal custom weights for the full NLSY-CYA sample through 2016. Standard errors clustered by mother in parentheses. Number of observations in braces; for fixed effects specifications, counts refer to observations contributing to breastfeeding identification. * $p < 0.10$, ** $p < 0.05$

Table A.10: Interview Responses: Unweighted

	(1) Mean	(2) OLS	(3) MOM	(4) EXT
Interview Response Age 5	0.719**	0.025**	0.031**	0.025
	(0.562)	(0.010)	(0.015)	(0.016)
	{10,841}	{10,841}	{2,501}	{3,292}
Interview Response Age 10	0.727**	0.024**	0.026*	0.016
	(0.608)	(0.011)	(0.014)	(0.015)
	{10,827}	{10,827}	{2,499}	{3,283}
Interview Response Age 13	0.695**	0.027**	0.006	0.006
	(0.651)	(0.011)	(0.013)	(0.014)
	{10,779}	{10,779}	{2,476}	{3,256}
Interview Response Age 21	0.648**	0.030**	0.017	0.013
	(0.658)	(0.012)	(0.014)	(0.016)
	{9,806}	{9,806}	{2,168}	{2,813}
Interview Response Age 25	0.635**	0.017	-0.006	-0.016
	(0.663)	(0.013)	(0.015)	(0.017)
	{8,804}	{8,804}	{1,895}	{2,415}
Responded to All Interviews	0.444**	0.020	-0.002	0.004
	(0.639)	(0.013)	(0.017)	(0.020)
	{8,804}	{8,804}	{1,895}	{2,415}

Rows enumerate outcomes and columns indicate estimation methods. Outcomes are binary indicators for having responded to the age-interview in question. Column 1 gives outcome means with standard deviations in parentheses. Columns 2–4 give main results. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes all births with nonmissing breastfeeding status and outcomes. All regressions are unweighted. Standard errors clustered by mother in parentheses. Number of observations in braces; for fixed effects specifications, counts refer to observations contributing to breastfeeding identification. * $p < 0.10$, ** $p < 0.05$

Table A.11: Descriptive Outcome Statistics: Breastfeeding and Survey Responses

	Not Breastfed			Breastfed		
Survey Responses:	All	Not	Diff	All	Not	Diff
A. Age 5 Outcomes						
PIAT Math (standard deviation units)	-0.12	-0.11	-0.00	0.24	0.22	0.03
PIAT Reading Recognition (std. dev. units)	0.26	0.27	-0.02	0.58	0.53	0.05
PIAT Reading Comprehension (std. dev. units)	0.68	0.70	-0.02	0.85	0.87	-0.02
PPVT Vocabulary (std. dev. units)	-0.84	-0.72	-0.12	-0.19	-0.18	-0.01
Health Problem	0.40	0.40	-0.00	0.46	0.48	-0.01
Behavior Problems Index (std. dev. units)	0.37	0.32	0.04	0.22	0.14	0.09
Overweight	0.01	0.01	0.00	0.01	0.01	-0.00
B. Age 10 Outcomes						
PIAT Math (standard deviation units)	0.01	-0.11	0.12	0.44	0.36	0.08
PIAT Reading Recognition (std. dev. units)	0.15	0.12	0.04	0.54	0.52	0.02
PIAT Reading Comprehension (std. dev. units)	-0.08	-0.10	0.02	0.33	0.20	0.12
PPVT Vocabulary (std. dev. units)	-0.49	-0.59	0.10	0.10	0.04	0.07
Health Problem	0.32	0.28	0.04	0.34	0.32	0.02
Behavior Problems Index (std. dev. units)	0.44	0.53	-0.08	0.30	0.33	-0.03
Overweight	0.11	0.07	0.05	0.08	0.06	0.02
C. Age 13 Outcomes						
PIAT Math (standard deviation units)	-0.08	-0.15	0.07	0.34	0.27	0.06
PIAT Reading Recognition (std. dev. units)	0.13	0.00	0.12	0.52	0.56	-0.04
PIAT Reading Comprehension (std. dev. units)	-0.28	-0.30	0.03	0.09	0.11	-0.01
PPVT Vocabulary (std. dev. units)	-0.51	-0.63	0.12	-0.19	-0.27	0.09
Health Problem	0.30	0.24	0.06	0.34	0.32	0.01
Behavior Problems Index (std. dev. units)	0.46	0.52	-0.06	0.40	0.44	-0.04
Overweight	0.21	0.15	0.06	0.16	0.13	0.02
D. Age 21 Outcomes						
High School Grad+	0.81	0.78	0.03	0.91	0.89	0.02
Some College+	0.43	0.36	0.07	0.62	0.58	0.03
Years of Education	12.52	12.33	0.19	13.17	13.11	0.05
Employed	0.65	0.59	0.05	0.66	0.69	-0.02
In School or Working	0.76	0.70	0.06	0.83	0.83	-0.00
Log Earnings (2019 Dollars)	7.84	7.59	0.26	8.13	7.89	0.24
Public Benefits	0.21	0.19	0.02	0.11	0.15	-0.04
Health Problem	0.24	0.22	0.02	0.29	0.27	0.02
Overweight	0.45	0.46	-0.00	0.38	0.38	0.01
Premarital Child	0.23	0.27	-0.04	0.12	0.14	-0.03
E. Age 25 Outcomes						
High School Grad+	0.85	0.82	0.03	0.93	0.89	0.04
Some College+	0.49	0.45	0.04	0.67	0.56	0.11
Years of Education	13.10	12.91	0.19	14.09	13.38	0.71
Employed	0.72	0.69	0.03	0.79	0.74	0.04
In School or Working	0.78	0.73	0.05	0.84	0.79	0.05
Log Earnings (2019 Dollars)	8.70	8.56	0.14	9.12	8.93	0.19
Public Benefits	0.27	0.23	0.04	0.16	0.19	-0.04
Health Problem	0.31	0.30	0.02	0.33	0.35	-0.02
Overweight	0.44	0.51	-0.06	0.35	0.35	0.00
Premarital Child	0.34	0.39	-0.05	0.18	0.26	-0.08

This table compares outcomes between 1986–2016 NLSY-CYA interviewees who responded to all outcome age surveys (ages 5, 10, 13, 21, 25) and those who did not, separately for breastfed and not breastfed individuals. indicates an individual responded to all surveys and refers to those who missed at least one survey. Results are obtained from separate OLS regressions of each outcome on indicators for breastfeeding, reponding to all surveys, and their interaction. Unit of observation is individual child. All statistics are weighted using NLSY-CYA longitudinal custom weights for the corresponding age-outcome sample.

Table A.12: Child Outcomes: Responded to All Surveys

	Age 5	Age 10	Age 13
	(1) OLS	(2) OLS	(3) OLS
Math	0.102**	0.075*	0.077*
	(0.043)	(0.041)	(0.040)
	{2,934}	{3,676}	{3,466}
Reading Recog.	0.083**	0.059	0.063
	(0.040)	(0.044)	(0.048)
	{2,873}	{3,666}	{3,466}
Reading Comp.	0.028	0.124**	0.055
	(0.038)	(0.041)	(0.041)
	{982}	{3,618}	{3,432}
Vocabulary	0.085	0.100**	-0.045
	(0.063)	(0.051)	(0.130)
	{2,051}	{3,186}	{432}
Health Problem	0.009	-0.018	0.024
	(0.022)	(0.021)	(0.022)
	{3,900}	{3,906}	{3,751}
Behavior (BPI)	-0.014	0.020	0.071
	(0.043)	(0.044)	(0.044)
	{3,702}	{3,662}	{3,575}
Overweight	-0.005	-0.008	-0.014
	(0.005)	(0.012)	(0.016)
	{3,908}	{3,908}	{3,908}

Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes only those individuals who responded to surveys at all outcome ages (5, 10, 13, 21, and 25 years). All regressions are weighted using NLSY-CYA longitudinal custom weights for the age-interview sample. Standard errors clustered by mother in parentheses. Number of observations in braces. * $p < 0.10$, ** $p < 0.05$

Table A.13: Young Adult Outcomes: Responded to All Surveys

	Age 21	Age 25
	(1) OLS	(2) OLS
High School Grad+	0.024	0.026*
	(0.016)	(0.014)
	{3,507}	{3,908}
Some College+	0.031	0.035*
	(0.021)	(0.020)
	{3,507}	{3,908}
Years of Education	0.098	0.135
	(0.080)	(0.095)
	{3,507}	{3,908}
Employed	-0.016	-0.001
	(0.020)	(0.019)
	{3,908}	{3,385}
In School or Working	-0.000	-0.003
	(0.017)	(0.018)
	{3,907}	{3,454}
Log Earned Income	0.021	-0.065
	(0.149)	(0.149)
	{3,255}	{3,489}
Public Benefits	-0.012	-0.009
	(0.014)	(0.016)
	{3,905}	{3,904}
Health Problem	0.034*	0.022
	(0.020)	(0.021)
	{3,906}	{3,906}
Overweight	-0.019	-0.026
	(0.021)	(0.019)
	{3,908}	{3,908}
Premarital Child	-0.018	-0.035**
	(0.015)	(0.018)
	{3,908}	{3,908}

Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample includes only those individuals who responded to surveys at all outcome ages (5, 10, 13, 21, and 25 years). All regressions are weighted using NLSY-CYA longitudinal custom weights for the age-interview sample. Standard errors clustered by mother in parentheses. Number of observations in braces. * $p < 0.10$, ** $p < 0.05$

Table A.14: Child Outcomes: Excluding Fixed Effects Sample

	Age 5	Age 10	Age 13
	(1) OLS	(2) OLS	(3) OLS
Math	0.097**	0.136**	0.126**
	(0.042)	(0.041)	(0.042)
	{3,917}	{4,893}	{4,322}
Reading Recog.	0.078*	0.065	0.108**
	(0.041)	(0.046)	(0.050)
	{3,837}	{4,893}	{4,328}
Reading Comp.	0.004	0.132**	0.158**
	(0.045)	(0.040)	(0.040)
	{1,368}	{4,815}	{4,297}
Vocabulary	0.171**	0.204**	-0.126
	(0.065)	(0.055)	(0.116)
	{2,896}	{4,157}	{583}
Health Problem	0.007	-0.027	0.003
	(0.022)	(0.021)	(0.021)
	{5,327}	{5,378}	{4,899}
Behavior (BPI)	-0.004	-0.031	0.076*
	(0.046)	(0.045)	(0.046)
	{5,052}	{5,092}	{4,650}
Overweight	-0.007	-0.032**	-0.019
	(0.005)	(0.011)	(0.015)
	{5,349}	{5,418}	{5,118}

Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample excludes individuals from families with non-uniform breastfeeding experiences. All regressions are weighted using NLSY-CYA longitudinal custom weights for the age-interview sample. Standard errors clustered by mother in parentheses. Number of observations in braces. * $p < 0.10$, ** $p < 0.05$

Table A.15: Young Adult Outcomes: Excluding Fixed Effects Sample

	Age 21	Age 25
	(1) OLS	(2) OLS
High School Grad+	0.045**	0.041**
	(0.016)	(0.016)
	{3,889}	{3,559}
Some College+	0.066**	0.041*
	(0.024)	(0.024)
	{3,889}	{3,559}
Years of Education	0.170**	0.122
	(0.080)	(0.113)
	{3,888}	{3,559}
Employed	0.032	0.012
	(0.022)	(0.022)
	{4,022}	{3,308}
In School or Working	0.047**	-0.002
	(0.017)	(0.020)
	{4,178}	{3,372}
Log Earned Income	0.039	-0.076
	(0.160)	(0.168)
	{3,608}	{3,356}
Public Benefits	-0.012	-0.007
	(0.015)	(0.018)
	{4,314}	{3,775}
Health Problem	0.032	0.014
	(0.020)	(0.023)
	{4,306}	{3,778}
Overweight	-0.037*	-0.077**
	(0.022)	(0.021)
	{4,315}	{3,781}
Premarital Child	-0.030*	-0.029
	(0.016)	(0.021)
	{4,316}	{3,781}

Rows enumerate outcomes, supercolumns denote outcome ages, and columns indicate estimation methods. Each cell reports the coefficient on an indicator for breastfeeding from a separate regression, with columns, respectively, for OLS, mother fixed effects, and extended family fixed effects. All regressions control for full covariates. Data source is NLSY-CYA, 1986–2016. Unit of observation is individual child. Sample excludes individuals from families with non-uniform breastfeeding experiences. All regressions are weighted using NLSY-CYA longitudinal custom weights for the age-interview sample. Standard errors clustered by mother in parentheses. Number of observations in braces. * $p < 0.10$, ** $p < 0.05$

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