Demography has a long tradition of studying breastfeeding as part of the process of childbearing. Breastfeeding is a proximate determinant of fertility (Davis and Blake 1956, Bongaarts 1979), a correlate of infant mortality in developing settings (Mosley and Chen 1984), and a culturally rich practice that sustains distinct and localized patterns of birth timing (Bledsoe et al. 1994; Bledsoe, Blanja, and Hill 1998). Despite this rich international literature, however, there is little demographic work on how breastfeeding fits into women’s reproductive lives in the United States. Instead, breastfeeding in the U.S. is studied either from a public health perspective focusing on socioeconomic differences in who breastfeeds and for how long or from a stratification perspective on how it shapes women’s labor market outcomes.

This lack of a demographic literature on breastfeeding and fertility in the U.S. is particularly striking given that research by qualitative sociologists identifies breastfeeding as a key practice embedded in the larger discourse of “intensive” or “total” mothering (Hays 1996; Wolf 2011). This literature describes breastfeeding as a time-intensive and emotionally charged practice in the U.S.—a “project” that middle class women take on that epitomizes the complex intersection of gender, culture, power, and agency in the construction of contemporary motherhood (Hausman 2003; Avishai 2007). In this way, breastfeeding is a culturally-informed practice of mothering in United States much like in many other nations, and we might expect that it shapes fertility patterns in the U.S. as well. But we know of no existing study that examines how breastfeeding relates to women’s fertility levels and timing in the United States. The current study fills this gap in the literature.

Using 30 years of longitudinal data from a nationally-representative birth cohort of American women with completed fertility, we study the relationship between breastfeeding duration and women’s fertility intentions, completed fertility levels, birth spacing, and fertility timing. We analyze these patterns in both bivariate and multivariate models, in order to account for important differences in the personal, socioeconomic, and family-related characteristics of who breastfeeds and for how long (Der et al 2006; Thulier and Mercer 2009). Our study
advances the existing literature on breastfeeding on two fronts. First, we show the ways in which
how long a woman breastfeeds her first born child relates to her fertility patterns across her
reproductive years. Second, we measure numerous personal characteristics not considered in
previous studies, including self-esteem and locus of control, marital history before and after first
birth, gender ideology, and family income and personal wages both before and after first birth.

Our results show that women who breastfeed their first child for at least five months go
on to have larger families than those who breastfeed for shorter durations (or not at all). These
women also have significantly shorter intervals between their first and second births. Not only do
women who breastfeed for longer durations have larger families, but they also report higher
expected fertility at ages 14 to 22, before ever conceiving their first birth. All these findings hold
in multivariate analyses as well. Figures 1 to 4 below show a preview of these results.

These findings are surprising given that women who breastfeed are, on average,
 extremely highly educated and start their families at later ages, both of which should predict
lower rather than higher fertility. But when viewed from an integrative perspective that combines
both economic theories of fertility and cultural ones of mothering and child investment, we find
that breastfeeding duration serves as a proxy for different schemas about the experience of
parenting and time with children (Johnson-Hanks et al. 2011). While qualitative researchers have
suggested that highly educated women use devotional schemas to navigate the demands of work
and family across the life course (Blair-Loy 2003), we find evidence that women also have
demographic schemas about family and child investment in place from early in life and operating
across the life course. Breastfeeding duration in the United States serves as a proxy for
identifying one such schema: women who have reproductive patterns quite different than their
socioeconomic position would predict, and who choose to have both more children and to invest
more time in those children.

Data and Approach

Our analyses use the 1979 to 2012 waves of the National Longitudinal Survey of Youth
1979 (NLSY79), a nationally representative sample of respondents ages 14 to 22 when first
surveyed in 1979. The data were collected annually from 1979 to 1994, then every two years
from 1996 to 2012. The NLSY contains detailed information on education, wages, income,
childbearing, marriage, and spouses’ characteristics. The data also include detailed data on
breastfeeding practices for the women’s first birth for about 95% of the sample. We omit the military and poor white oversamples because these were not followed all survey years. We use the 1979 probability weights to adjust for the survey’s complex design.

The women in the NLSY79 cohort were ages 47 to 55 in the 2012 data wave, and have essentially completed their fertility. These data offer a unique opportunity to study differences in family formation by the breastfeeding status of the women’s first birth for a recent cohort of women with full fertility records. The NLSY includes prospective information about births, as well as detailed birth histories. We use the information collected on all the children a woman bears to determine her total family size and the intervals that pass between her births. We analyze the data in two steps. First, using as complete a sample of mothers as possible, we describe the fertility patterns (levels and timing) of women in this birth cohort by whether and how long they breastfed their first child. We also use as complete a sample as possible to describe a detailed set of bivariate correlations between breastfeeding duration and personal and family characteristics of mothers. We use several measures and scales included in the NLSY to measure cognitive skills, personality characteristics and attitudes in the first two survey waves, when respondents were ages 14 to 23.

Once we have a full picture of the cohort’s fertility experiences by breastfeeding status, we then conduct multivariate analyses on a subset of the full sample to see how much compositional differences account for the differences observed by breastfeeding status. In the multivariate analyses, we restrict the sample to women who have a first birth in 1980 or later, so that the attitudinal and expectations measures from 1979 are measured before the start of fertility. We also restrict the sample to women who have their first births at age 18 or older in order to compare adult women.

We group women into one of four breastfeeding categories. The first is women who never initiate breastfeeding. The other three groups represent tertiles of the observed distribution of breastfeeding duration in our sample. Women in the bottom tertile breastfed for one to six weeks, those in the second tertile breastfed for seven to 21 weeks, and the third tertile breastfeed for 22 weeks (five months) or longer. These breastfeeding categories capture any breastfeeding, rather than breastfeeding exclusively, and only as it relates to the woman’s first birth.
Figure 1. Number of weeks first child was breastfed, NSLY 1979 (N=3,691)

Notes: Estimates are weighted with sample probability weights. Histogram shows full distribution. Inner box plot shows distribution for those who breastfed at least one week.
Table 1. Personal and Family Characteristics by Breastfeeding Status, NLSY(N=3,691)

<table>
<thead>
<tr>
<th></th>
<th>0 weeks</th>
<th>1 to 6 weeks</th>
<th>7 to 21 weeks</th>
<th>≥22 weeks</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at first birth</td>
<td>22.1</td>
<td>24.6</td>
<td>25.5</td>
<td>26.6</td>
<td>3691</td>
</tr>
<tr>
<td>Married at first birth</td>
<td>.63</td>
<td>.82</td>
<td>.90&lt;sup&gt;c&lt;/sup&gt;</td>
<td>.89&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3675</td>
</tr>
<tr>
<td>Highest grade completed at first birth</td>
<td>11.9</td>
<td>12.8</td>
<td>13.2</td>
<td>14.2</td>
<td>3467</td>
</tr>
<tr>
<td>% college completed</td>
<td>.07</td>
<td>.17&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.22&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.39</td>
<td>3628</td>
</tr>
<tr>
<td>% manager (T1)</td>
<td>.12</td>
<td>.22&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.26&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.34</td>
<td>3508</td>
</tr>
<tr>
<td>% professional (t1)</td>
<td>.13</td>
<td>.21&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.21&lt;sup&gt;d&lt;/sup&gt;</td>
<td>.30</td>
<td>3507</td>
</tr>
<tr>
<td>AFQT (cognitive test score)</td>
<td>32.0</td>
<td>45.2</td>
<td>50.7</td>
<td>59.3</td>
<td>3691</td>
</tr>
<tr>
<td>Rotter (lower = more internal control)</td>
<td>9.0</td>
<td>8.5</td>
<td>8.3&lt;sup&gt;c&lt;/sup&gt;</td>
<td>8.1&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3656</td>
</tr>
<tr>
<td>Self-esteem (higher = more self-esteem)</td>
<td>21.7</td>
<td>22.4&lt;sup&gt;d&lt;/sup&gt;</td>
<td>22.7&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>23.2&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3523</td>
</tr>
<tr>
<td>Work if could live comfortably without working (% yes)</td>
<td>.76&lt;sup&gt;af&lt;/sup&gt;</td>
<td>.79&lt;sup&gt;bdf&lt;/sup&gt;</td>
<td>.80&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>.78&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3679</td>
</tr>
<tr>
<td>Mother worked when respondent age 14</td>
<td>.52&lt;sup&gt;f&lt;/sup&gt;</td>
<td>.55&lt;sup&gt;bdf&lt;/sup&gt;</td>
<td>.59&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>.52&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3612</td>
</tr>
<tr>
<td>Expected Fertility Full Sample</td>
<td>2.0</td>
<td>2.5&lt;sup&gt;bd&lt;/sup&gt;</td>
<td>2.5&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>2.5&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3648</td>
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<tr>
<td>Expected Fertility Post 1980 births</td>
<td>2.3</td>
<td>2.6&lt;sup&gt;bd&lt;/sup&gt;</td>
<td>2.6&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>2.6&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2763*</td>
</tr>
<tr>
<td>Average total number of children</td>
<td>2.4&lt;sup&gt;ae&lt;/sup&gt;</td>
<td>2.2&lt;sup&gt;d&lt;/sup&gt;</td>
<td>2.3&lt;sup&gt;de&lt;/sup&gt;</td>
<td>2.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3691</td>
</tr>
<tr>
<td>Family size distribution**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Child</td>
<td>.22</td>
<td>.22</td>
<td>.19</td>
<td>.16</td>
<td>3691</td>
</tr>
<tr>
<td>2 Children</td>
<td>.41</td>
<td>.47</td>
<td>.46</td>
<td>.43</td>
<td>3691</td>
</tr>
<tr>
<td>3+ Children</td>
<td>.37</td>
<td>.31</td>
<td>.35</td>
<td>.41</td>
<td>3691</td>
</tr>
<tr>
<td># months between first &amp; second birth</td>
<td>51.5</td>
<td>44.4&lt;sup&gt;d&lt;/sup&gt;</td>
<td>41.7&lt;sup&gt;cd&lt;/sup&gt;</td>
<td>39.1&lt;sup&gt;c&lt;/sup&gt;</td>
<td>2934*</td>
</tr>
<tr>
<td># months between second &amp; third birth</td>
<td>50.3&lt;sup&gt;ae&lt;/sup&gt;</td>
<td>48.4&lt;sup&gt;bd&lt;/sup&gt;</td>
<td>45.5&lt;sup&gt;de&lt;/sup&gt;</td>
<td>44.6&lt;sup&gt;abc&lt;/sup&gt;</td>
<td>1460*</td>
</tr>
<tr>
<td>N</td>
<td>2,029</td>
<td>551</td>
<td>569</td>
<td>542</td>
<td>3691</td>
</tr>
</tbody>
</table>

Notes: Except where noted, estimates shown use the 1979 probability weights to adjust for the survey’s complex design. Rotter, self-esteem and work commitment were measured in 1979. AFQT was measured in 1980. All estimates are statistically significant from the other feeding categories at the .05 level unless otherwise noted.

a on column: not sig 3 vs 0
b on column: not sig 3 vs 1
c on column: not sig 3 vs 2
d on column: not sig 2 v 1
e on column: not sig 2 v 0
f on column: not sig 1 v 0
† - contrast in question is not sig at .05, but sig at p = .10
* 99% of possible valid responses
**jointly significant at p=.05
Figure 2. Distribution of age at first birth by breastfeeding group, NLSY (N=3,691)
Figure 3. Number of years between first and second birth, NLSY (N=3,691)
Figure 4. Observed and covariate-adjusted predicted differences in fertility levels and timing by breastfeeding duration, NLSY
References


