

Gloria L. Main

Rocking the Cradle: Downsizing the New

England Family Sometime around the year 1800, if not before, couples throughout New England began talking to each other about the desirability of postponing children. Why they did so is something of a mystery, but the consequences of those conversations are unmistakable: The median size of completed families in the region halved for cohorts marrying between 1790 and 1840. The number of children per family fell in the rural interior as well as in crowded coastal communities. How couples in the period actually managed to control family size is also a mystery, because no magic pills or rubber condoms were then available. No one at the time even understood the physiology of human reproduction. People obtained their health information from gossip or folklore, and women shared recipes for herbal “remedies.” The timing of ovulation was utterly unknown even to university-trained doctors. Any rhythm method was necessarily based on false assumptions and any success with it based on luck. The only contraceptive barriers available in the early decades of the nineteenth century were clumsy sheaths made of animal organs used by city prostitutes and their customers. Their unsavory connotations aroused disgust and revulsion among the respectable few who knew about them, yet no acceptable alternatives existed.¹

Ordinary families living in New England’s countryside who avoided or terminated pregnancies did so without the aid of any new contraceptive technology or medical knowledge. Neither were they being encouraged in their efforts by media campaigns or government-funded clinics, as more recently in Asia and elsewhere. Consequently, it was far more difficult to prevent babies in the New England of 1800 than it is today in Bangladesh.²

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1 John C. Caldwell, “The Delayed Western Fertility Decline: An Examination of English-Speaking Countries,” *Population and Development Review*, XXV (1999), 479–513; Janet Farrell Brodie, *Contraception and Abortion in Nineteenth-Century America* (Ithaca, 1994).

2 Susan E. Klepp, “Lost, Hidden, Obstructed, and Repressed: Contraceptive and Abortive

Given the technological obstacles to controlling fertility and the apparent unlikelihood of people deliberately foregoing sexual pleasure at a time when farming was still the dominant way of life, New England's claim to a precocious modernity invites scrutiny. Until recently, child/woman ratios calculated from federal census summaries have had to serve as proxies for actual birth rates in early America, because no states registered births or deaths before the middle of the nineteenth century, and only a few were doing so by 1900. Child/woman ratios, which are based on the relative sizes of key age groups as reported by census takers, are subject to such potentially confounding factors as age-differentiated migration patterns and changing mortality levels.

Hacker has recently argued that rising mortality in the nineteenth century reduced the numbers of young children appearing in the censuses relative to the numbers of women of child-bearing age. He views the declining ratios as a product not of women having fewer babies but of fewer babies surviving to be counted. By applying new estimates of child mortality to direct counts of women and children in samples from manuscript census schedules, he imputed missing children to census households and from them generated a new historical series of birth rates for the United States between 1830 and 1890. Hacker's revised rates show no sustained decline occurring before 1880, roughly the same time as it began in England and much of Western Europe.³

Hacker's argument pivots on the presumption of worsening mortality among children below the age of ten. In the absence of data based on direct reports of such deaths, he turned to a life table originally calculated in 1906 from vital data then available in several states. By fitting published estimates of white adult mortality

Technology in the Early Delaware Valley," in Judith A. McGaw (ed.), *Early American Technology: Making and Doing Things from the Colonial Era to 1850* (Chapel Hill, 1994), 68–113.

3 See J. David Hacker, "Rethinking the Early Decline of Fertility in the United States: New Evidence from the Integrated Public Use Microdata Series," *Demography*, V (2004), 605–620; Maris Vinovskis, *Fertility in Massachusetts from the Revolution* (New York, 1981); Daniel Scott Smith, "Early Fertility Decline in America: A Problem in Family History," *Journal of Family History*, XII (1987), 73–84; Michael R. Haines and Hacker, "The Puzzle of the Antebellum Fertility Decline in the United States: New Evidence and Reconsideration," paper presented at the annual meeting of the Social Science History Association, Chicago, Ill., November 20, 2004. See discussion of the pertinent literature in Haines, "The White Population of the United States, 1790–1920," in *idem* and Richard H. Steckel (eds.), *A Population History of North America* (New York, 2000), 305–370; Herbert S. Klein, *A Population History of the United States* (New York, 2004), 77–82.

in the nineteenth century to this life table, he estimated the proportions of white children who died. Direct counts of deaths by age and sex would obviously be preferable to such a roundabout procedure, just as our knowledge of the early history of fertility would be equally well served by counting the actual births in local records—a piecemeal approach at best, but the only alternative.

New England offers an exceptionally good place to begin, because its townships kept vital records, albeit of uneven quality. From these records and other local sources, literally hundreds of genealogists have generated family histories over the past 150 years. The best of them have been refereed by professionals and published by reputable presses. They offer major advantages for historians working in the pre-1850 era, because they document the links between specific parents and children and endeavor to supply birth, marriage, and death information about every family member. Nor do compilers of these genealogies rely solely on official vital statistics for their information. They also utilize a wide array of sources—such as wills, deeds, family Bibles, and grave-stone markings, as well as the federal manuscript-census schedules for the years when they are available. Comprehensive compilations follow descendants in the male line wherever they went; some even track female lines, a far more difficult target. As a result, historians making use of such genealogies are not tied to a single locale, as in town studies, nor to a single source like the federal census. They can compare the life events of movers as well as of stayers in a variety of settings.⁴

New England is, admittedly, a distinctive region; it cannot serve as a surrogate for the country as a whole. But its inhabitants made up one-quarter of the nation's population in 1820, and their cousins and descendants settled across the entire northern tier of territories claimed by the United States—eventually reaching all the way to the Pacific. Knowing when and how New Englanders sought smaller family sizes will help to explain why they did so and provide insights into the phenomenon more generally.

4 Jennifer Wahl, "New Results on the Decline in Household Fertility," in Stanley L. Engerman and Robert E. Gallman (eds.), *Long-Term Factors in American Economic Growth* (Chicago, 1986), 391–425; Lee L. Bean, Geraldine P. Mineau, and Douglas L. Anderton, *Fertility Change on the American Frontier: Adaptation and Innovation* (Berkeley, 1990). Mean completed family size and total fertility rates reported for New England by Wahl in Table 8.7 on page 406 are much higher for the 1650 to 1749 period than those calculated from my sample of genealogies.

METHOD The present study uses a composite database of sample families culled from a broad spectrum of published genealogies. The sample includes only first marriages resulting in at least one child born in New England, beginning in 1620 through 1854. Although the sampling design deliberately omits childless couples and overstates births to some degree, it should not distort any trends, since this overstatement is likely to have been a consistent fraction of all first marriages. Applying state-based population weights to sample families according to where they lived when their first child was born permits a variety of demographic indices for New England as a whole from 1620 through 1864. Individual vital events that could not be precisely dated have been interpolated from other information. Families for whom information proved insufficient for such interpolation were not included in the sample.

Even the best modern genealogies are not without problems. Since male heads of large households generated longer paper trails, genealogies are inevitably biased toward large families with many male descendants. Likewise, founders with the largest families engendered the most numerous descendants, and their potential as an audience attracts the compilation and marketing of genealogical works. Easier to recognize are the errors and gaps in the underlying records that hinder the process of family reconstitution. Unfortunately, they multiplied in post-Revolutionary New England towns when previously credible recording systems began eroding due to high rates of mobility. New towns were slow to establish good recording systems and heavy out-migration from older towns led to the disappearance of many people. The effect of that slide on the quality of the genealogical data has been dampened by compilers' use of compensating sources, but the problem is sufficient to require efforts at measurement and correction.⁵

Note first that under-recording of births and deaths, especially of females, by town clerks in New England occurred from the outset. The ratio of sons to daughters recorded to sample couples was 112 before 1675, dropped to 103 between 1675 and 1775, and then rose again to 110. Reporting of deaths among male descendants in the genealogies was also better than that among females, averaging 55.5 percent of all recorded and interpolated

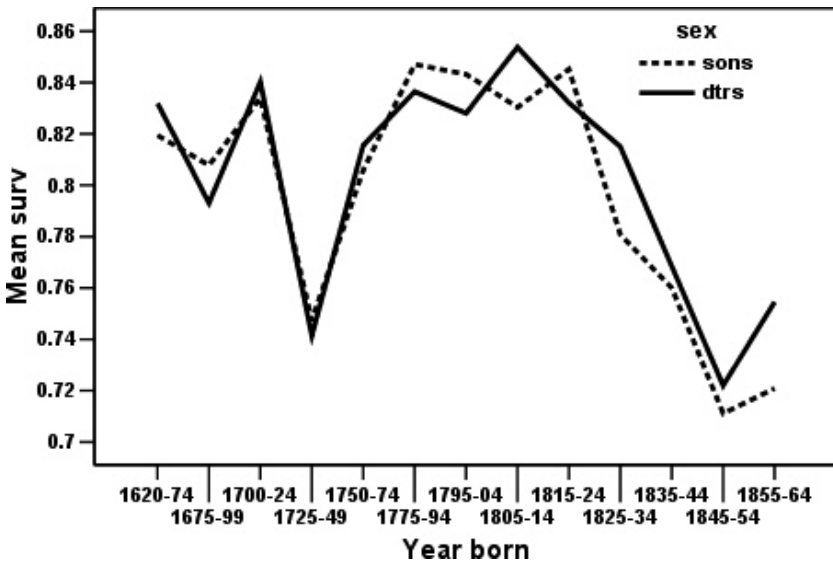
5 Compared to the IPUMS New England sample from the federal census of 1850, the genealogies overstate the number of births by about 6%, even after adjusting for dead children missing from in the census.

male births in the sample. These rates did not worsen noticeably in the nineteenth century. The year of death could be discovered or inferred only for 43 percent of the entire sample of women. Coverage was poorest in the seventeenth century, gradually improving to 50 percent of those born between 1800 and 1840, before falling to 41 percent of those born after 1845. Information about the oldest females, especially widows, is the most scarce, as is evident in a comparison of the proportions of unknowns between the sexes when grouped by age. This invisibility of elderly women in the records imparts a strong downward bias to calculations of female life expectancy because their ages at death do not enter into calculations. Yet, genealogies often provide sufficient information, such as “died young,” “served in wartime,” or “had a marriage recorded,” to estimate proportions of birth cohorts surviving to adulthood. This judgment is possible for four-fifths of sons and daughters in the sample born between 1750 and 1840, but, again, this information grows spottier for those born after 1840, when rates of survival can be determined for only 78 percent of males and 73 percent of females.⁶

Since rates of survivorship can be calculated for large majorities of the children in the genealogies, they offer valuable surrogates for estimates of life expectancy. Figure 1 displays the proportions surviving to adulthood in successive birth cohorts from 1620 to 1864. Survivorship peaked for both sexes born between the years 1775 and 1824, inclusive, and began sliding thereafter. Judging by these data, the federal census of 1850 took place when life expectancy for children in New England was low, therefore reducing the number of children present to be counted by census takers. Hence, child/woman ratios calculated from the federal censuses significantly understate the birth rate between 1840 and 1850. Notwithstanding this serious problem in the 1850 census due to worsening mortality, prior federal censuses appear unaffected; movements in the child/woman ratios based on them probably replicate those in the birth rate itself.

6 If a careful and conscientious compiler identified a child in an otherwise well-documented family but found no further information on that child, the child was coded as not surviving to adulthood. Age at death can be calculated or inferred for 82% of fathers and 69% of mothers. Coverage of women improved over time—60% in the seventeenth century, 65% in the first half of the eighteenth century, 71% in the second half, and 75% in the first half of the nineteenth century.

Fig. 1 Proportion of Children Surviving to Adulthood in New England, 1620–1864



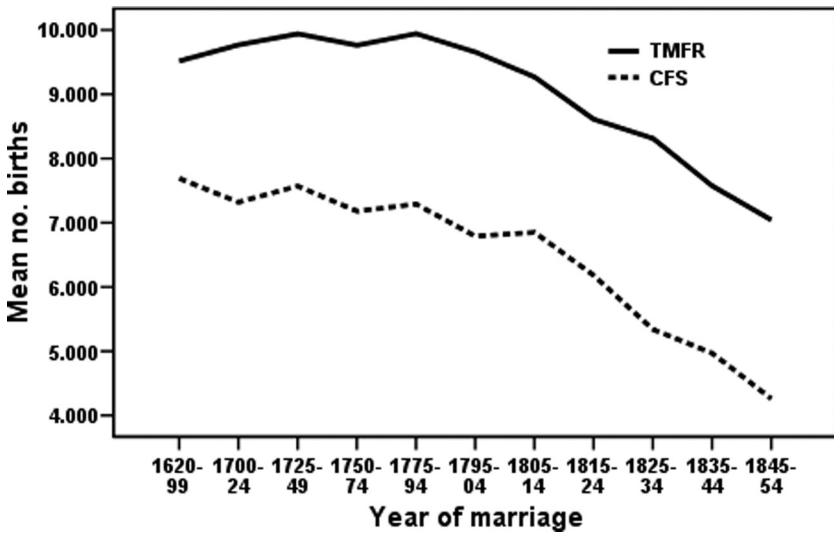
SOURCE Sample genealogies weighted by state.

CORRECTING FOR BIASES The argument for declining birth rates in New England, based on child/woman ratios, is supported by genealogical data, but the increasing severity of under-reporting requires attention. One way to test for, and correct, it is to track the length of intervals between first and second births in successive marriage cohorts, because couples presumably felt the least need to avoid pregnancy during this period. If that presumption is correct, any gap in the genealogies longer than four or five years could be camouflaging the birth of an unrecorded infant who died without leaving a trace. But longer intervals could also be due to such real causes as temporary infertility, longer absences by fathers, rising levels of miscarriages or abortions, or increasingly successful efforts at deliberate contraception.⁷

Of couples with two or more children in the marriage cohort of 1750 to 1774, 2.8 percent showed intervals of more than sixty

7 My thanks to David Hacker for suggesting a way to test under-recording of births by means of the length of the interval between the first two births. “Completed” families make up about two-thirds of the more than 10,000 first marriages of couples in the sample.

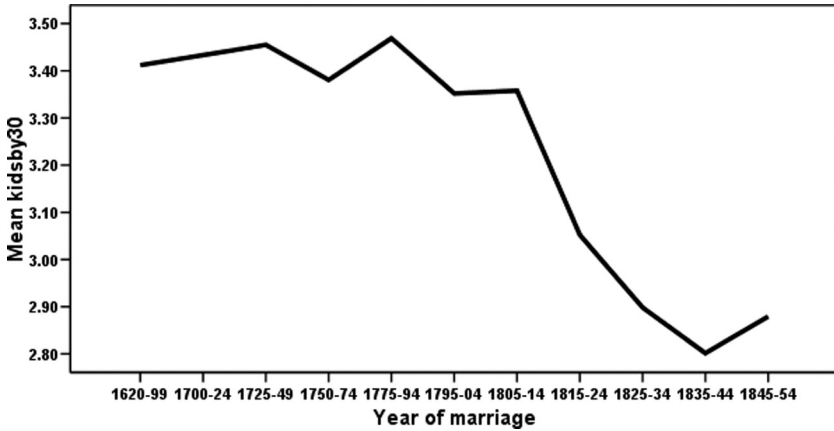
Fig. 2 Total Marital Fertility Rate and Completed Family Size in New England, 1620–1854



SOURCE Sample genealogies weighted by state, excluding cases in which the interval between the first and second births was longer than sixty months.

months between the first two births. That percentage grew to 6 percent for the cohort of 1815 to 1824, 11.2 percent in 1835 to 1844, and 16.9 percent by 1845 to 1854. If this pattern is due solely to under-recording of early births, dubious cases must be excluded before calculating marital fertility levels. Figures 2 and 3 display three measures of marital fertility based on this narrowed sample, from the time of New England’s founding through 1854. The total marital fertility rate, TMFR, measures reproduction among each marriage cohort of fecund women based on the childbearing history of every member. Completed family size, CFS, records the total number of births to couples who both survived to the wife’s forty-fifth birthday. With both measures, the data summarized for each time period are *retrospective* in nature, and the cohorts stretch over decades, obscuring the timing of this major shift in human behavior. The third measure, KIDSBY30, provides a much more time-sensitive reading of the fertility decline, because the behavior under observation took place in a narrower frame of time and closer to the date of marriage for women from the same birth cohort. KIDSBY30 represents the number of births by age thirty to fe-

Fig. 3 Number of Births to Mothers Who Married between Ages Twenty-One and Twenty-Three, by Age Thirty in New England, 1620–1854



SOURCE Sample genealogies weighted by state, excluding cases with intervals between first two births longer than sixty months.

cund women who married within a fixed and narrow age interval—in the present case, between the ages of twenty-one and twenty-three, bracketing the mean age at marriage that prevailed for most of the period under view. The data points are weighted by the relative size of the population in the colony/state where a couple's first child was born, making the cases from each state equivalent in weight to their proportion of the region's population in each period. As figures 2 and 3 suggest, fertility peaked in marriages formed between 1725 and 1749 and again between 1775 and 1794, declining thereafter. Altogether, TMFR fell from 10.4 children per married woman at its peak before 1750 to just 6.9 a century later, a drop of roughly one-third. Mean completed family size shows an even steeper decline, from 7.9 births to 4.3, and the median, not shown, halved in size, falling from 8 in the 1620 to 1794 period to 4 in the late 1830s. The number of children born to mothers by age thirty, of those marrying between twenty-one to twenty-three, fell by a fifth, from 3.45 to 2.80.⁸

8 The total marital fertility rate is a composite figure that represents the total number of births that a woman of the place and time would have if she married at age fifteen, stayed married until age forty-five, and gave birth at the average rate of the women in each successive

Even after excluding cases with intervals between the first two births longer than sixty months, some couples in the sample were successfully avoiding pregnancies before the end of the eighteenth century, and many more were doing so from 1805 to 1814. The bias-adjusted measures of marital fertility in early New England show substantial declines long before 1850 and decades ahead of old England.

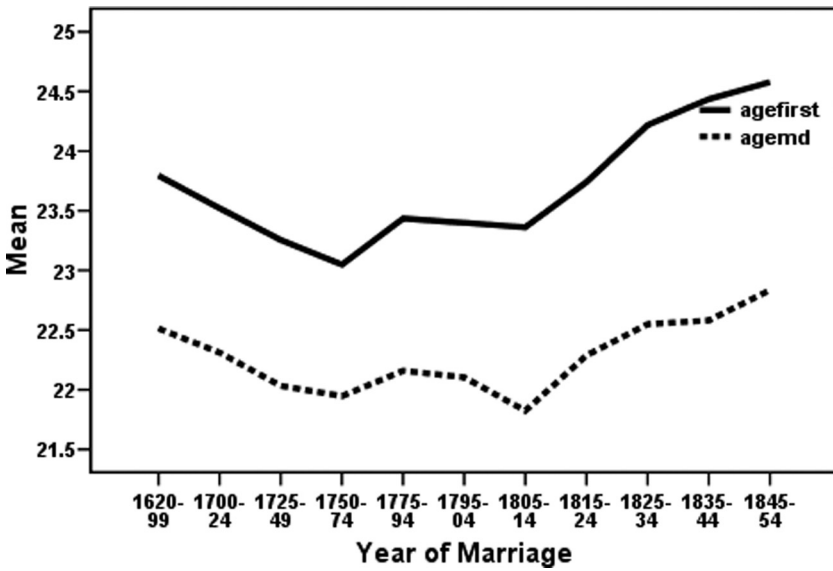
CLUES ABOUT MOTIVES Why, and how, couples in New England started having fewer and fewer children are formidable questions, but the genealogies furnish some clues. A woman's age at first marriage was a powerful influence on how many children she would bear over the course of her childbearing years. Women in the sample married youngest in the early nineteenth century, as Figure 4 depicts, and they began marrying at slightly older ages after the trough from 1805 to 1815. Thereafter, mean age at first marriage rose to nearly twenty-three, shortening the term of wives' connubial exposure by the equivalent of one pregnancy. Of greater significance, however, was the steep downturn in premarital pregnancy in the nineteenth century, depicted in Figure 5, not only because it lengthened the average interval of time between the wedding and the first child by more than half—visible in Figure 4—but because it signaled a new willingness among young adults to control sexual impulses.⁹

As the figure suggests, premarital sex between engaged couples had become common practice in the eighteenth century, just as it did in England at the same time. This relaxation of sexual codes may have represented nothing more than a reversion to pre-Puritan ideas about the binding nature of marriage promises, or it may have been a response to loosening patriarchal controls. The important point is that the boom in early births came to an end in New England long before it did in England. This return to more stringent restraints on premarital sex in New England coincided with the onset of the sharp decline in the number of births to

five-year age group. So long as a woman's age is known, her recorded fertility experience can be calculated even if she died or disappeared from the records before she reached her forty-fifth birthday. The TMR tends to overstate observed completed family size, but its great strength is that it is comparable across cohorts and makes use of *all* available information.

9 Of daughters who lived to age forty-five, the proportion never marrying rose from 4% before the American Revolution to 20% of those born after 1835.

Fig. 4 Wives' Ages at Marriage and at Birth of First Child in New England, 1620–1854



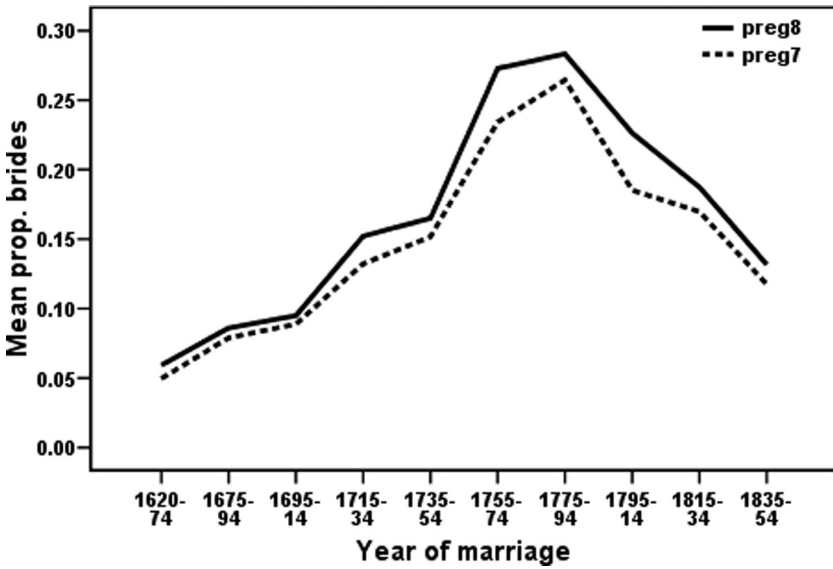
SOURCE Sample genealogies weighted by state.

mothers by age thirty noted above. The lapse of time after the first birth before the next one also began climbing. Spacing between later children likewise grew as couples became more expert in managing. The interval before the last birth grew from 39.9 months between 1750 and 1774 to 50.6 months by the 1825-to-1834 period. By that same decade, women who married at ages twenty-one to twenty-three and who survived to age forty-five were ending childbearing a full three years sooner than they had in the years before 1750, at age thirty-seven rather than at slightly older than forty (see Figure 6).¹⁰

This pattern of births exhibited by birth-controllers in New England is better described as “spacing” rather than “stopping” after a quick two or three. The reasons for spacing rather than stopping become clear with the realization that control over reproduction was painfully achieved and not facilitated by any new

10 Smith and Michael S. Hindus, “Premarital Pregnancy in America 1640–1971: An Overview and Interpretation,” *Journal of Interdisciplinary History*, V (1975), 537–570.

Fig. 5 Premarital Pregnancy Rates in New England, Children Born 8 Months or 7.5 Months after Wedding



SOURCES Vital records, town and family genealogies weighted by state.

contraceptive technology or scientific knowledge. According to Bogue, “Contraception is a goal-oriented, voluntary behavior, each episode of which is the result of conscious volition.” Fertility decline, he argues, required “a distinctive behavior change” among an “increasing prevalence of couples.” Not only did such couples have to beat against the tide of strong pronatal traditions in early New England, but, if the argument below is correct, they had to break the customary silence on personal matters between husband and wife in order to negotiate key changes in their sexual relations.¹¹

According to the genealogical evidence, when couples began actively avoiding pregnancy, they did so early in their relationship. They were forced into new modes of expressing and gratifying sexual needs because existing contraceptive methods were too un-

11 Donald J. Bogue, “Normative and Psychic Costs of Contraception,” in Rodolpho A. Bulatao and Ronald D. Lee (eds.), *Determinants of Fertility in Developing Countries. II. Fertility Regulation and Institutional Influences* (New York, 1983), 151, 153.

Fig. 6 Age at Birth of Last Child in New England, 1620–1854—Women Who Married between Ages Twenty-one and Twenty-three and Survived to Age Forty-five



SOURCE Sample genealogies weighted by state, excluding cases when interval between first and second births exceeds sixty months and cases when mother's age at birth of last child was purportedly over fifty-two.

reliable. The rubber necessary to make elastic condoms or syringes for cold vinegar-water douches did not yet exist. Only four methods of birth control were available: (1) More intensive and/or prolonged breastfeeding to extend postpartum amenorrhea, (2) increased resort to herbal or chemical abortifacients for unwanted pregnancies, (3) less frequent coitus, and (4) male withdrawal prior to orgasm during coitus. Wives did not need their husbands' support or consent to use the first and/or second techniques, whereas the third and fourth required the husband's active cooperation.¹²

Breastfeeding Most women in early America nursed their infants as a matter of course, but breastfeeding is not without cost. It is disruptive to household routine and time-consuming. How long mothers pursue it, and how intensively, determines how soon their ovaries resume ovulation. Modern studies indicate that breastfeeding can postpone the return of the menstrual cycle for as long as two years, but the actual delay for any particular mother depends on the strength and frequency with which her child suck-

12 Comfortable and effective condoms made of latex did not appear until the 1930s. The introduction of the rubber-ball syringe, which allowed quick, effective douching through the powerful propulsion of the astringent, is difficult to date.

les. Thus does the nursing relationship greatly influence how long a woman can avoid another pregnancy after she and her husband resume coital relations. The decision of when to wean a child probably depended on the state of its health and of the mother's health and whether suitable alternative foods for the baby, such as cow's milk, were seasonally available. Consequently, the duration of the intervals between pregnancies varied widely from woman to woman for reasons unrelated to any desire to avoid or terminate pregnancy.¹³

In a region where immigration was low, new ideas about baby care may have been slow to take hold. So long as women continued to practice their mothers' mode of nursing and weaning, the customary variation in birth intervals would center around a stable mean. The mean ceased to be stable after 1740, but there is no evidence that significant numbers of women in the late colonial period or in first half of the nineteenth century were adopting more intensive styles of breastfeeding or postponing weaning. Admittedly, finding such evidence would be difficult, but, in any event, breastfeeding's efficacy in postponing pregnancy was both limited and unsure, and its investment in a mother's time would have been sizable.

Abortion Any decision to terminate a pregnancy would be the wife's to make, and it was not illegal if done early enough. The Massachusetts Supreme Court determined in 1812 that abortion early in pregnancy was beyond the scope of the law and not a crime. This decision remained the ruling precedent in the United States as a whole until the 1850s. Since a woman could not be adjudged to be pregnant with certainty until she felt the movement of the fetus, abortion was not "abortion" prior to that "quicken-ing." Did married women freely resort to legal abortion? Klepp cites numerous references in letters written by women from the Philadelphia area during the Revolutionary and early national eras

13 Ross W. Beales, Jr., "Nursing and Weaning in an Eighteenth-Century New England Household," in Peter Benes (ed.), *Families and Children* (Cambridge, Mass., 1987), 48–63. James W. Wood, *Dynamics of Human Reproduction: Biology, Biometry, Demography* (New York, 1994), 338–343, 368–370; Paula A. Treckel, "Breastfeeding and Maternal Sexuality in Colonial America," *Journal of Interdisciplinary History*, XX (1989), 25–51. Mary Beth Norton, *Liberty's Daughters: The Revolutionary Experience of American Women, 1750–1800* (Boston, 1980), 233–234, argues for many alterations in white women's lives in the post-Revolutionary era, among them cooperation between husband and wife in the prevention of pregnancy and a greater willingness among women to control fertility through extended breastfeeding.

indicating knowledge of herbal remedies to “restore” menses. She argues that women were accustomed to controlling their fertility in this way and were the prime instigators of the fertility decline. Van de Walle, however, cautions that abortion did not lie behind every mention of herbs for menstrual regulation. Classical and medieval medical writers viewed menstruation as a wholesome purgation of bodily impurities and placed great importance on regular menstruation for women’s health and to her ability to conceive. They often prescribed one or another of a large set of herbal emmenagogues to cause the uterus to shed its burden or to expel the placenta after birth. Van de Walle also notes that herbal abortifacients, though present throughout recorded history, were unreliable or ineffective, and dangerous to the mother. The extent to which women actually used them remains unclear.¹⁴

Whether married women in early New England commonly resorted to the use of abortifacients is likely to remain unsubstantiated for lack of objective sources. Nonetheless, since these herbs posed some danger to mothers, any increase in usage should have left traces in the mortality data. The proportion of women in sample families who died before age forty-five in New England actually fell between 1750 and 1825. Prior to 1750, 28 percent of

14 James Mohr, *Abortion in America: The Origin and Evolution of National Policy* (New York, 1978). The anti-abortion movement, which began in the middle of the nineteenth century, was led by medical practitioners who claimed that one out of five pregnancies was intentionally terminated, a claim that Mohr and others have accepted at face value. Given the probability that doctors then did not know the normal rate of spontaneous abortion, they tended to identify every failed pregnancy as the result of deliberate action on the part of the mother. See the discussion of this issue in Paul A. David and Warren C. Sanderson, “Rudimentary Contraceptive Methods and the American Transition to Marital Fertility Control, 1855–1915,” in Engerman and Gallman (eds.), *Long-Term Factors*, 331. Klepp, “Lost, Hidden, Obstructed, and Repressed,” 68–90. Etienne van de Walle, “Flowers and Fruits: Two Thousand Years of Menstrual Regulation,” *Journal of Interdisciplinary History*, XXVIII (1997), 183–203. Van de Walle seeks to rebut arguments by John M. Riddle, *Contraception and Abortion from the Ancient World to the Renaissance* (Cambridge, Mass., 1992), and Angus McLaren, *Reproductive Rituals: The Perception of Fertility in England from the Sixteenth to the Nineteenth Century* (London, 1984). See also van de Walle, “Towards a Demographic History of Abortion,” *Population: An English Selection*, XI (1999), 115–131. Roger Thompson’s examination of Middlesex County court records in seventeenth-century Massachusetts turned up only four instances of the use of savin or pennyroyal, all by unmarried women. The outcome is unknown in one case, but in the other three, “the women later gave birth” (*Sex in Middlesex: Popular Mores in a Massachusetts County, 1649–1699* [Amherst, 1986], 26). Cornelia Hughes Dayton relates the tragic story of a young unmarried woman who took an abortifacient at the urging of her lover and subsequently died (“Taking the Trade: Abortion and Gender Relations in an Eighteenth-Century New England Village,” *William and Mary Quarterly*, XLVIII [1991], 19–49).

mothers for whom the information is available (73 percent of all mothers in the sample) died before the age of forty-five, whereas from 1750 to 1824, only 17 percent died. Even in the higher mortality years from 1825 to 1854, just 22 percent failed to outlive their reproductive years. The reduction in childbearing after 1750 helped to lower the risk of dying in childbed, but the rise in the maternal survival rate between 1750 and 1824 easily exceeds any gain attributable solely to the decline in births during those years. Given this buoyant level of maternal well-being, self-induced abortion seems hardly to have been a primary means for controlling family size in New England, although it undoubtedly continued so for desperate women.¹⁵

Coital Infrequency Longer intervals between lovemaking required greater self-control than married couples in New England had hitherto been accustomed to exercise. Some Pennsylvania Quakers in the eighteenth century may have adopted periodic abstinence for spiritual reasons, but marital abstinence was no virtue in conventional Protestant thought. As Morgan pointed out long ago, Puritans and their descendants most emphatically enjoyed sex. They would have been loathe to give it up. Yet something in their lives or circumstances began prompting young couples to manage their sex lives. In the nineteenth century, men who regarded themselves as progressive and enlightened came increasingly to accept a new, romanticized image of women as pure-minded nurturers whose natural disinterest in sex could help their husbands discipline their own urges. According to David and Sanderson, however, women who acceded to this rarified version of their femininity could not significantly lower their chances of getting pregnant unless they and their husbands also employed a complementary contraceptive practice. David and Sanderson calculated the efficacy of alternative forms of contraception using data from a late nineteenth-century California survey of “middle class” wives. They came to the surprising conclusion that reducing coital frequency from twelve times a month to four would, by itself, avoid only one pregnancy during the course of a woman’s reproductive life! However, the addition of one other contraceptive

15 The greatest gains in proportions successfully reaching age forty-five between 1620 and 1749 and between 1750 and 1824 were those by mothers with five or fewer children.

practice caused the estimated completed family size to fall by at least one-half.¹⁶

Douching in an unheated bedroom with a cold vinegar rinse seems a particularly daunting method, especially in winter, and a sponge was far less effective in reaching the full extent of the birth canal than was the rubber syringe, which did not make its appearance until much later. Coitus interruptus, male withdrawal before orgasm, was the sole recourse. It was the probable method of choice in France. The Bible condemns the practice as unnatural, but it is simple in concept and requires no special equipment. To be effective, however, withdrawal requires good timing and special care by the husband to ejaculate well away from his wife. If husbands effectively and consistently combined this method with fewer episodes of lovemaking, they could substantially improve their wives' chances of avoiding pregnancy and, according to David and Sanderson, might reduce final family size by as much as two-thirds. Husbands had to be highly motivated to make infrequency and withdrawal work, and they ran a serious risk of frustrating themselves or their wives sexually.¹⁷

The success that couples in New England had in lowering their lifetime fertility is a measure of the strength of their motivation and the degree of their cooperation. Whereas a woman could decide on her own whether to try abortion, both partners had to

16 Robert V. Wells, "Family Size and Fertility Control in Eighteenth-Century America: A Study of Quaker Families," *Population Studies*, XXV (1971), 73–82; Harry S. Stout, *The New England Soul: Preaching and Religious Culture in Colonial New England* (New York, 1986); Mark A. Noll, *America's God: From Jonathan Edwards to Abraham Lincoln* (New York, 2002); Edmund S. Morgan, "Puritans and Sex," *New England Quarterly*, XV (1942), 591–607; Nancy F. Cott, "Passionlessness: An Interpretation of Victorian Sexual Ideology, 1790–1850," *Signs*, IV (1978), 219–236; Carl N. Degler, "What Ought to Be and What Was: Women's Sexuality in the Nineteenth Century," *American Historical Review*, LXXIX (1974), 1467–1490; *idem*, *At Odds: Women and the Family in America from the Revolution to the Present* (New York, 1982). Jan Lewis and Kenneth Lockridge argue that upper-class Southern women manipulated their husbands into reducing coital frequency on the grounds that frequent pregnancy and childbirth endangered their health ("Sally Has Been Sick": Pregnancy and Family Limitation among Virginia Gentry Women, 1780–1830," *Journal of Social History*, XXII [1988–1989], 5–19).

17 Jean-Louis Flandrin (trans. Richard Southern), *Families in Former Times: Kinship, Household and Sexuality* (New York, 1979), 219–225, believes that men practiced withdrawal at the behest of their wives who, until the eighteenth century, did not have sufficient status within the marriage to win such sympathy and consent. The Biblical reference to coitus interruptus is Genesis 38. David and Sanderson, "Rudimentary Contraceptive Methods," 356–359. The precise reduction achieved depends on assumptions about a wife's age at marriage, the probability of the method's failure and the couple's failure to use it, as well as coital frequency. Degler, "What Ought to Be and What Was," 1474.

work together to avoid pregnancy in the first place. Husbands had to overcome their fear of female sexuality and to respect their wives as stable, rational, and responsible individuals. The decision to restrict sex with their wives required self-control on their own part, but it also represented a vote of confidence in their wives' loyalty and self-discipline. Wives, too, had to refashion the feminine ideal for themselves. They had to cease regarding childbearing as a self-justifying end in itself and to embrace the new view of sexual reproduction as a process that could and *should* be under the control of wives and husbands.¹⁸

Planned and shared continence probably helped to make marriage a more equal partnership, and perhaps encouraged parents to invest more personal time with each young child. But why did they want fewer babies in the first place? The growth in life expectancy that took place between 1750 and 1825 gave parents more children to feed, clothe, house, and educate. But chance played such a large role in who and how many would survive that a modest improvement in average life expectancy at birth seems an unlikely inducement to give up the joy of spontaneous sex in order to prevent pregnancy, especially *early* in married life.

MOTIVES FOR RESTRICTING FAMILY SIZE The rewards of smaller families for women that loom largest to modern eyes are fewer encounters with the danger and pain of childbirth and more time free from pregnancy, diapers, and midnight feedings. Yet such prospects did not persuade couples in England to control their sexual relations; nor did they tempt New England families who were moving to newly opened territories in the late eighteenth and early nineteenth centuries. Unlike the comparatively crowded countries of the Old World, North America's high land-to-man ratio made farm ownership a viable prospect for many families, but usable undeveloped land was never free for the taking. Indians, the French, and the Spanish disputed access in the colonial period, and, after the imposition of certain treaties on Indian nations after the War of Independence, operating a farm remained a realizable dream only for those willing to move greater and greater distances

18 Klepp, "Revolutionary Bodies: Women and the Fertility Transition in the Mid-Atlantic Region, 1760-1820," *Journal of American History*, LXXXV (1998), 910-945, examines women's changing ideas about nature and reproduction in the Philadelphia area and locates the origins of change in Revolutionary rhetoric. Cott, "Passionlessness," 219-236.

from home. That dream was dying in the older settlements along the eastern coastline even before the colonial period ended.

Demographers making use of the federal censuses have long emphasized the early and persistently lower child/woman ratios in the more densely populated northeastern United States—the Mid-Atlantic states as well as New England—compared to the rest of the country. This marked disparity among the country's regions led scholars to hypothesize local land scarcity as the root cause of the fertility decline, but when tested at the local level, differential land prices do not predict birth rates.

Refinements of this thesis focused on inheritance practices and parental desires for old-age security. Most parents in the Northeast divided up the cash value of their estate equally among their children, giving land to sons, if possible, and personal estate to daughters. The more children that a couple had, the smaller were the individual portions. If family landholdings were no longer capable of subdivision among children without damage to their productivity, parents either directed their executor to sell the farm and divide the proceeds or else give the whole farm to one child, who would then pay the others their cash shares, usually by mortgaging the farm. Numerous siblings imposed a heavy burden on the primary heir, who often assumed care of the elderly parents as part of the bargain. If income from the farm did not cover all his costs, including mortgage payments, the heir had to sell out, evicting his aged parents in the process. Probate records in Massachusetts and Connecticut contain numerous examples of this dilemma beginning as early as the second decade of the eighteenth century. Presumably, couples in older settlements would have opted for fewer children when the good land was all taken up, whereas families moving to newly opened territory, where returns to labor were greater and the costs of portioning children lower, would have had more children.¹⁹

Theories about the consequences of land scarcity and old-age insecurity on family size are consistent with the downturn in fertility that took place first in the southern states of New England, where English settlements were oldest and densest. But are they both true and sufficient? Did young couples reach an economic tipping point at which they realized that large families simply cost

19 Morton O. Schapiro, "Land Availability and Fertility in the United States, 1760–1870," *Journal of American History*, XLII (1982), 577–600.

too much? The kinds of data supplied by genealogies will not provide answers. Neither the occupations of male heads of households nor any other money-making activities by family members can be determined prior to the 1850 federal census. Not even family members' religious affiliations or voting habits are available to suggest nonmaterial motives for controlling births. Values were shifting in the eighteenth century, as the rising rates of premarital pregnancy suggest, and studies of an emerging consumer culture reveal changing lifestyles. Perhaps large families would have interfered with adults' enjoyment of such newly popular values as privacy, cleanliness, personal comfort, and social stimulation.

Probate inventories show that the material standard and style of living had been rising for half-a-century among people in middling circumstances. Household incomes had to have risen for them to afford the new consumer goods listed in these documents. Houses were larger and better constructed. People ate more nutritious diets, and they increasingly used pewter and ceramic ware. Farm women drank sweetened tea with their friends, and their husbands read newspapers in public houses over mugs of rum punch. Most children in Massachusetts and Connecticut attended public schools for at least a few months of the year, and the proportion of rural women of ordinary means able to write their own names had reached at least 50 percent by the era of the American Revolution.²⁰

Economic motives The refinement of manners continued to spread deeper into the social strata in the new nation, and values continued to evolve in New England as religious revivals gained force. Standards for education rose and surely increased the expense of equipping children for independent adulthood at a time when household spending on consumption was rising. Did the cost of living increase so much that parents decided they could no longer afford more than four or five children? What was the value of child labor relative to the cost of child rearing, and how did it

20 David H. Flaherty, *Privacy in Colonial New England* (Charlottesville, 1972); James Deetz, *In Small Things Forgotten: The Archaeology of Early American Life* (New York, 1996; orig. pub. 1977), 62–67; Michael P. Steinitz, “Landmark and Shelter: Domestic Architecture in the Cultural Landscape of the Central Uplands of Massachusetts in the Eighteenth Century,” unpub. Ph.D. diss. (Clark University, 1988), 165–168; David W. Conroy, *In Public Houses: Drink and the Revolution of Authority in Colonial Massachusetts* (Chapel Hill, 1995), 189–240; Main, *Peoples of a Spacious Land: Families and Cultures in Colonial New England* (Cambridge, Mass., 2001), 215–222; *idem.*, “An Inquiry into When and Why Women Learned to Write in Colonial New England,” *Journal of Social History*, XXIV (1992), 579–589.

change as the economy developed from 1750 to 1850? These questions await research for definitive answers, but the context is hardly obscure, if a little puzzling.

The kind of mixed farming that characterized most of southern New England made heavy use of human labor only at haying and harvest time. When all of the undeveloped land was gone, older boys and young men sought other employment to supplement their pay as common laborers. Until the population reached a certain density, the lack of good means of transportation limited the market for local manufactures, discouraging successful artisans from expanding production and taking on apprentices. Consequently, the value of child labor in the rural interior of southern New England had probably sunk to its lowest point by the middle of the eighteenth century, but child labor was far cheaper in England at the time. There the birth rate was actually rising because couples were marrying earlier. England was far more densely populated. Land was so expensive, and wages so low, that ordinary people had no expectations of ever acquiring any. However, merchant-operated systems in the English countryside supplied tools and raw materials to rural families for manufacture at home, putting whole families to work. When England began industrializing, family size did not fall. Only *after* the country reached a mature stage of industrialization in the 1880s did birth rates begin their long-term sustained decline.²¹

Had the economy of southern New England failed to develop manufacturing occupations, average age at marriage would have risen, and far fewer young people would have been able to set up independent housekeeping. The birth rate would have fallen for these reasons alone, and sexual relations within marriage might not have altered. The putting-out system in textiles and shoemaking that began in 1780s Massachusetts marked a transition away from traditional ways of using family labor while greatly increasing paid employment in the countryside. The proliferation of carding machines and spinning mills sharply increased the demand for weavers' services, many of whom were women. The first spinning mill

21 Lee A. Craig used a sample of rural households from the 1860 manuscript census to compare the relative contribution of children to farm output in the Northeast, the Midwest, and on the frontier (*To Sow One Acre More: Childbearing and Farm Productivity in the Antebellum North* [Baltimore, 1993]). Not surprisingly, children of either sex produced little before the age of twelve, and teen-aged girls contributed far less than their male counterparts on northern farms.

erected at Fall River in the early nineteenth century found the neighboring farm wives already fully employed as weavers for Providence mills. Hence, its owners opened a store in Hallowell, Maine (near modern Augusta), where it offered consumer goods to local women in exchange for weaving yarn supplied by the mill. Other forms of rural outwork eventually included the making of straw and palm leaf hats in the 1820s, but the craft that underwent the most complete transformation was shoemaking in eastern Massachusetts. Women became binders, and employers treated binders as independent workers. The practice gave rural women the opportunity for the first time to earn their own cash at home.²²

As shops turned into small factories, the manufacturing processes subdivided in ways that opened up more employment for children and teenaged girls, relative to men and older boys. The same process did not cause the birth rate in England to fall. Have we a paradox? Young couples in southern New England were starving their sex lives in order to avoid conceiving a new baby despite the fact that the value of child labor was rising, at least until 1830. In old England, neither proto-industrialization, early factory jobs, nor Methodist religious revivals enticed couples into sacrificing their sexual enjoyment. Given that paid child labor was increasingly contributing to household incomes in both old and New England until 1830 or later, the fall in the latter's birth rate seems to have come *in spite* of expanding child employment, certainly not because of it.²³

The solution to the paradox is undoubtedly more complicated than assessments of the availability of land, the value of child labor, or the opportunities for married women to earn cash at home can explain, but information from two state surveys taken just prior to 1820 facilitate further analysis. In Connecticut and New Hampshire, the census takers enumerated meetinghouses, schoolhouses, publichouses, stores, several kinds of mill, textile

22 Victor S. Clark, *History of Manufactures in the United States* (New York, 1949; orig. pub. 1929), I, 539; Mary H. Blewett, *Men, Women, and Work: Class, Gender, and Protest in the New England Shoe Industry* (Urbana, 1988), 44–67. See also Blanche Hazard, *The Organization of the Boot and Shoe Industry in Massachusetts before 1875* (Cambridge, Mass., 1921).

23 Jan De Vries called this period the “Industrious Revolution,” regarding it as a crucial transitional stage that supplied the infrastructure necessary for the development of full-blown industrial capitalism and helped to ease the break with tradition by encouraging all family members to work smarter in return for access to new consumer goods (“The Industrial Revolution and the Industrious Revolution,” *Journal of Economic History*, LIV [1994], 249–270).

factories, tanneries, distilleries, printing establishments, banks, academies (high schools), and libraries by town. To test the effect that each of them had on marital fertility, a subset of couples in these states was created from those who married between 1810 and 1824. It includes only those in which the wives married between the ages of nineteen and twenty-three, lived to age thirty, and gave birth to a second child sixty months or less after their first. Setting these boundaries narrowed the already small sample size to exactly 100 cases, 54 from Connecticut and 46 from New Hampshire. In addition to the census counts, three more pieces of information were collected: coding of town population size in 1810 and 1820 for each couple; the numbers of cotton factories present in those towns, according to the 1832 Congressional manufacturing survey known as the McLane Report; and the proportion of the labor force employed in agriculture, commerce, and manufacturing in the county where each couple lived, as reported in the published summaries of the federal manufacturing census of 1820. These data make clear that the Connecticut and New Hampshire couples in this sample lived in sharply contrasting economic and demographic environments.²⁴

The average population of sample towns in Connecticut was 3,247 compared to 1,622 for New Hampshire: The town population densities were 88.6 people per square mile and 56.8, respectively. The women in Connecticut married a little older, 21.3 versus 20.8, and died a little older, 70.1 versus 67.7. They also had 26 percent fewer children by age thirty, 2.94 compared to 3.70. As a result of their greater population density, Connecticut towns had more schools, commercial establishments, and the like, except saw mills, but the degree of difference was not uniform across the categories: No New Hampshire couple lived in a town with a distillery, whereas the towns in Connecticut averaged 1.57 distilleries apiece. Only four out of the forty-six New Hampshire couples lived in towns with printing establishments or banks, but disparities between the sample towns in these two states were greatest in

24 The child/woman ratios in these two states, calculated from their totals in federal censuses of 1800 through 1850 posted on the University of Virginia website, show a gradual convergence between the two states over the course of the half-century, from 1,512 for Connecticut and 1,848 for New Hampshire in 1800 to 928 for both states in 1850. A shift in the age categories used by the federal census after 1830 required an estimate of the numbers of females sixteen through nineteen and forty through forty-four in deriving these ratios.

their numbers of woolen factories, academies, and libraries. The Connecticut towns had twice as many cotton factories as those in New Hampshire before 1820. By the time of the survey for the McLane Report, five times as many of them were in Connecticut as in New Hampshire.²⁵

The small number of couples in the subsample makes it difficult to determine which of the differences visible in the censuses related significantly to marital fertility as measured by the number of births by mother's age thirty. Pearson correlation coefficients proved significant only for town population size (and a few of the related co-variants, such as grist mills, tanneries, meetinghouses, and schoolhouses) but not for printers, banks, academies, libraries, nor textile-related manufacturers. Yet the number of births by mother's age thirty correlated positively with the proportion of the county's labor force employed in agriculture ($R = +.432$) and negatively with manufacturing ($R = -.420$) and commerce ($R = -.328$). In other words, the greater the nonagricultural sector of the county economy in the federal census of 1820, the lower was the number of babies born to young mothers.

Perhaps if the subset were much larger, more subtle connections might appear between the local economy and culture. However, an experiment that groups the census categories into three composite sets—producers, services, and amenities (the value of each being the arithmetic sum of its components)—might prove fruitful. School houses, pubs, stores, banks, and printers are denominated as services in the experiment; meetinghouses, academies, and libraries are amenities; and all others are producers. How well do any of these three composite sets predict marital fertility among couples in the subsample as measured by the number of births to mothers by age thirty? Pearson correlation coefficients and their degree of statistical significance are for amenities, $R = -.246$ (significance = .014); producers, $R = -.231$ (significance = .021); services, $R = -.132$ (significance = .192). Residents' fertility rates varied inversely with the number of each in their town, though services were not a significant factor. Note, however, that

25 John C. Pease and John M. Niles, *A Gazetteer of the States of Connecticut and Rhode-Island* (Hartford, 1819); John Farmer and Jacob B. Moore, *A Gazetteer of the State of New-Hampshire* (Concord, 1823); [Louis McLane, Secretary of the Treasury], *Documents Relative to the Manufactures in the United States* (New York, 1969; orig. pub. 1833), 2 v.

amenities were slightly more important to marital fertility than producers.

The results of this exercise with town data and sample families, limited as they are, support both kinds of explanations for the onset of the fertility transition in New England—the cultural as well as the land/inheritance/old-age-security model. There were more meetinghouses and libraries available in towns with low birth rates than population size or density, alone, would predict. Since women outnumbered men in church membership in early New England and were better educated and more politically aware than ever before, rising female status within the family may explain the greater willingness of men to cooperate in helping their wives avoid pregnancy.

Whatever the reasons for declining premarital pregnancy and fertility, young people in New England had a choice that their counterparts in old England did not: They could move far away from home, work hard, and build a farm, or they could stay, seize the new opportunities afforded by expanding markets, and, by controlling costs through sexual restraint, still hope to enjoy the high, and interesting, standard of living enjoyed by their elders. Both economic and cultural change began well before Independence; the pace was gradual but cumulative. By the time the great transportation and industrial revolutions were underway, the fertility transition in southern New England was already under full throttle, and the intimate lives of the people had already transformed. Who would have guessed that the need for sexual restraint would become patriarchy's gentle solvent?²⁶

26 In their discussion of alternative schemes for explaining the fertility transition in the United States, Susan B. Carter, Roger L. Ransom, and Richard Sutch note that, "Even in southern New England, which by all accounts was the locus of manufacturing and commercial development in the early decades of the century, it is difficult to relate the decline in rural fertility between 1810 and 1830 to the expansion of nonagricultural opportunities for young adults" ("Family Matters: The Life-Cycle Transition and the Antebellum American Fertility Decline," in Timothy W. Guinnane, William A. Sundstrom, and Warren Whatley [eds.], *History Matters: Essays on Economic Growth, Technology, and Demographic Change* [Stanford, 2004], 292). Their own life-cycle model for the fertility transition could apply to southern New England as early as 1750.