MARRIAGE AND FERTILITY PATTERNS IN CUMBERLAND COUNTY, 1800-1859

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ocial historians have long been interested in studying the family unit, particularly the demographic processes of marriage and fertility. The analysis of trends in marriage and fertility within the family unit can aid in understanding family dynamics of the past. Of special interest is the effect that variables such as occupation and economic opportunity have on the decision-making that determines such intimate events as when to marry, family size, spacing of children, and seasonality of birth. This study will look at marriage and fertility patterns in relation to these variables for a region in central Pennsylvania during the first half of the nineteenth century.

The economic structure of the region where a family resides has been shown in numerous studies to have a decided effect on the dynamics of the family. At the end of the eighteenth and beginning of the nineteenth century, fertility in the United States was much higher than that found in Western Europe. A sustained decline began in New England early in century (some scholars

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assert it began even earlier) and slowly spread to other areas of the country. Over the course of the nineteenth century, the national birthrate was cut in half. In 1800 it stood at 55 per 1,000, for a total fertility rate above seven children per woman. By 1860 the birthrate had dropped to 41.4 per 1,000 with a total fertility rate to 5.2 children per woman, and by 1900 to 3.6 children per woman and a birthrate of 28.5 per 1,000.¹ Morton Schapiro, building on the work of others, has created a model that predicts a rural white crude birth rate for northern states, and the data for rural areas of Pennsylvania reflect the decline being seen on the national level. In the opening decade of the nineteenth century Pennsylvania shows a birth rate of 58.2 per 1,000, falling to 43.5 by the decade 1850–1860.²

This fertility transition is particularly interesting because it began before a high degree of urbanization or industrialization and before the development of modern contraceptive techniques.³ Several studies have explained this transition by a relationship between growing land scarcity and a decline in fertility in antebellum America.⁴ Scholars such as Yasukichi Yasuba and Wendell Bash assert that the availability of inexpensive land presented agricultural opportunities to a rural population, and this encouraged early marriage and made larger families an economic asset, or at least not an economic liability. Land was most available and inexpensive in frontier areas, so those areas tended to produce larger families; as population pressure reduced opportunities in agriculture, fertility generally declined. Lee Craig has looked at the land availability thesis in conjunction with other variables of such as migration, mechanization, and transportation, and determined that large families may not necessarily have been an economic asset to farmers.⁵

Additional studies examined other variables in relation to fertility, including social class and occupation of the head of the household.⁶ For the latter, both Michael Haines and Tamara Hareven found differences in fertility related to occupation of the head of household, generally that low-skill occupations such a laborer or miner had much larger families than higher-skilled occupations. Jon Gjerde and Anne McCants examined the role that cultural norms played in fertility choices, studying a population of Norwegian immigrants to the Midwest. They found that foreign-born immigrants brought cultural norms for marriage and family spacing with them, which interacted with the economic conditions and affected fertility, a conclusion that supports the findings of Michael Haines and Tamara Hareven for other immigrant populations.⁷ Nancy Osterud and Edward Byers detected a change in fertility that occurred when a region made the transition from a rural agricultural to a capitalist economy. They found a change in fertility behavior in relation to economic change occurred at the level of "mentalité," the development of a new orientation toward family life. "Problem solving and optimism replaced fatalism, improvisation, and passivity in many areas of life. The family economy and childbearing became matters of conscious awareness and planning."⁸ In seeking to explain the fertility transition that occurred in the United States in the nine-teenth century, these scholars have found a complex interaction between economic and cultural forces and a couples' decision regarding children.

In order to further analyze that interaction, this paper will examine farm and non-farm families, and look at marriage and fertility patterns in relation to occupation and the economic background of a region in central Pennsylvania. The population chosen for the study consists of 301 families in Cumberland County, for the period between 1800 and 1859. Other studies have looked at colonial or antebellum Pennsylvania families, but these have largely concentrated on populations in urban Philadelphia and the commercialized eastern coal regions of the state. Gary Laidig, Wayne Schutjer and C. Shannon Stokes did a valuable study that covered two-thirds of the state, but they used cross-sectional data from the federal census of 1850 and 1860 to test their hypothesis.⁹ There is no longitudinal study conducted prior to 1850 that looks at a Pennsylvania population west of the Susquehanna River. The reason for this is clear. It is impossible to do longitudinal studies using federal census data prior to 1850, the earliest census when individual family members and their relationships to each other were enumerated. Unlike some other states, Pennsylvania never did a census of its population during its time as a colony. It did conduct septennial state censuses in the nineteenth century, but most of these have not survived and the ones that have contain data only on heads of households. There are no additional state government sources in existence that provide population data accessible for the period prior to 1850. Data from a variety of public and private sources must be utilized to examine family processes over time in the eighteenth and the first half of the nineteenth century. Consequently, when data was discovered that made it possible to do a longitudinal study in a rural area in central Pennsylvania, its value immediately became apparent.

Methodology

In order to investigate these demographic processes over time, the families were reconstituted from data from church registers, supplemented by birth

and marriage announcements found in local papers published during this era.¹⁰ The church records used belonged to Presbyterian, Episcopal, and United Church of Christ congregations in the county.¹¹ Cemetery records were also used to establish birth and death dates, and Cumberland County is fortunate in having developed a cross-indexed list of all cemeteries in the county that made these records accessible.¹² Local tax lists for the period were used to determine the occupation of the head of household.¹³ For some aspects of the study, such as completed family size and age-specific fertility rates, only those families that could be confirmed complete were included. A family was considered complete if it could be established that both spouses survived for the entire childbearing period (from marriage until age 45 of the wife). There were a total of 216 complete families in the data set. Families with incomplete data or families with interrupted marriages due to the early death of husband or wife were utilized for some portions of the study, such as age at first marriage and seasonality of marriages and births, but not for agespecific fertility and family size. In this population, there were 53 interrupted families and 32 incomplete families.

Whether complete or incomplete, the resulting total data set of 301 families shared several common characteristics: all were white, all were mainstream Protestant, and the overwhelming majority of the parents were native born. The hypothesis to be tested against this data set is multi-faceted: 1) that the family size will decline over the 60 years of the study, mirroring the decline in family size taking place on a national basis; 2) that family size will vary with occupation, with higher status occupations having smaller families; and 3) that age at first marriage will gradually rise over the study period, again mirroring what is seen on a regional and national basis. Seasonality of marriage and births, and spacing of births will also be examined, to see what they reveal concerning the rhythms of the family and the community.

Cumberland County

Cumberland County was formed in 1750, and by the beginning of the nineteenth century had a population of 25,386, which grew by 1860 to 40,098.¹⁴ There was a drop in population between 1810 and 1820, from 26,757 to 23,606, perhaps because economic hardship resulting from a crash in produce prices after the War of 1812 led to greater than usual out-migration. However, the economy recovered, and by 1830 the population was at 29,226. The slow population growth of a little over 10,000 over the next thirty years undoubtedly reflects continuing out-migration. It is worth noting that the county lagged significantly behind the rest of the state in terms of population growth over the period. Cumberland County saw a population growth rate of 63 percent from 1800 to 1860, while the state experienced a growth rate of 480 percent.

From its earliest days the county had a mixed economy, with iron furnaces and tanneries appearing as early as the 1760's. The role of industry in the county is evident in statistics from the 1810, 1840, and 1860 censuses. In 1810 the county had one iron furnace producing 2,830 tons; by 1840, there were six iron furnaces, but total production was only 2,900 tons. By 1860 the number of furnaces had dropped to three, with no statistics on total production that year. Other notable examples of industry included saw mills, dropping from a high of 102 in 1810, to 76 in 1840, to 8 in 1860; flour mills, of which there were 66 in 1810, 39 in 1840, and 42 in 1860; and distilleries, with 120 in 1810, 28 in 1840, and 9 in 1860. The wool cloth industry is another interesting example: in 1810, 48,786 yards of wool cloth were made in the county as a cottage industry. By 1840, nine wool cloth factories had appeared producing goods valued at \$25,800, but by 1860 this number had been reduced to two factories, producing goods valued at \$3,179.¹⁵

These statistics show the effect of the market revolution on Cumberland County. Nationwide in the nineteenth century, better transportation facilities and the initiatives of merchant capitalists saw a changeover from household manufacture to production concentrated into large units. The drop in iron production in the county is a good example of this, with iron from the anthracite region and its abundant coal produced more cheaply and in larger quantities than was possible in Cumberland County. The completion of the Cumberland Valley Railroad in the 1830's allowed mass-produced goods to penetrate the market, and lowered the need for locally produced iron in the county. Two more statistics illustrate this: the manufacturing output per capita dropped in the Cumberland region between 1810 and 1840, from \$29.49 to \$16.72; and in 1820, 1,408 in the workforce were involved in manufacturing, but by 1860, that number had dropped to 1,329, despite the overall growth in the county's population.¹⁶ The result was a growing ascendancy of agriculture in the county's economy.

As the numbers confirm, agriculture was the dominant economic force throughout the period of this study. The 1840 census reported 1,474 farms, which by the 1860 census had increased to 2,105. New land was being cleared to create some of the increase in farms, with a reported expansion of improved land from 187,934 acres in 1850 to 208,035 by 1860. However, the average farm size was dropping, from 187 acres in 1787 to 130 acres in 1850, with another drop to 99 acres by 1860.¹⁷ Cumberland Valley farms were small but productive, in 1840 producing the second highest output of wheat and corn per farm worker, and the highest levels of oats among forty-five counties in the eastern two-thirds of the state.¹⁸ The cost of shipping this produce to markets in the Philadelphia or Baltimore region would substantially cut into farmer's profits, but agriculture was secure in its primacy in the county's economy.

The evidence available suggests that despite the productivity of its farmland, the economy in the area was growing at a fairly slow rate. In 1794, land values in Cumberland County were between 6-10 per acre. Forty years later, in 1838, cleared land was valued at 333 per acre, woodland at 27 per acre, for a rate of growth in value of roughly 3.4 percent each year. By 1860 the average value of farmland in the county, including both improved and unimproved land, was 57 per acre, an annual growth rate since 1840 of 3.25 percent.¹⁹ As has already been demonstrated, growth in the non-agricultural sector saw a similar slow increase or in many cases an actual decline. Wages for laborers in the region were flat through the period from 1800 to 1830, and wages for skilled artisans were growing very slowly.²⁰ The population and economic statistics together suggest slow growth through the period from 1800 to 1860, stuttering in the second decade then recovering and expanding gradually up until the Civil War.

Marriage Data

Demographers are interested in marriage data for a variety of reasons. The age at which couples marry is seen as a key factor in completed family size, and numerous studies in the United States and Europe have shown that this statistic is often affected by economic conditions as well as cultural factors. When marriage data are primarily collected from church registers, as in this study, analysis of the seasonality of marriage is also possible. Seasonality of marriage can provide clues to the rhythm of life in a community and to its identity in an agricultural/industrial continuum.

Table 1 reveals very little change in age at first marriage among men during the period of the study, 1800–1859. Mean age of first marriage for men rose barely half a year, from 25.68 during the time period 1800–1829, to 26.19 for the second half of the study period. The median age actually dropped over the span of sixty years, from 25.5 to 25 years of age. The data ranged from a low age of 20 to the highest value of 35 years for the period 1800–1829, and from 19 to 45 years of age for the second group. Data for a third thirty-year period, 1860–1889, are also included for comparative purposes. Drawn from the marriages of children in the families under study, here more of a change can be seen, with male age of marriage rising a year in both the mean and median values.

Location		Male			Female	
	Mean	Median	N	Mean	Median	N
Cumberland County, 1800–29	25.68	25.5	88	22.30	21	96
Cumberland County, 1830–59	26.19	25	173	22.39	22	194
Cumberland County, 1860–89	27.13	26	75	24.15	23	66
Nantucket, MA, 1800–29	24.96	23.7	445	22.67	20.95	553
Nantucket, MA, 1830–39	25.56	24.72	199	22.30	21.14	236
New Jersey, 1848–50	25.3	24.4		22	21.2	3055*
New York, 1855		25			21.5	
Pennsylvania, 1887–88		24.7			21.7	

TABLE 1. Comparison Table of Age at First Marriage

Sources: Nantucket data from Byers, "Fertility Transition," 24; New York, New Jersey and Pennsylvania data from Thomas P. Monahan, *The Pattern of Age at Marriage in the United States* (Philadelphia: Stephenson Brothers, 1951), 161, 170, 172. (*total sample size for both men and women)

The data for women's age at first marriage also show little change over the period of the study. The mean age barely rises at all, although the median does rise by a year. The data ranged from the lowest value of 16 to the high value of 34 for the first group, and 16 to 38 for the second cohort. The third cohort from 1860–1889 does show a significant change, similar to what is seen in the men. Here the mean increases almost a year and a half, and the median again rises a year.

Further analysis of the distribution of the data shows a steady decline in women in the study marrying while still in their teens. Teen marriage for men in the study is practically non-existent, with only four men out of the entire 336 included in the marriage data set marrying while nineteen years old. For women it was more common, with 30 percent of the 96 women in the 1800-1829 group marrying while in their teens. For the 1830-1859 cohort the percentage drops to 24 percent, and reduces still further to 14 percent with the 1860-89 group. The number of women marrying for the first time at thirty or older remains relatively constant, ranging from 11.46 percent in that category in the first cohort to 9.09 percent in the third cohort. With distribution of data among 20-29 year-olds also remaining relatively steady, it is evident that the drop in teenage marriage is largely responsible for the gradual rise in the mean age of first marriage for women in the study.

Data from some other studies is presented in Table 1, to see how this Cumberland County population compares to others. Edward Byers's study of fertility in Nantucket, Massachusetts, is chosen for comparison as it is a longitudinal study of an area similar in population size to Cumberland County, if dissimilar in economy. It shows very similar values for age at first marriage over the period of 1800-1839 to those seen in this study, particularly for women. The values for New York, New Jersey, and Pennsylvania are crosssectional data taken statewide over a period of a year or two. The New Jersey values are slightly lower for both men and women than those in the Cumberland County 1830-59 cohort, but the values are within a year of each other. The New York statistics, for which median values are all that is available, are very close indeed to the second Cumberland cohort. Lastly, values for the state of Pennsylvania from 1887-88 (this is the earliest age at marriage data available for the state) show slightly more than a year difference from the values found for the third Cumberland cohort. These comparison studies show that the values found in the Cumberland population are within reasonable proximity to those found for marriage behavior as it was being practiced in the mid-Atlantic and New England area.

Seasonality

The statistics for seasonality of marriage and conception of children are quite revealing in terms of the dominant rhythm of life for the families in Cumberland County. The statistics for marriage are presented in Table 2 as an index, which were created by dividing the total number of marriages for each period by the number of months, and then dividing that number into the number of marriages for each month. If the marriages were equally distributed across all the months, each month would have the value of 100. This provides a standard scale which takes into account the varying lengths of months. In Table 2 it is clear that in Cumberland County the winter/early spring and late fall months were decisively preferred for celebrating marriage. Statistics for marriages of farmers or children of farmers were separated out and are displayed independently, and as expected they display these characteristics to an even greater degree. As can be seen in Chart I and the index values in Table 2, the seasonality of marriage reflects the rhythms of the agricultural year, with fewer marriages during the busy months of late spring, summer and early fall, when planting, cultivation and then harvest took up the majority of time and energy. Even when farm marriages are removed from the sample, the patterns are much the same, with January, February, April and October as the favored months for marriage.

Month	Marriage Index, 1800–29	Marriage Index, 1830–59	Farmer Marriage Index, 1800–59	Dedham Marriage Index, 1750–99	Water- town Marriage Index, 1737–99	Brain- tree Marriage Index, 1763–92	Nantucket Marriage Index, 1750–1839
N	126	286	166	781	381	232	1334
Jan	133	143	152	100	71	61	100
Feb	143	151	195	106	112	156	89
Mar	114	113	159	82	83	86	83
Apr	114	101	65	94	121	126	94
May	67	92	43	145	133	132	105
Jun	95	71	22	87	108	63	105
Jul	86	71	51	71	52	54	109
Aug	29	59	58	65	80	86	98
Sep	38	80	51	70	80	84	91
Oct	143	118	108	127	105	111	110
Nov	171	109	188	116	112	131	113
Dec	67	92	108	137	142	111	105

TABLE 2. Index Values for Marriage Seasonality for Cumberland County and Comparison

Populations

Sources: Statistics for Dedham, Watertown and Braintree, David Cressy, "The Seasonality of Marriage in Old and New England," *Journal of Interdisciplinary History* 16 (1985): 5; those for Nantucket from Byers, "Fertility Transition," 26.

There are very few studies that look at seasonality of marriage of United States populations, so the choice of comparison populations is limited. David Cressy looked at the marriage patterns in New England in the seventeenth and eighteenth centuries, and included the rural communities of Dedham, Watertown, and Braintree, Massachusetts, where agriculture dominated the economy. His results for the second half of the eighteenth century show a similar pattern to those found for Cumberland County in the first half of the nineteenth century. By contrast, the values for Nantucket, spanning both time periods, reveal a very different pattern for a community with an economy that revolved around fishing and whaling. The marriages are more evenly spread over the entire year, showing slight peaks in the summer and late fall. Since whaling was a year-round activity by this point in Nantucket's history, this more even distribution reflects that economic reality. In Cumberland County, marriages of farm and non-farm families alike reflect the rhythms of agriculture, the dominant force in the economy of that area.



Chart 1. Seasonality of marriage of Cumberland County population

The agricultural economy also shows its effects when it comes to seasonal patterns of conception and birth. In Chart 2, a pattern of conceptions peaking during December, January and March is evident in the 1800–1829 cohort, a slack time in the agricultural calendar. Conceptions for this group are at their lowest point in September and October, the busy harvest time in an agricultural community. This pattern is very similar to that found by Foster and Hummel for an agricultural community in Illinois during the period from 1830 to 1869.²¹ The 1830–59 Cumberland cohort shows these same trends,

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but with less drastic peaks and valleys. This leveling effect suggests that agricultural rhythms were starting to lose their grip on the community, at least as far as conception of children is concerned.



Chart 2. Seasonality of conceptions of Cumberland County population

Fertility

In looking at the fertility behavior in the Cumberland County beyond seasonality, it is appropriate to consider total family size. In Table 3 is a comparison of the mean children ever born in the two cohorts of Cumberland County, alongside populations of other longitudinal studies done in some portion of the early nineteenth century. The Cumberland County population had among the largest family size of any of the populations, with only the Philadelphia gentry of 1776-1825 and the Wisconsin population of Norwegian immigrants having larger families. With the exception of the Philadelphia 1776–1825 cohort, all of the other values follow norms seen in regional and national studies. Populations in New England were limiting their family size earlier than other regions in the United States, so it is to be expected that these cohorts would show smaller mean family size. The large size of the Philadelphia gentry's families is somewhat unusual, since urban populations tended to have fewer children than rural ones. The inclusion of urban populations results in a statewide Pennsylvania mean that is as expected smaller than the values seen in rural Cumberland County. Several studies have also demonstrated that first-generation immigrant populations had larger families than native born populations, so the values found in the rural Norwegian immigrant population in Wisconsin are predictably larger than the other native born populations of the mid-nineteenth century seen in the table.

	Mean CEB	Standard Deviation	N
Cumberland County, 1800–29	6.82	2.40	93
Cumberland County, 1830–59	6.17	2.53	89
Sturbridge, MA, 1800–19	6.02	2.93	42
Sturbridge, MA, 1820–39	5.30	3.01	33
Nantucket, MA, 1780–1839	4.07	3.26	576
Philadelphia gentry, 1776–1825	9.10	N/A	33
Philadelphia gentry, 1826–1875	5.60	N/A	47
Wisconsin, 1840–69	6.93	N/A	174
Pennsylvania, White Women, b.1836-40	5.41	N/A	N/A

TABLE 3. Mean Children Ever Born (CEB) for 19th Century Cohorts

Sources: Data for Sturbridge from Osterud and Fulton, "Family Limitation," 483; Nantucket from Byers, "Fertility Transition," 21; Wisconsin from Gjerde and McCants, "Fertility, Marriage," 869; Philadelphia gentry from Kantrow, "Philadelphia Gentry," 24; all Pennsylvania women born between 1836–1840, Avery M. Guest and Stewart E. Tolnay, "Children's Roles and Fertility: Late Nineteenth-Century United States," *Social Science History* 7 (1983): 366.

It is also the case that family size began to drop in the first half of the nineteenth century throughout the country and in Pennsylvania, so it is to be expected that the mean values later in the period would be smaller than those in the earlier era.²² The Cumberland County population shows a slight decline in mean family size reflecting this change, but not as great a drop as seen in other populations spanning the first half the nineteenth century, either nationally or in areas as disparate as Sturbridge and Philadelphia.

A closer examination of the fertility behavior of Cumberland County families demonstrates some of the behavior that led to these differences in family size. Looking at age-specific fertility rates in Table 4 for Cumberland County, for both time periods a very even distribution of births is seen from age 20 until age 39, with a substantial drop-off at 40. When compared to the rates for Sturbridge or Nantucket, it is evident that the Massachusetts couples were adopting parity-dependent birth control behavior after age 35, that is the cessation of childbearing after a desired number of children had been reached, something the Cumberland County couples were not trying until age 40 and above. The Philadelphia gentry from 1776–1825 and the

Cohort			Age Gro	ups (wife)		Mean ALB
	15–19	20-24	25–29	30-34	35-39	40-44	
Cumberland County 1800–29	0.340	0.384	0.397	0.370	0.360	0.243	38.1
Cumberland 1800–1829 ≤ 25	0.340	0.384	0.397	0.367	0.365	0.233	37.9
Cumberland County 1830–59	0.220	0.354	0.388	0.343	0.366	0.236	37.24
Cumberland 1830–1859 ≤ 25	0.220	0.354	0.394	0.347	0.330	0.229	37.03
Sturbridge, MA, 1800–19	0.500	0.446	0.383	0.322	0.189	0.100	37.82
Sturbridge, MA, 1820–39	0.333	0.366	0.352	0.331	0.200	0.024	35.71
Nantucket, MA, 1780–1839	0.320	0.280	0.249	0.220	0.174	0.060	35.13
Philadelphia gentry, 1776–1825		0.484	0.478	0.404	0.335	0.160	39.1
Wisconsin, 1840–69	0.539	0.474	0.445	0.366	0.338	0.226	41.9

TABLE 4. Age Specific Fertility Rate Comparisons and Mean Age at Last Birth (ALB)

Sources: Data for Sturbridge from Osterud and Fulton, "Family Limitation," 487, 489; Nantucket from Byers, "Fertility Transition," 27, 29; Wisconsin from Gjerde and McCants, "Fertility, Marriage," 869; Philadelphia gentry from Kantrow, "Philadelphia Gentry," 27.

Wisconsin immigrant families, with family sizes larger than those in Cumberland County, are as expected showing higher fertility across all age cohorts until age 35. Surprisingly, Cumberland County surpasses even these groups in the measure of fertility from age 35-39 and 40-44. In Cumberland County it was obviously the norm for couples to continue their families well into the wife's late thirties or early forties, more so than for any of the comparator groups. Even when controlled for marriages later in life, by excluding those couples where it is documented that the wife's age is over 25 at marriage, the Cumberland population from 1800 to 1829 is still demonstrating more couples bearing children in the later age cohorts. The controlled population for 1830 to 1859 shows values in the late cohorts that drop below those seen in Philadelphia and Wisconsin, and are in alignment with the drop in mean children ever born seen in Table 3. The mean age at last birth is another indicator of when stopping behavior was occurring. Only the two populations with larger rates of mean CEB have higher values than the Cumberland County population, and that is due to the fact that some families in those groups continued to have children at ages above 44, something that was extremely rare (less than one percent of the population) for the Cumberland County families.

The fertility behavior evident in the first age cohort in Table 4 shows some interesting results. The high rate of fertility in the 15–19 cohort in both the Wisconsin and first Sturbridge populations are indicative, in these particular groups, of a high rate of prenuptial pregnancy. That is something that is relatively rare in the Cumberland County population, found in only eight instances in the 1800–1829 cohort, and six times in the 1830–59 cohort. The decline in fertility in the 15–19 age group seen in the 1830–59 Cumberland cohort demonstrates the decline in teen marriage of women, mentioned above. Looking at the factors of age at first marriage and age specific fertility for the entire Cumberland County population, it can be seen that the slight decline in mean CEB for the Cumberland County families is affected by the change to slightly later marriages, and stopping behavior at a slightly younger age.

The evenness of age-specific fertility rates between 20 and 40 for the Cumberland County population in Table 4 are deceptive when considering whether birth spacing was used as a means of controlling family size. Comparing birth intervals at all parities across women with different completed family sizes, birth intervals at lower parities are longer for women with smaller family sizes. For example, compare the interval to the first birth among women who had four children with that of women having 5–7 or even more children. If the only birth-control being attempted was delaying marriage until a later age, or parity-dependent birth control behavior, then one would expect intervals up to the third child to be similar across all groups, while the intervals to the third and fourth child would be lengthened. The longer intervals for the last two children are consistent with a frequently witnessed demographic phenomenon where couples changed their behavior when approaching the completed family size. In fact, what is seen is that the birth intervals are lengthened across all parities for women with smaller families, evidence that there was a change in behavior early in the childbearing experience, and that spacing of births with an eye to family size limitation was being practiced from the start.

Occupation and Fertility

One of the variables of interest to demographers in relation to family size is the occupation of the head of household. Several previous studies have shown an inverse relationship between occupational status and family size. Tamara

Birth intervals	1	2	3	4	5	9	٢	8	6	10	=
Mean 1–4 children (n=39)	20.33	27.00	31.95	35.33							
Median 1–4 children	17.00	24.00	28.00	32.00							
Standard Deviation	13.60	12.62	13.38	21.72							
Mean 5–7 children (n=79)	15.26	25.09	28.33	31.12	36.53	39.03	34.06				
Median 5–7 children	11.00	24.00	27.00	27.00	30.00	34.00	28.50				
Standard Deviation	8.98	7.79	10.24	13.69	21.74	25.60	16.86				
Mean ≥ 8 children (n=70)	14.48	21.45	23.13	23.07	25.75	26.45	25.71	28.78	29.95	26.64	36.50
Mean ≥ 8 children	12.00	20.50	23.00	23.00	24.50	24.00	24.00	26.00	28.00	28.00	28.00
Standard Deviation	12.00	20.50	23.00	23.00	24.50	24.00	24.00	26.00	28.00	28.00	28.00

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Hareven and Maris Vinovskis, in a study of five Massachusetts towns in the nineteenth century, found that the overall fertility ratios of women with husbands in the low occupational groups (semi-skilled and unskilled laborers) was 30 percent higher than those of women with husbands in a high occupation (professionals, merchants, farm proprietors). In rural areas they found that this inverse relationship remained, but the differences between the two extremes was smaller, with only a 7.6 percent difference in fertility between the low and high occupational groups. They further discovered that farm families generally had higher fertility than other occupations in the high occupational group.²³ Jerry Wilcox and Hilda Golden found the same when looking at two western Massachusetts counties in 1850. They found native unskilled and semiskilled workers to have the highest fertility, with farmers lower, and white-collar workers the lowest. Susan Bloomberg also found similar results when looking at southern Michigan in 1850 and 1880. When looking at the rural areas of the sample population, she found that farm families were larger than non-farm families for both years selected. However, when looking at a sample population drawn from a town setting, she found in some instances the non-farm families were larger. The population in the anthracite coal region of Pennsylvania from 1850 to 1880 provided a similar picture. In the standardized 1850 sample, looking at occupational categories comparable to those found in Cumberland County, farmers had the greatest fertility, followed by laborers, then merchants, with professionals having the lowest fertility. In 1860, laborers have the highest fertility, followed by farmers, then merchants, and professionals again the lowest.²⁴

In Table 6 the Cumberland County population shows results that are at odds with almost all of the findings described above. For both time

Occupation	1800–1829 Mean CEB	Std Dev	N	1830–1859 Mean CEB	Std Dev	N	
Artisan or Laborer	6.80	2.27	25	6.57	2.68	14	
Farmer	6.57	2.26	39	5.80	2.27	36	
Merchant	6.55	2.81	11	5.89	3.44	19	
Professional	7.47	2.44	20	6.67	2.41	19	

TABLE 6. Mean children ever born by occupation in Cumberland County population

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periods, the professional heads of household had the largest families, followed by laborers, with farmers ranking toward the bottom in family size. The Michigan result drawn from the town sample, where non-farm families were larger, is the only one in any way comparable. The biggest surprise is the size of families of professionals, which opposes the trend found by both Tamara Hareven and Michael Haines. It also is in opposition with our understanding of family dynamics in the first half of the nineteenth century. A farm or mercantile family would seem to have more opportunity to utilize their offspring in the family business, and thus have an incentive to support a larger family. While scholars such as Lee Craig have shown that farm children were not as large a contributor to the family income as had been previously thought, still they could offer some economic return to the welfare of the family. It is hard to see how children of professionals such as lawyers or teachers could contribute to the family economy in comparable ways. Louise Kantrow's explanation of a family size of 9.10 children ever born for Philadelphia gentry between 1776 and 1825 may provide some insight into the behavior of the Cumberland County professionals. She interpreted the large families of Philadelphia's elite during that period due to dynastic considerations, where arranged marriages of children or placement of offspring in particular businesses could increase a family's economic and social power and prestige. As with the wealthy Philadelphians, the large family size of the Cumberland judges, lawyers, ironmasters, and doctors may represent some similar dynastic overtones, or it may simply be a sign of status. Looking at one case in point in Cumberland County that seems to typify this behavior, there is the example of Frederick Watts, a lawyer and judge who was so successful in his profession he eventually served on the state Supreme Court. He had fourteen children, three with his first wife and eleven with his second. This large number was not a case of replacement behavior due to early child death, since he and his wives had five children before experiencing the first child death, and then did not experience another death until the ninth child. Watts and other professionals like him could afford to support a large number of children and the children had the potential to marry well and improve the family's standing. Comparable to the Philadelphia gentry, they also started limiting their families in the second quarter of the century, perhaps demonstrating that large families were losing their position as potential economic assets and as status symbols.

Conclusion

Upon closer examination the behavior of 301 families in Cumberland County has conformed to some of the expectations expressed in the initial hypotheses of this study. The age of first marriage was comparable to values found in neighboring states and regions, and it did rise as expected. The rise during the period from 1800 to 1859 was gradual, with a more rapid change occurring during 1860–1889. Cumberland County families were relatively large compared to several other regions, but the family size declined during the antebellum period. After examining age-specific fertility rates it is evident that women in this population were continuing to have children in greater numbers later in life than in other populations. The decline in mean age at last birth and the parity-specific birth spacing evident in Table 5 shows that Cumberland County couples were exerting some control in their family planning, and while many couples were having large families, the ultimate family size was a conscious decision.

The data did not support the hypothetical expectations in terms of family size in relation to occupation. Contrary to what was found in several other studies of populations in Massachusetts, Michigan and Pennsylvania, in Cumberland County the higher status occupational group of professionals had the largest family size, and farmers and merchants had the smallest families. This trend continued across the entire period of the study. It is theorized that large families of high status households had dynastic implications and were also seen as a status symbol.

Data on the seasonality of marriage and conception of children showed that the agricultural nature of the economy had an effect on these practices. Winter, early spring, and very late in the fall were the preferred times for celebrating marriage, and this trend largely held true even for non-farm families. During the first half of the period under study conception of children was shown to be most likely to occur during the slack months of winter, and to be rarest during the busy harvest months of September and October. This pattern seemed to be gradually disappearing by the later years in the study, as agricultural rhythms seemed to lose their grip in terms of conception.

A historian cannot peer into the hearts and minds of married couples of the past and know for certain why they chose to create their families in a particular way. However, by pulling together data from a variety of sources and reconstituting the families and observing them over time, we can utilize statistical analysis of these families to dissect their behavior and determine if recognizable patterns are developing. The evidence shows that Cumberland County couples were having large families, with the largest families belonging to men with high status occupations. Decisions on family size appeared to be a conscious choice and family size, while declining, was not declining as rapidly here as it was in the nation as a whole. In short, for a variety of reasons, the fertility transition did not seem to be occurring in Cumberland County over the period of 1800 to 1860 as rapidly as it did in other areas of the country.

NOTES

- Ansley J. Coale and Melvin Zelnick, New Estimates of Fertility and Population in the United States (Princeton: Princeton University Press, 1963), 21-22, 36.
- Morton Owen Schapiro, "Land Availability and Fertility in the United States," Journal of Economic History 42 (1982):594.
- 3. Carl Degler asserts that there was no important new contraceptive device in the 19th century, so the introduction of a new technique is not the answer to the fertility transition (At Odds: Women and Family in America from the Revolution to the Present [New York: Oxford University Press, 1980], 187).
- 4. Wendell Bash, "Differential Fertility in Madison County, New York, 1865," Millbank Memorial Quarterly 33 (1955):161-86; Don R. Leet, "The Determinants of the Fertility Transition in Antebellum Ohio," Journal of Economic History 36 (1976):359-78; John Modell, "Family and Fertility on the Indiana Frontier, 1820," American Quarterly 23 (1971):615-634; Yasukichi Yasuba, Birth Rates of the White Population of the United States (Baltimore: Johns Hopkins University Press, 1961).
- 5. Lee A. Craig, To Sow One Acre More: Childbearing and Productivity in the Antebellum North (Baltimore: Johns Hopkins University Press, 1993).
- 6. Louise Kantrow, "Philadelphia Gentry: Fertility and Family Limitation Among an American Aristocracy," *Population Studies* 34 (1980):21-30; Michael Haines, "Fertility, Marriage, and Occupation in the Pennsylvania Anthracite Region, 1850–1880," *Journal of Family History* 2 (1977):28–55; Tamara Hareven and Maris A. Vinovskis, "Patterns of Childbearing in Late Nineteenth-Century America: The Determinants of Marital Fertility in Five Massachusetts Towns in 1880," *Family and Population in Nineteenth-Century America* (Princeton: Princeton University Press, 1976), 85–125.
- Jon Gjerde and Anne McCants, "Fertility, Marriage, and Culture: Demographic Processes Among Norwegian Immigrants to the Rural Middle West," *Journal of Economic History* 55 (1995):860–888; Haines, "Pennsylvania Anthracite Region," 28–55; Hareven and Vinovskis, "Marital Fertility in Five Massachusetts Towns," 85–125.
- Nancy Osterud and John Fulton, "Family Limitation and Age at Marriage: Fertility Decline in Sturbridge, Massachusetts, 1730–1850," *Studies in American Historical Demography*, ed. Maris A. Vinovskis (New York: Academic Press, 1979), 481–94; Edward Byers, "Fertility Transition in a New England Commercial Center: Nantucket, Massachusetts, 1680–1840," *Journal of Interdisciplinary History* 13 (1982):38.

- Demographic studies of Pennsylvania populations include Robert V. Wells, "Family Size and Fertility Control in Eighteenth-Century America: a Study of Quaker Families," *Population Studies* 25 (1971):73-82; Robert V. Wells, "Quaker Marriage Patterns in Colonial Perspective," *William and Mary Quarterly* 29 (1972):415-442; Haines, "Pennsylvania Anthracite Region," 28-55; Michael Haines, "Fertility and Marriage in a Nineteenth Century Industrial City: Philadelphia, 1850-1880," *Journal of Economic History* 40 (1980):151-8; Kantrow, "Philadelphia Gentry," 21-30; Thomas J. Keil and Wayne M. Usui, "The Family Wage System in Pennsylvania's Anthracite Region: 1850-1900," *Social Forces* 67 (1988): 185-207; Lloyd P. Gartner, "Nezhin in Philadelphia: The Families and Occupation of an Immigrant Congregation," *Jewish History* 8 (1994):229-53; Gary L. Laidig, Wayne A. Schutjer, and C. Shannon Stokes, "Agricultural Variation and Human Fertility in Antebellum Pennsylvania," *Journal of Family History* 6 (1981):195-204.
- The birth and marriage announcements used in the study were published in the Carlisle American Volunteer, 1814–1859; Carlisle Gazette, 1800–1817, 1823–1830; and the Carlisle Herald, 1802–1820.
- 11. Big Spring Presbyterian Church, Newville, Pa. Records, Cumberland County Historical Society, Carlisle, Pa.; Dickinson Presbyterian Church, Walnut Bottom, Pa. Records, Cumberland County Historical Society, Carlisle, Pa.; First Presbyterian Church, Carlisle, Pa. Records, Dickinson College Library, Carlisle, Pa.; St. John's Episcopal Church, Carlisle, Pa. Records, Dickinson College Library, Carlisle, Pa.; United Church of Christ, Carlisle, Pa. Records, Cumberland County Historical Society, Carlisle, Pa.
- 12. Index of Church and Cemetery Records. compiled by Robert Highlands, Jr., and Charles Maclay, Sr., Cumberland County Historical Society, Carlisle, Pa.
- 13. Cumberland County Tax Rates, Cumberland County Historical Society, Carlisle, Pa.
- 14. U.S. Bureau of the Census, *Population of the States and Counties of the United States:* 1790 to 1990 (Washington, D.C.: GPO, 1996), 137.
- U.S. Department of the Treasury, A Statement of the Arts and Manufactures of the United States of America for the Year 1810 (1814: reprint New York: Norman Ross, 1990), 44–75; U.S. Department of State, Compendium of the enumeration of the inhabitants of the United States . . . from the Returns of the Sixth Census (1841: reprint New York: Norman Ross, 1990), 130–141; U.S. Department of the Interior, Manufactures of the United States in 1860 (Washington, D.C.: GPO, 1865), 505.
- 16. U.S. Department of State, Census for 1820 (1821: reprint New York: Norman Ross, 1990), unpaged; U.S. Department of the Interior, Manufactures in 1860, 505. See Christopher Clark, "The Consequences of the Market Revolution in the American North," in The Market Revolution in America: Social, Political, and Religious Expressions, 1800–1880, ed. Melvyn Stokes and Stephen Conway (Charlottesville: University Press of Virginia, 1996), 23–42 for a good discussion of the market revolution.
- U.S. Department of the Interior, Seventh Census of the United States: 1850 (Washington, D.C.: Robert Armstrong, 1853), 194; U.S. Department of the Interior, Agriculture of the United States in 1860 (Washington, D.C.: GPO, 1864), 122, 213; John Majewski, A House Dividing: Economic Development in Pennsylvania and Virginia before the Civil War (Cambridge: Cambridge University Press, 2000), 39.
- Diane Lindstrom, Economic Development in the Philadelphia Region, 1810–1850 (New York: Columbia University Press, 1978), 142–43.
- 19. Stevenson W. Fletcher, Pennsylvania Agriculture and Country Life (Harrisburg, PA: Pennsylvania Historical and Museum Commission, 1950), 303; I. Daniel Rupp, The History and Topography of

Dauphin, Cumberland, Franklin, Bedford, Adams, and Perry Counties (Lancaster, PA: Gilbert Hills, 1846), 367; U.S. Department of the Interior, Agriculture in 1860, 122.

- 20. U.S. Bureau of the Census, *Historical Statistics of the United States from Colonial Times to 1970* (Washington, D.C.: GPO, 1975), 163, 463; Lindstrom, *Philadelphia Region*, 146.
- Gary S. Foster and Richard L. Hummel, "Patterns of Conception, Natality, and Mortality from Midwestern Cemeteries: A Sociological Analysis of Historical Data," *Sociological Quarterly* 39 (1998):477.
- Haines, "Pennsylvania Anthracite Region," 41; Gjerde and McCants, "Fertility, Marriage," 875–6; Jerry Wilcox and Hilda H. Golden, "Prolific Immigrants and Dwindling Natives: Fertility Patterns in Western Massachusetts, 1850 and 1880," *Journal of Social History* 7 (1982):267.
- 23. Hareven and Vinovskis, "Marital Fertility in Five Massachusetts Towns," 107-9.
- Wilcox and Golden, "Prolific Immigrants," 276; Susan E. Bloomberg, Mary F. Fox, Robert M. Warner, and Sam B. Warner, Jr., "A Census Probe into Nineteenth-Century Family History: Southern Michigan, 1850–1880," *Journal of Social History* 5 (1971):40; Haines, "Pennsylvania Anthracite Region," 41.