Fertility decline in the United States, 1850-1940: New Evidence from Complete-Count Datasets

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Extended Abstract

Total fertility in the United States fell from 7.0 in 1835, one of the highest rates in the world, to 2.1 in 1935, one of the lowest (Coale and Zelnik 1963; Hacker 2003). In some respects, the U.S. fertility transition is an ideal case study for testing theories of fertility decline. The population was characterized by remarkable ethnic, racial, and religious diversity and large group differences in fertility. Geographic differences in fertility were also large, reflecting spatial differentials in industrialization, agriculture, urbanization, school attendance, women's labor force participation, population composition, religion, and occupational structure (Hacker 2016).

Unfortunately, our understanding of the U.S. fertility transition has been limited by poor data. A national birth registration system was not established until 1933, after the end of the century-long fertility decline. IPUMS samples of the 1850-1940 censuses have helped address the lack of birth registration data, but low sample densities—most census samples are limited to 1% densities—have limited researchers' ability to analyze contextual factors and small population subgroups. A few researchers (e.g., Wanamaker 2012; Lahey 2014) have continued to rely on aggregate state- and county-level data published shortly after each census. Others have relied on retrospective children ever born data published in the 1900, 1910, and 1940 censuses for ever-married women (e.g. David and Danderson 1987; Jones and Tertlit 2008). Although these data can be used to measure trends in cohort fertility from the early nineteenth century, selection issues distort the timing of the decline and the measurement of independent variables for analysis.

This paper leverages the analytical power of new IPUMS complete-count microdata databases of 1850, 1880, and the 1900-1940 decennial censuses (a joint on-going project between the Minnesota Population Center and Ancestry.com) to reexamine the U.S. fertility transition. The dataset includes nearly 600 million individuals spanning the beginning of the decline in the middle of the nineteenth century to its temporary end with the baby boom in the late. A major advantage of these complete-count datasets is our ability to examine individual-level, couple-level and household-level correlates of fertility at or near the time of childbearing simultaneously with contextual variables outside the household, including a measure of patrilineal kin propinquity and county-level measures of shared group size, population diversity, population density, schooling and economic opportunity. The complete-count data allow the evaluation of small population subgroups, including nearly 30 nativities (the fertility transition occurred during the peak years of immigration from Europe) and interstate migrants. We model couples' recent fertility (number of own children under age 5) in each census using a rich and consistent set of independent variables to evaluate the role of changing factors in the fertility transition and to decompose their contribution over time. We include measures often neglected by demographers including kin availability, parental religiosity, detailed nativity, and generation.

We have already conducted and published an analysis using the 1880 complete dataset (Hacker and Roberts 2017) and developed contextual-level measures of group size and population diversity (Dribe, Hacker, and Scalone 2018). We have completed most of our programing for the 1850, 1910, and 1940 analyses and preliminary analysis for the 1850 census. We anticipate no trouble in completing the rest of our work by spring 2019.

Our results from the 1880 complete-count dataset showed significant roles for multiple factors in late nineteenth-century fertility differentials (see Table 1). As expected, we affirmed a significant role for economic factors. We also highlighted, however, significant roles for cultural and familial factors often neglected by historical demographers, including a prominent role for nativity and generation. We found significant roles for parental religiosity (as proxied by the use of biblical names for children [see Hacker 1999; 2016]), schooling, literacy, and the proximity of kin to childbearing couples.

We believe our analysis of the latter factor—the proximity of kin outside the household—to be particularly innovative. Despite recognition that familial factors were important, research on U. S. fertility decline has paid little attention to the role of kin networks in fertility decisions. A recent study based on the Utah Historical Database, however, found higher fertility among women with living mothers and mothers-in-law during the fertility transition (Jennings et al. 2012). The finding was consistent with research in evolutionary anthropology that stresses the importance of economic and physical assistance from relatives, particularly post-menopausal grandmothers, in the rearing of human children. When fecund couples are living far from their own parents, the labor and economic burden of child rearing falls more on the child-bearing couple. Couples without significant help are more likely to reduce family size, while those surrounded by kin networks will be inclined to have more children (Hrdy 2009; Sear and Coall 2011). We developed a consistent measure of potential mothers-in-law in nearby households (+/- 5 households from each childbearing woman) using age, surname, birthplace, and marital status) and found a positive, although modest, relationship between couples' fertility and the presence of a potential mother-in-law nearby. We are quite excited to see how this relationship may have changed over time and how kin availability may have contributed to the overall decline. As shown in Figure 1, kin propinquity fell in tandem with the total fertility rate. In 1800, when TFR was 7.0, 30 percent of household heads lived +/- 3 households from a household headed by an individual with the same surname. In 1940, when TFR was 2.2, patrilineal kin propinquity had fallen to 7 percent.

Figure 1. Total Fertility and Patrilineal Kin Propinquity in the U. S., 1800-1940

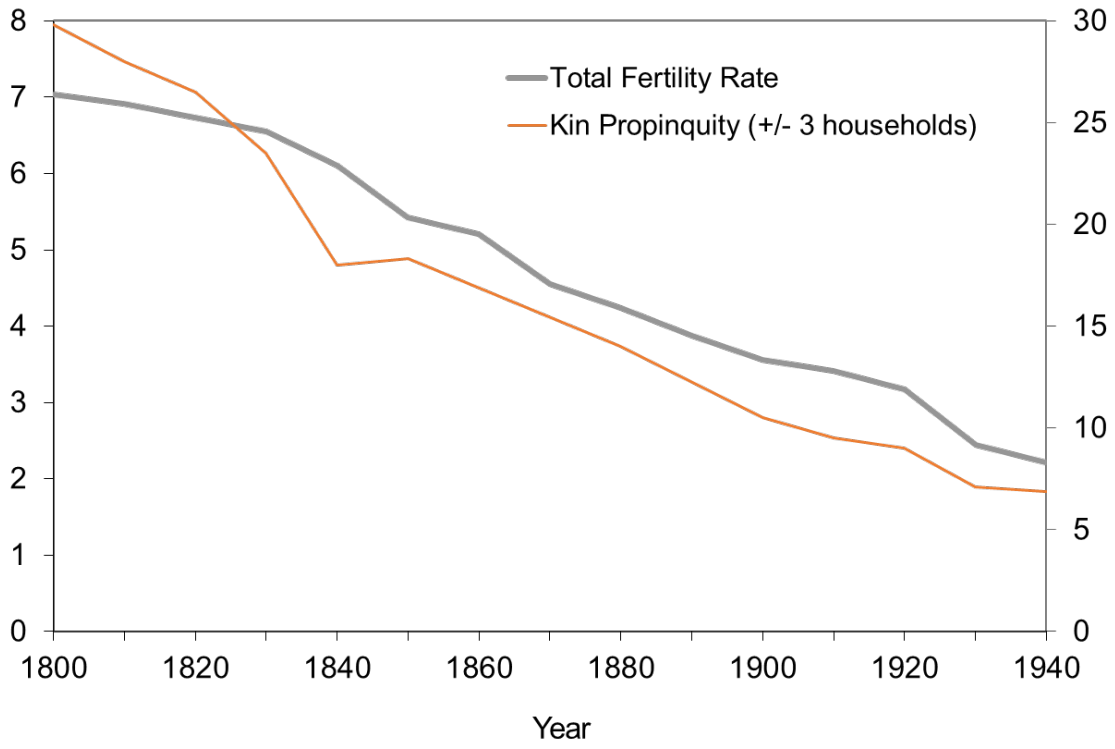

Table 1. OLS Regression of Recent Net Marital Fertility, 1880

Model	(1)		(2)		(3)		(4)	
Fixed Effects	None		SEA		None		SEA	
Additional Universe Restriction	None		None		NBNP		NBNP	
	Coef.	*sig.*	*Coef.*	*sig.*	*Coef.*	*sig.*	*Coef.*	*sig.*
Covariates associated with Potential Childrearing Assistance								
Co-resident mother	-0.042	***	-0.034	***	-0.052	***	-0.039	***
Co-resident mother-in-law	-0.021	***	-0.008	***	-0.033	***	-0.012	***
Other co-resident females age 10 and older	-0.002	***	-0.005	***	0.006	***	0.001	*
Potential mother-in-law in adjacent house	0.021	***	0.015	***	0.013	***	0.012	***
Covariates associated with Economic "Readiness"								
Mother's Labor Force Participation	-0.129	***	-0.116	***	-0.122	***	-0.104	***
Father's Occupational Group								
Professional, Technical	-0.164	***	-0.141	***	-0.143	***	-0.120	***
Farmers and Farm Operatives	*ref.*		*ref.*		*ref.*		*ref.*	
Managers, Official, Proprietors	-0.196	***	-0.162	***	-0.193	***	-0.150	***
Clerical and Sales	-0.213	***	-0.170	***	-0.204	***	-0.152	***
Craftsmen	-0.136	***	-0.105	***	-0.133	***	-0.102	***
Apprentices, Operatives	-0.117	***	-0.080	***	-0.140	***	-0.092	***
Service Workers	-0.190	***	-0.152	***	-0.178	***	-0.143	***
Farm Laborers	-0.036	***	-0.023	***	-0.028	***	-0.015	***
Laborers	-0.083	***	-0.057	***	-0.073	***	-0.052	***
No Occupational Response	-0.167	***	-0.142	***	-0.144	***	-0.117	***
Average Value of Farms in County ($10,000)	-0.047	***	-0.039	***	-0.056	***	-0.045	***
Proportion of children age 8-14 in school	-0.321	***	-0.018	***	-0.380	***	-0.001	
Covariates associated with Cultural "Willingness"								
Proportion of children biblically named	0.085	***	0.040	***	0.075	***	0.024	***
Race and Nativity								
Native Born White of Native Parentage	*ref.*		*ref.*		*ref.*		*ref.*	
Black	-0.028	***	0.017	***	0.033	***	0.005	**
Irish	0.234	***	0.278	***				
German	0.252	***	0.279	***				
British	0.100	***	0.130	***				
Canadian	0.112	***	0.177	***				
Scandinavian	0.302	***	0.307	***				
French	0.167	***	0.197	***				
Other Foreign Born	0.218	***	0.254	***				
Second Generation Irish	0.111	***	0.146	***				
Second Generation German	0.120	***	0.139	***				
Second Generation British	-0.028	***	0.008	**				
Second Generation Canadian	0.003		0.066	***				
Second Generation Scandinavian	0.064	***	0.079	***				
Second Generation French	0.084	***	0.113	***				
Second Generation Other	-0.001		0.002					
Other Covariates								
Residence Type								
Rural	*ref.*		*ref.*		*ref.*		*ref.*	
Urban less than 10,000	-0.067	***	-0.069	***	-0.095	***	-0.089	***
Urban 10,000-100,000	-0.089	***	-0.059	***	-0.142	***	-0.088	***
Urban, 100,000+	-0.076	***	-0.028	***	-0.119	***	-0.039	***
Demographic Control Variables								
Mother's Age 20-24	*ref.*		*ref.*		*ref.*		*ref.*	
Age 25-29	-0.012	***	-0.006	***	-0.038	***	-0.029	***
Age 30-34	-0.216	***	-0.205	***	-0.253	***	-0.238	***
Age 35-39	-0.433	***	-0.418	***	-0.461	***	-0.439	***
Age 40-44	-0.770	***	-0.751	***	-0.771	***	-0.741	***
Age 45-49	-1.152	***	-1.130	***	-1.126	***	-1.091	***
Age Differential from Spouse	-0.008	***	-0.008	***	-0.008	***	-0.007	***
Number of observations	5,379,625		5,379,625		3,371,612		3,371,612	
R-squared	0.226		0.217		0.225		0.213	

Notes: OLS regression. The dependent variable is the number of own children less than age five in the household. Interactions between nativity varibles and proportion of children biblically named (centered at mean) not shown. Universe includes all currently married white women age 20-49 with spouse present, with one or more own child in the household with a valid first name. "SEA" is State Economic Areas. See text. "NBNP" is Native Born Couples with Native Born Parents.

*p <0.05; **p <0.01; ***p <0.001

Source: Ruggles *et al.* , 2010