Becoming American: The Demographic Integration of Italian and Swedish Immigrants at the Turn of the Twentieth Century

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Over the course of its history the United States has absorbed more immigrants than all other nations combined. During the "classic" period of largely unrestricted immigration between the American Civil War and the introduction of stringent numerical quotas in the 1920s, the foreign born population composed between 13 and 15 percent of the overall population, the highest percentages in U.S. history. Much higher percentages could be found in ethnic enclaves, such as New York City's 14th Ward in lower Manhattan, where over 90 percent of the population in 1900 was Italian (Barde *et al*. 2006; Todd 2002).

The integration of these immigrants into American society has been a topic of social research for over a century (e.g. Walker 1891; Drashler 1920; Gordon 1964) and it is clear that trajectories differed markedly across immigrant groups. An important part of the process is the demographic integration of immigrants. Research on contemporary immigration flows in Western countries has stressed the role of both intermarriage and fertility differentials as indicators, and consequences, of societal integration (Stephen and Bean 1992; Andersson 2004; Qian and Lichter 2007; Scott and Stanfors 2010). Inequalities in health and mortality by ethnicity or country of origin have also been highlighted as an important aspect of migrant selection (Singh and Hiatt 2006) or failed social and economic integration (Antecol and Bedard 2006).

Although these aspects have been looked at also in the age of mass migration at the turn of the twentieth century (e.g., Pagnini and Morgan 1991, Sassler and Quin 2003, and Wildsmith, Gutmann and Gratton 2009), much remains unknown. Demographic investigations based on the early public use samples of the 1900 and 1910 census were limited by low sample densities. Preston and Haines' study of infant and child mortality (1992), for example, was based on a 1-in-750 sample of the 1900 census, which limited their ability to investigate mortality differentials among smaller immigrant groups. King and Ruggles' examination of fertility differentials (1990), also based on the original 1900 public use sample, was likewise hampered by the small number of available cases, which limited construction of fertility estimates to the native-born white, Irish, German, and British populations. Some details on immigrant mortality and fertility were added in subsequent studies of the higher density 1-in-250 public use sample of the 1910 census. Preston, Ewbank, and Hereward (1994), for example, were able to analyze infant and child mortality among ten immigrant groups, but noted the need for additional study, especially of the puzzling lower child mortality rates among second generation Americans. Morgan, Watkins, and Ewbank (1994) found expected associations between immigrants' fertility, residence, and occupation, but noted the need to take further account of environment in explaining the idiosyncratic relationship between fertility, time in the United States, and ability to speak English among old and new immigrant groups.

New data sources represent an excellent opportunity to reexamine the demographic behavior of recent immigrants and their children. This paper relies on new, high-density IPUMS samples of the 1900 and 1910 censuses (Ruggles *et al*. 2010) and complete count census data to study immigrant intermarriage, fertility, and mortality in the early twentieth century. The

new 6 percent 1900 IPUMS sample is 45 times larger than the original 1900 PUS (Preston and Higgs 1980), while the new 1.4 percent 1910 IPUMS sample is nearly four times larger than the original PUS (Strong *et al*. 1989). With these data we are able to take a closer look at differentials in behavior by country of origin and model mortality and fertility by diverse indicators of assimilation, including intermarriage, generation, and time in the United States. Moreover, preliminary complete-count datasets collected by Ancestry.com and the Minnesota Population Center allows us to construct new contextual measures to test hypotheses related to the influence of couples' environment and neighbors on child mortality and fertility.

We focus this preliminary investigation on the demographic behavior of the Italian and Swedish populations in the United States. The selection of the Swedish and Italian populations was made for several practical, theoretical, and personal reasons. From a practical perspective, the preliminary complete-count datasets at the Minnesota Population Center have not been coded or cleaned and were therefore difficult to analyze. Expansion to more groups would have made the project unfeasible. From a theoretical perspective, the Swedish and Italian populations are representative of two distinct groups of immigrants. Swedish immigrants were nearly all Protestant, tended to settle in the Midwest and more rural areas, and were part of long history of Scandinavian migration to the United States. Italian immigrants were nearly all members of a minority religion (Roman Catholic), faced more overt discrimination from native-born Americans, exhibited strong marital homogamy (Pagnini and Morgan 1991), tended to settle in large cities, and had little history of prior immigration to the United States.[1] Given

[1] See Figure 1 for immigration to the United States from Italy and Scandavian countries between 1850 and 1940. Between 1901 and 1910 2,045,374 Italians arrived in the United States representing 23 percent of all immigrants.

these distinctions, our findings are relevant to theories of linear versus segmented assimilation among "old" and "new" immigrant groups (*e.g.*, Wildsmith, Gutmann, and Gratton 2009).

Finally, as historical demographers from Sweden, Italy, and the United States, we have personal interests and expertise in Swedish, Italian, and U.S. historical demography. Although not realized in this initial analysis, we plan to compare Swedish and Italian immigrant behavior with that of men and women remaining in Sweden and Italy and, where possible, track immigrants from their country of origin to the United States. For example, although Italian immigrants in the United States were late adopters of marital fertility control relative to the native-born white population and most other immigrant groups, they were early adopters relative to the population in Italy (Morgan, Watkins and Ewbank 1994). We hope to examine a number of hypotheses for the earlier transition in the United States, including the possible impact of immigrant selection, adaptation to new occupations and living conditions, and the possible social influence of the native born population.

Data

Our data sources include IPUMS census samples (Ruggles et. al 2010) and preliminary complete-count microdata collected by Ancestry.com recently made available at the Minnesota Population Center. We limit this investigation on the 1900 and 1910 IPUMS samples and the 1910 complete-count file. Conducted during the high point of European immigration, the 1900 and 1910 censuses included several questions focused on the foreign-born population (see Table 1), and questions on morality and fertility that allow refined measures of demographic behavior. The availability of children ever born and children surviving data for each ever

married woman, in particular, allow estimation of childhood mortality using indirect methods (e.g., Preston and Haines 1991) and direct measurement of women's current parity. Both censuses include birthplace and parental birthplaces, duration of marriage, ability to speak English, year of immigration, and citizenship status. The 1910 IPUMS sample also includes variables on the number of time married, language spoken, mother tongue, and parental mother's tongue.

Although complete-count data is available for both census years, the datasets include limited variables and proved difficult to work with. In addition to the large number of cases, most variables, such as birthplace and parental birthplace, have not been coded. There has been some cleaning of the ASCII strings, but we still found it necessary to perform time-consuming recoding. In this preliminary analysis, we limited our investigation to the 1910 complete count database.

We rely on the complete count data to investigate the influence of neighborhood characteristics on immigrant behavior. All else being equal, we hypothesized that immigrants living in areas with higher proportions of native-born white population of native parentage (NBNP) learned English and adjusted demographic behaviors toward native-born norms—whether via example, persuasion, or imposed constraints—at a faster pace that immigrants living in areas with low proportions NBNP. Prior studies based on low density samples have struggled to operationalize measures of neighborhood effects. Where contextual variables have been estimated, as for example, by Wildsmith, Guttman and Gratton (2003), low sample densities have limited their construction to the state or state economic area (SEA) level rather than at the neighborhood level. The complete-count datasets will allow us to estimate

contextual variables at a much smaller level of geography. Although the 1910 complete-count data currently does not identify neighborhoods or census tracts, it does include 18,210 unique census enumeration district (ED), containing an average of 5,069 individuals. We were able to match the EDs in the 1910 compete-count file to the 1910 IPUMS sample. In contrast, the 1910 IPUMS includes only 470 unique SEAs.

We constructed the following estimates for each enumeration district: proportion native born of native-born parents; proportion first generation Italian or Swedish; proportion second generation Italian or Swedish; overall proportion Italian or Swedish (combined first and second generations); and proportion of unmarried Italians and Swedes age 20-29 male. We also constructed a measure of the relative "newness" of the immigrant populations: the proportion of all Italian and Swedish person years lived outside the USA.

Intermarriage

Intermarriage marriage has long been used by social scientists as an indicator of adaptation and assimilation. In his study of intermarriage in New York (1921), for example, Julian Drashler found low rates of exogamous marriage among first generation immigrants, but higher rates among their U.S.-born second generation children, which he interpreted as the weakening of cultural or racial consciousness and declining group cohesion among the second generation. More recent research based on public use census microdata samples has confirmed low levels of intermarriage among first generation immigrants, particularly among Italians and Jews, whose religion added an additional dimension of social distance to most other groups (McCaa, 1993; Sassler 2005; Sassler and Zhenchao 2003).

In their study of long-run patterns of assimilation and intermarriage, Wildsmith, Guttman and Gratton (2003: 563) contended that exogamous marriage "constitutes the ultimate test of assimilation." They reported striking parallels between historical patterns of intermarriage among Italians and Mexicans, two "new" immigrant groups noted for high rates on endogamy and close and intimate family relationships. Both groups were attributed by critics with similar characteristics. In contrast, groups with a longer history of immigration to the United States, such as Irish and Swedish immigrants, had lower rates on endogamy.

The likelihood of intermarriage, of course, also varies by the size and diversity of the marriage market. An additional potential factor that has received relatively little attention from investigators is the potential influence of the native-born population on immigrant assimilation. All else being equal, we might expect that immigrants living in areas with higher proportions of native-born white population of native parentage (NBNP) would learn English quicker and were more likely to intermarry than immigrants living among their fellow countrymen in segregated neighborhoods. Clearly, different groups experienced different levels of exposure to the NBNP. White *et. al* (1994) found that, on average, the British and Irish experienced relatively low levels of segregation from the NBNP population, Germans moderate levels, while new immigrant groups, including Italians and Poles, experienced maximum levels of isolation and residential segregation. Wildsmith, Guttman and Gratton (2003) operationalized one aspect of residential segregation – ethnic group percentage -- at the state economic area (SEA) level. They reported that ethnic groups' relative size was positively correlated with endogamous marriage for both sexes, even after controlling for ethnic sex ratios.

Our preliminary analysis of intermarriage is shown in Tables 2 through 10. Descriptive statistics of the variables in the models are shown in Table 2 (for the combined foreign born and second generation populations), Table 5 (the Italian population) and Table 8 (the Swedish populations). Tables 3, 4, 6, 7, 10, and 11 show the model results for currently married males and females in Italy and Sweden respectively. First generation men and women are only included in the model if their duration of current marriage indicates that they married after their arrival date in the United States. All models of intermarriage rely on logistic regression of the probability of intermarriage with controls for age and income. Coefficients are shown as odds ratios relative to a reference group.

The model results indicate that the probability of intermarriage increased significantly among the children of first generation immigrants. Residence in an urban area typically lowered the odds of intermarriage in the simplified "base" models, suggesting that individuals found it easier to find a within group marriage partner in densely-populated areas. All else being equal, inability to speak English was associated with lower odds of intermarriage in most models.

Our "full" empirical models of the 1910 IPUMS sample include contextual variables estimated from the 1910 complete count dataset at the enumeration district (ED) level. These variables include the proportions native-born whites of native parentage, proportions Italian or Swedish, and ethnic-specific proportions male among the single population age 20-29. All else being equal, we expect that Swedish and Italian males in EDs with a higher proportion of Swedish and Italian single men would face more competition on the marriage market for a within-group marriage partner and would be more likely to intermarry. Swedish and Italian females in EDs with a higher proportion of Swedish and Italian single men, in contrast, would

face less competition on the marriage market for a within-group marriage partner and would be less likely to intermarry.

With the exception of Italian females—who were less likely to intermarry in urban areas—the urban variable in the full models was statistically insignificant.. The proportion of the ED that was NBNP was not associated with a higher likelihood of Italian or Swedish intermarriage, suggesting that, at least with regards to intermarriage, the native-born population did not influence immigrant behavior in models with ethnic-specific proportions male. Unsurprisingly, the proportion NBNP is positively correlated in the model for the overall population (Table 4), which does not include ethnic-specific proportions male. Also unsurprisingly, relative group size—the proportion first generation and second generation Italian and Swedish in the ED—was negatively associated with intermarriage for both sexes. The proportion Italian and Swedish single male variable proved to be statistically insignificant in all models.

Our contextual variable indicating the "newness" of the Italian and Swedish populations—the proportion of all Italian and Swedish person years lived outside the USA—was associated with a lower probability of intermarriage among Italian men, Italian women, and Swedish men. The association remained despite our limitation of the universe to Italians and Swedes who married in the United States. This result confirms the strong patterns of endogamy in recently-arrived immigrant populations. In all models inability to speak English in associated with greater odds of endogamous marriage, confirming its value as a measure of assimilation and the importance of some level of assimilation as a precondition for intermarriage.

Fertility

Analysis of differential fertility is greatly facilitated by inclusion of a question on the number of children ever born to ever married women in the 1900 and 1910 censuses. Most census-based studies, which rely the number of surviving children present in the household as a measure of recent fertility (e.g., Dribe, Hacker and Scalone 2014), must assume that mortality differentials do not significantly bias results.

We construct Poisson regressions (appropriate for count data) of child ever born for currently married women in the 1900 and 1910 censuses with controls for women's age, spouses' occupational income, farm residence, urban residence, and census region. Results are shown for the 1900 IPUMS samples in Table 12 and the 1910 IPUMS samples in Table 13 (descriptive statistics for variables in the models are shown in Table 11). Because Italy's fertility decline lagged U.S. fertility by more than half a century (Tolnay et. al 1982; Coale and Treadway 1986; Hacker 2003), it seems reasonable to hypothesize that NBNP women had significantly lower fertility than Italian-born women. Indeed, just a few years after the 1900 census President Theodore Roosevelt famously accused native-born white women of practicing "race suicide" (MacNamara 2014). In the full model shown in Table 12 for 1900, however, NBNP women's fertility was not significantly lower than that of Italian-born women. This unexpected finding, which is not evident in the model constructed for 1910, might be due to the recent arrival of most Italian immigrants in the United States and short-term hardships associated with relocation across the Atlantic (see Figure 1), difficulty in accurately identifying Italians in censuses before 1910 (Wildsmith et. al 2003: 568), or to unobserved selection effects. Nor did the fertility of Swedish women in 1900 differ from that of Italian women, despite the earlier

onset of the fertility transition in Sweden (Bengtsson and Dribe 2014). Ten years later, Swedish born women and second generation Swedish women had significantly fewer numbers of own children than the reference group of women born in Italy.

Also unexpectedly, second generation Italian women, all else being equal, achieved higher fertility than first generation Italian women in both 1900 and 1910. These results are at odds with the results of King and Ruggles' evaluation of the early 1900 PUS (1990), which found much lower fertility rates among second generation immigrants generally (lower even than native-born women of native parentage), the findings of Morgan, Watkins and Ewbank based on the early 1910 PUS (1994), and with assimilation theory. The differences among the studies are likely explained by the different methods employed in each study and our inclusion of controls for literacy, ability to speak English, and years in the USA. Given the early stage of our analysis, we wish to remain cautious about these results, which warrant further investigation. Inability to speak English was associated with more children, however, a result consistent with assimilation theory. Duration of residence in the USA was positively correlated with fertility, but only in reference to women born in the United States.

Infant and Child Mortality

Our final area for exploratory analysis is infant and child mortality. Again, the availability of data unique to the 1900 and 1910 censuses (children surviving and children ever born) facilitates analysis. Prior research by Preston and Haines (1991) and Preston, Ewbank and Hereward (1994), revealed significant ethnic differentials in mortality, but were limited by low sample densities, which prevented examination of smaller groups. Swedes, for example, were

combined with Danes, Norwegians, and Finns in a "Scandinavian" group. Higher sample densities allow us to examine more immigrant groups and to implement fixed effects at the county level to capture unobserved heterogeneity in mortality.

We followed Preston and Haines in constructing a mortality index suitable for multivariate analysis at a micro level (Preston and Haines, 1991, 88-90; Haines and Preston, 1997). It consists of the ratio of actual to expected child deaths for women of different marriage durations. Actual child deaths are available directly from the census. Expected child deaths are calculated by multiplying the children ever born of each woman by the expected proportion dead from a model life table, in this case Coale and Demeny (1966) West Model level 13, which has an expectation of life at birth of 48.5 years for both sexes combined, and the marriage duration of each woman (a proxy of child exposure).

The index has the advantage of summarizing into one number the child mortality experience of a whole group of women of varying ages, marital durations, and parities. It has been investigated elsewhere and found to be robust and econometrically well-behaved when used as a dependent variable in a regression model (Trussell and Preston, 1982). It is not sensitive to a situation in which fertility has been declining in the recent past, and it is readily interpretable. A value of unity means that the woman (or group of women) was experiencing child mortality at about the national average, while values above or below unity mean that the woman was experiencing child mortality worse than or better than the national average, respectively.

To distinguish the relative importance of ethnicity and various social, economic, and residential factors on mortality, we employ a multivariate analysis with the mortality index as

the dependent variable. Model results for the 1900 census are shown in Table 14. Two models are constructed for the overall, foreign-born, and native-born populations: one with both regional dummy variables (replicating Table 4.4 in Preston and Haines 1991) and one with fixed effects at the county level.[2] In addition to the nativity of the wife, the model includes a large number of assumed mortality covariates, including the wife's age, literacy, ability to speak English, and labor force participation, the husband's age, literacy, ability to speak English, and occupation group, and the couple's residence (rural/urban and dummy variables for size of urban place).

Although largely supporting Preston and Haines' results (1991: 160-63), our analysis of the new high-density 1900 IPUMS sample indicates a few interesting differences. Unsurprisingly, given the much larger number of cases in the new sample (507,233 in the model for the total population compared to just 8,875 in the original 1900 PUS), we find more statistical significance among the covariates. In the Preston and Haines' analysis, only the children of native-born mothers with mothers in West European countries other than Germany, Great Britain, Ireland, and Scandinavia enjoyed significantly lower mortality than the reference group of children born to native born women of native mothers. We find instead significantly lower mortality among the children of Norwegians, Swedish, Dutch, Austrians, and Russians, and significantly higher child mortality among the Canadian, Mexican, English, Irish, and Italians. Children born to native-born women with Norwegian, Swedish, English, German and Russian mothers also experienced lower mortality, while children of native-born women with Irish and Italian mothers experienced higher mortality. A few of the coefficients statistically

[2] We are focusing our initial analysis on the 1900 census because the higher sample density of the 1900 IPUMS sample allows us to implement area fixed effects at a lower geographic unit than with the 1910 IPUMS sample.

significant at the 0.05 level in the model with regional dummy variables are no longer significant in the preferred model with county-level fixed effects. The mortality of children born to Swedish mothers, however, remains significantly lower than that of children born to native-born mothers in the county fixed effects model, while the mortality of children born to Italian and Irish mothers remains significantly higher.

Additional models for the foreign-born and native-born populations indicate similar patterns. Clearly the children of Swedish immigrants enjoyed significantly lower child mortality than the children of Italian immigrants, even after controlling for suspected correlates of mortality and implementation of geographic fixed effects.

Concluding Remarks and Future Work

Although this study is in its early stage, we are encouraged by our early results. We plan to push our research in several directions. Following Ewbank, Morgan, and Watkins (1992), we are evaluating procedures to allocate an age for each deceased child using mothers' age, marital duration, and the distribution and ages of mothers' co-resident own children. This allocation would allow us to model mortality and fertility as time-dependent processes with the rich set of covariates variables available in the 1900 and 1910 IPUMS sample. Ultimately, we believe this approach will shed new light on hypotheses related to assimilation and social learning in the fertility transition. Second, with the aid of recently developed data sources in Sweden and Italy, we hope to link immigrants and follow them from that natal country to the United States. Finally, once the Minnesota Population Center completes cleaning and coding of the complete-count datasets, we hope to expand our analysis to additional census years,

particularly to the years about the implementation of stringent immigration quotas in the 1920s. To what extent did the composition and demographic behavior of immigrants' neighbors influence their behavior and to what extent did immigration policy affect assimilation? Intensive analysis of unique data available in individual census years, combined with analysis on long term trends and differentials, has great potential to increase our knowledge of the experience of immigrants and processes of adaptation and assimilation.

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Table 1. Selected Variable Availability in the 1880-1940 IPUMS samples

	1880	1900	1910	1920	1930	1940
Sample density (%)	10 + 1	5 + 1	1 + 0.4	1	5	1
Given Name	X	X	X	X	X	X
Children Ever Born		X	X			X
Children Surviving		X	X			
Marital Status	X	X	X	X	X	X
Times Married			X			X
Duration of Marriage		X	X			
Age at first Marriage					X	X
Birthplace	X	X	X	X	X	X
Father's Birthplace	X	X	X	X	X	X
Mother's Birthplace	X	X	X	X	X	X
Speaks English		X	X	X	X	
Language Spoken			X		X	
Mother Tongue			X	X	X	X
Father's Mother Tongue			X	X		
Mother's Mother Tongue			X	X		
Year of Immigration		X	X	X	X	
Years in USA		X	X	X	X	
Citizenship Status		X	X	X	X	X
Year Naturalized				X		

An "X" indicates the variable is available in that dataset.

Table 2. Descriptives: percentages and means. All married immigrants of first and second generation

	Intermarriage analysis*			
	1900		1910	
	Male	Female	Male	Female
Intermarriage				
endogenous marriage	60.24	61.30	60.84	61.76
exogamous marriage	39.76	38.70	39.16	38.24
Ethnicity				
Foreign Born - Other Immigrants	50.37	41.25	46.21	38.28
2nd generation - Other Immigrants	44.80	54.34	47.02	55.47
Italy Born	1.35	0.87	3.20	2.41
Italy 2nd generation	0.08	0.15	0.24	0.43
Sweden Born	3.09	2.85	2.70	2.50
Sweden 2nd generation	0.31	0.54	0.63	0.91
Age of man				
<30	16.62	31.24	18.41	31.39
30-39	34.86	34.32	30.20	30.75
>39	48.52	34.44	51.39	37.86
Urban Area				
Not Urban	57.52	56.22	57.33	56.40
Urban area	42.48	43.78	42.67	43.60
Speaking English				
Yes, speaks English	97.42	94.38	89.57	86.81
Does not speak English	2.58	5.62	10.43	13.19
Occupational income score	23.92	24.04	24.12	24.26
proportion of enum dist NBNP			0.50	0.49
Total	210,190	198,218	61,992	58,670

* First generation immigrants are include only if they married after immigration in the US

** For females, Occupational income score is referred to the spouse profession

NBNP = native born of native parents

Table 3. Logistic regression analysis of the probability of intermarriage in the US. Male immigrants of first and second generation

	Base 1900		Base 1910		Full 1910 - 1		Full 1910 - 2	
	OR	P>|t|	OR	P>|t|	OR	P>|t|	OR	P>|t|
Ethnicity								
Foreign Born - Other Immigrants	ref.		ref.		ref.		ref.	
2nd generation - Other Immigrants	2.214	0.000	2.254	0.000	2.141	0.000	2.179	0.000
Italy Born	0.485	0.000	0.306	0.000	0.311	0.000	0.304	0.000
Italy 2nd generation	2.787	0.000	2.287	0.000	2.204	0.000	2.185	0.000
Sweden Born	0.548	0.000	0.602	0.000	0.627	0.000	0.626	0.000
Sweden 2nd generation	2.693	0.000	3.188	0.000	3.171	0.000	3.180	0.000
Age of man								
<30	ref.		ref.		ref.		ref.	
30-39	0.935	0.000	1.071	0.009	1.055	0.042	1.058	0.030
>39	0.938	0.000	1.038	0.126	0.995	0.832	1.002	0.946
Urban Area								
Not Urban	ref.		ref.		ref.		ref.	
Urban area	0.735	0.000	0.870	0.000	0.969	0.095	0.954	0.013
Speaking English								
Yes, speaks English	ref.		ref.		ref.		ref.	
Does not speak English	0.375	0.000	0.248	0.000	0.228	0.000	0.237	0.000
Occupational income score	1.014	0.000	1.011	0.000	1.011	0.000	1.011	0.000
proportion of enum dist NBNP					2.408	0.000		
proportion of enum dist NBNP - Terciles								
proportion nbnp - 1st tercile							ref.	
proportion nbnp - 2nd tercile							1.517	0.000
proportion nbnp - 3rd tercile							1.521	0.000
Constant	0.404	0.000	0.380	0.000	0.248	0.000	0.287	0.000
N	210190		61992		61992		61992	
Overall p	0.000		0.000		0.000		0.000	
Log likelihood	-134687.7		-38439.63		-38223.11		-38206.77	

NBNP = native born of native parents

Table 4. Logistic regression analysis of the probability of intermarriage in the US. Female immigrants of first and second generation

	Base 1900		Base 1910		Full 1910 - 1		Full 1910 - 2	
	OR	P>|t|	OR	P>|t|	OR	P>|t|	OR	P>|t|
Ethnicity								
Foreign Born - Other Immigrants	ref.		ref.		ref.		ref.	
2nd generation - Other Immigrants	2.119	0.000	2.126	0.000	2.043	0.000	2.075	0.000
Italy Born	0.090	0.000	0.192	0.000	0.194	0.000	0.189	0.000
Italy 2nd generation	0.963	0.764	0.666	0.007	0.643	0.003	0.644	0.004
Sweden Born	0.610	0.000	0.593	0.000	0.607	0.000	0.607	0.000
Sweden 2nd generation	1.993	0.000	2.728	0.000	2.685	0.000	2.714	0.000
Age of woman								
<30	ref.		ref.		ref.		ref.	
30-39	0.896	0.000	1.020	0.395	1.007	0.764	1.007	0.771
>39	0.801	0.000	0.899	0.000	0.874	0.000	0.876	0.000
Urban Area								
Not Urban	ref.		ref.		ref.		ref.	
Urban area	0.823	0.000	0.930	0.000	0.996	0.845	0.993	0.702
Speaking English								
Yes, speaks English	ref.		ref.		ref.		ref.	
Does not speak English	0.393	0.000	0.201	0.000	0.191	0.000	0.199	0.000
Occupational income score [of spouse]	1.012	0.000	1.012	0.000	1.012	0.000	1.012	0.000
proportion of enum dist NBNP					1.843	0.000		
proportion of enum dist NBNP - Terciles								
proportion nbnp - 1st tercile							ref.	
proportion nbnp - 2nd tercile							1.438	0.000
proportion nbnp - 3rd tercile							1.309	0.000
Constant	0.395	0.000	0.376	0.000	0.282	0.000	0.302	0.000
N	198218		58670		58670		58670	
Overall p	0.000		0.000		0.000		0.000	
Log likelihood	-125972.3		-35798.91		-35702.7		-35649.29	

NBNP = native born of native parents

Table 5. Descriptives: percentages and means. All married Italian immigrants of first and second generation

	Intermarriage analysis - Italians*			
	1900		1910	
	Male	Female	Male	Female
Intermarriage				
endogenous marriage	81.54	93.07	86.93	92.15
exogamous marriage	18.46	6.93	13.07	7.85
Ethnicity				
Italy Born	94.24	85.05	93.06	84.83
Italy 2nd generation	5.76	14.95	6.94	15.17
Age of man				
<30	30.51	63.66	37.44	63.97
30-39	41.78	25.64	34.91	23.32
>39	27.71	10.69	27.65	12.71
Urban Area				
Not Urban	31.37	26.53	36.79	37.77
Urban area	68.63	73.47	63.21	62.23
Speaking English				
Yes, speaks English	84.9	65.69	74.32	56.12
Does not speak English	15.1	34.31	25.68	43.88
Occupational income score	24.52	24.39	24.30	24.21
proportion of enum dist NBNP			0.41	0.40
proportion of enum dist 1st & 2nd generation italian			0.17	0.17
proportion all years lived by italians outside usa			0.55	0.55
porportion of single Italians 20-29 male			0.84	0.84
Total	3,006	2,020	2,134	1,668

* First generation Italian immigrants are include only if they married after immigration in the US
** For females, Occupational income score is referred to the spouse profession

NBNP = native born of native parents

Table 6. Logistic regression analysis of the probability of intermarriage in the US. Only Italian male immigrants of first and second generation

	Base 1900		Base 1910		Full 1910 - 1		Full 1910 - 2	
	OR	P>|t|	OR	P>|t|	OR	P>|t|	OR	P>|t|
Ethnicity								
Italy Born	ref.		ref.		ref.		ref.	
Italy 2nd generation	6.694	0.000	8.210	0.000	6.275	0.000	7.487	0.000
Age of man								
<30	ref.		ref.		ref.		ref.	
30-39	1.021	0.875	0.966	0.838	0.932	0.687	0.877	0.455
>39	2.310	0.000	1.535	0.011	1.197	0.307	1.312	0.124
Urban Area								
Not Urban	ref.		ref.		ref.		ref.	
Urban area	0.474	0.000	0.874	0.347	1.154	0.367	1.222	0.219
Speaking English								
Yes, speaks English	ref.		ref.		ref.		ref.	
Does not speak English	0.186	0.000	0.285	0.000	0.306	0.000	0.289	0.000
Occupational income score	1.008	0.095	1.004	0.602	1.003	0.715	1.004	0.552
proportion of enum dist NBNP					1.100	0.814		
proportion of enum dist 1st & 2nd generation italian					0.059	0.000		
proportion all years lived by italians outside usa					0.087	0.000		
porportion of single Italians 20-29 male					0.769	0.593		
proportion of enum dist NBNP - Terciles								
proportion nbnp - 1st tercile							ref.	
proportion nbnp - 2nd tercile							1.316	0.107
proportion nbnp - 3rd tercile							1.365	0.187
proportion of enum dist 1st & 2nd generation italian - Terciles								
proportion italian - 1st tercile							ref.	
proportion italian - 2nd tercile							0.755	0.690
proportion italian - 3rd tercile							0.224	0.035
proportion all years lived by italians outside usa - Terciles								
italian recent - 1st tercile							ref.	
italian recent - 2nd tercile							0.323	0.159
italian recent - 3rd tercile							0.203	0.051
porportion of single Italians 20-29 male - Terciles								
italian singlepropmale - 1st tercile							ref.	
italian singlepropmale - 2nd tercile							0.950	0.794
italian singlepropmale - 3rd tercile							1.343	0.090
Constant	0.219	0.000	0.125	0.000	0.738	0.579	1.302	0.738
N	3006		2134		2134		2134	
Overall p	0.000		0.000		0.000		0.000	
Log likelihood	-1268.686		-731.9783		-693.7093		-689.6923	

Table 7. Logistic regression analysis of the probability of intermarriage in the US. Only Italian female immigrants of first and second generation

	Base 1900		Base 1910		Full 1910 - 1		Full 1910 - 2	
	OR	P>|t|	OR	P>|t|	OR	P>|t|	OR	P>|t|
Ethnicity								
Italy Born	ref.		ref.		ref.		ref.	
Italy 2nd generation	11.231	0.000	6.667	0.000	5.279	0.000	5.799	0.000
Age of woman								
<30	ref.		ref.		ref.		ref.	
30-39	1.192	0.429	0.803	0.390	0.619	0.072	0.638	0.096
>39	1.611	0.108	1.364	0.282	1.014	0.963	1.109	0.733
Urban Area								
Not Urban	ref.		ref.		ref.		ref.	
Urban area	0.541	0.002	0.218	0.000	0.273	0.000	0.340	0.000
Speaking English								
Yes, speaks English	ref.		ref.		ref.		ref.	
Does not speak English	0.326	0.001	0.888	0.607	0.990	0.967	0.989	0.962
Occupational income score [of spouse]	0.997	0.754	1.021	0.039	1.022	0.026	1.025	0.015
proportion of enum dist NBNP - Terciles					1.549	0.457		
proportion of enum dist 1st & 2nd generation italian					0.198	0.122		
proportion all years lived by italians outside usa					0.059	0.000		
porportion of single Italians 20-29 male					1.010	0.990		
proportion of enum dist NBNP - Terciles								
proportion nbnp - 1st tercile							ref.	
proportion nbnp - 2nd tercile							3.149	0.000
proportion nbnp - 3rd tercile							3.293	0.001
proportion of enum dist 1st & 2nd generation italian - Terciles								
proportion italian - 1st tercile							ref.	
proportion italian - 2nd tercile							0.681	0.728
proportion italian - 3rd tercile							0.341	0.330
proportion all years lived by italians outside usa - Terciles								
italian recent - 1st tercile							ref.	
italian recent - 2nd tercile							0.071	0.003
italian recent - 3rd tercile							0.043	0.001
porportion of single Italians 20-29 male - Terciles								
italian singlepropmale - 1st tercile							ref.	
italian singlepropmale - 2nd tercile							1.083	0.774
italian singlepropmale - 3rd tercile							1.033	0.891
Constant	0.06	0.000	0.068	0.000	0.279	0.151	1.059	0.966
N	2020		1668		1668		1668	
Overall p	0.000		0.000		0.000		0.000	
Log likelihood	-396.8982		-390.1589		-374.3735		-363.3998	

Table 8. Descriptives: percentages and means. All married Swedish immigrants of first and second generation

	Intermarriage analysis - Swedes*			
	1900		1910	
	Male	Female	Male	Female
Intermarriage				
endogenous marriage	76.21	75.10	70.19	69.48
exogamous marriage	23.79	24.90	29.81	30.52
Ethnicity				
Sweden Born	90.88	83.95	81.19	73.33
Sweden 2nd generation	9.12	16.05	18.81	26.67
Age of man				
<30	15.49	32.60	14.69	27.02
30-39	43.30	41.58	31.65	34.37
>39	41.21	25.82	53.66	38.61
Urban Area				
Not Urban	64.40	63.62	62.53	60.94
Urban area	35.60	36.38	37.47	39.06
Speaking English				
Yes, speaks English	98.84	95.61	98.25	96.90
Does not speak English	1.16	4.39	1.75	3.10
Occupational income score	22.64	22.82	23.57	23.69
proportion of enum dist NBNP			0.43	0.43
proportion of enum dist 1st & 2nd generation Swedes			0.09	0.08
proportion all years lived by Swedes outside usa			0.31	0.31
porportion of single Swedes 20-29 male			0.62	0.62
Total	7,146	6,724	2,063	2,002

* First generation Swedish immigrants are include only if they married after immigration in the US
** For females, Occupational income score is referred to the spouse profession

NBNP = native born of native parents

Table 9. Logistic regression analysis of the probability of intermarriage in the US. Only Swedish male immigrants of first and second generation

	Base 1900		Base 1910		Full 1910 - 1		Full 1910 - 2	
	OR	P>|t|	OR	P>|t|	OR	P>|t|	OR	P>|t|
Ethnicity								
Sweden Born	ref.		ref.		ref.		ref.	
Sweden 2nd generation	4.808	0.000	4.659	0.000	4.518	0.000	4.297	0.000
Age of man								
<30	ref.		ref.		ref.		ref.	
30-39	0.852	0.054	0.938	0.675	0.907	0.540	0.911	0.550
>39	0.816	0.017	0.718	0.035	0.671	0.014	0.680	0.017
Urban Area								
Not Urban	ref.		ref.		ref.		ref.	
Urban area	0.868	0.026	0.953	0.666	1.022	0.856	1.015	0.900
Speaking English								
Yes, speaks English	ref.		ref.		ref.		ref.	
Does not speak English	0.957	0.873	1.186	0.662	1.105	0.803	1.003	0.994
Occupational income score	1.014	0.000	1.020	0.000	1.019	0.000	1.018	0.001
proportion of enum dist NBNP					0.519	0.060		
proportion of enum dist 1st & 2nd generation Swedes					0.001	0.000		
proportion all years lived by Swedes outside usa					0.124	0.002		
porportion of single Swedes 20-29 male					1.121	0.688		
proportion of enum dist NBNP - Terciles								
proportion nbnp - 1st tercile							ref.	
proportion nbnp - 2nd tercile							1.231	0.076
proportion nbnp - 3rd tercile							0.969	0.871
proportion of enum dist 1st & 2nd generation Swedes - Terciles								
proportion italian - 1st tercile							ref.	
proportion italian - 2nd tercile							0.437	0.019
proportion italian - 3rd tercile							0.217	0.000
proportion all years lived by Swedes outside usa - Terciles								
italian recent - 1st tercile							ref.	
italian recent - 2nd tercile							0.686	0.076
italian recent - 3rd tercile							0.592	0.022
porportion of single Swedes 20-29 male - Terciles								
italian singlepropmale - 1st tercile							ref.	
italian singlepropmale - 2nd tercile							0.901	0.615
italian singlepropmale - 3rd tercile							0.987	0.910
Constant	0.23	0.000	0.229	0.000	0.938	0.878	1.331	0.504
N	7146		2063		2063		2063	
Overall p	0.000		0.000		0.000		0.000	
Log likelihood	-3719.002		-1140.126		-1093.325		-1108.315	

Table 10. Logistic regression analysis of the probability of intermarriage in the US. Only Swedish female immigrants of first and second generation

	Base 1900		Base 1910		Full 1910 - 1		Full 1910 - 2	
	OR	P>|t|	OR	P>|t|	OR	P>|t|	OR	P>|t|
Ethnicity								
Sweden Born	ref.		ref.		ref.		ref.	
Sweden 2nd generation	3.236	0.000	4.157	0.000	4.289	0.000	4.168	0.000
Age of woman								
<30	ref.		ref.		ref.		ref.	
30-39	0.854	0.021	0.711	0.008	0.712	0.010	0.696	0.006
>39	0.719	0.000	0.589	0.000	0.585	0.000	0.568	0.000
Urban Area								
Not Urban	ref.		ref.		ref.		ref.	
Urban area	0.896	0.087	1.123	0.303	1.189	0.159	1.179	0.178
Speaking English								
Yes, speaks English	ref.		ref.		ref.		ref.	
Does not speak English	0.527	0.000	0.721	0.355	0.743	0.413	0.659	0.250
Occupational income score [of spouse]	1.016	0.000	1.019	0.000	1.015	0.005	1.015	0.005
proportion of enum dist NBNP					0.486	0.046		
proportion of enum dist 1st & 2nd generation Swedes					0.001	0.000		
proportion all years lived by Swedes outside usa					0.309	0.089		
porportion of single Swedes 20-29 male					0.911	0.742		
proportion of enum dist NBNP - Terciles								
proportion nbnp - 1st tercile							ref.	
proportion nbnp - 2nd tercile							1.237	0.074
proportion nbnp - 3rd tercile							0.848	0.407
proportion of enum dist 1st & 2nd generation Swedes - Terciles								
proportion italian - 1st tercile							ref.	
proportion italian - 2nd tercile							0.746	0.440
proportion italian - 3rd tercile							0.281	0.001
proportion all years lived by Swedes outside usa - Terciles								
italian recent - 1st tercile							ref.	
italian recent - 2nd tercile							0.646	0.046
italian recent - 3rd tercile							0.612	0.036
porportion of single Swedes 20-29 male - Terciles								
italian singlepropmale - 1st tercile							ref.	
italian singlepropmale - 2nd tercile							0.846	0.439
italian singlepropmale - 3rd tercile							0.976	0.835
Constant	0.223	0.000	0.233	0.000	0.888	0.776	1.069	0.878
N	6724		2002		2002		2002	
Overall p	0.000		0.000		0.000		0.000	
Log likelihood	-3576.569		-1099.726		-1051.864		-1061.43	

Table 11. Descriptives: percentages and means. All married women with spouse present that are older than 15 years.

	Fertility analysis		Child mortality analysis*	
	1900	1910	1900	1910
Children born - mean	3.71	3.47	4.37	4.13
			0.99	0.94
Ethnicity - %				
US Born - White	52.75	47.30	52.44	47.31
US Born - Other No White	10.01	13.71	9.77	13.67
2nd generation - Immigrants	16.15	16.35	15.91	15.96
Foreign Born - Immigrants	18.80	19.49	19.54	19.87
Italy Born	0.81	1.75	0.83	1.80
Italy 2nd generation	0.05	0.13	0.04	0.12
Sweden Born	1.27	1.00	1.32	1.03
Sweden 2nd generation	0.16	0.27	0.15	0.24
Age of woman - %				
15-19	2.87	3.26	1.67	1.91
20-24	12.37	12.88	10.46	11.07
25-29	16.02	16.38	15.48	15.78
30-34	15.12	14.92	15.56	15.11
35-39	13.78	14.11	14.52	14.73
40-44	11.43	11.07	12.15	11.79
45-49	9.07	8.90	9.68	9.55
>49	19.33	18.47	20.48	20.05
Duration of current marital status - mean	15.59	14.95	16.89	16.32
Years in the US - %				
N/A (born in the US)	79.14	79.27	78.32	78.70
0 to 5 years	1.64	3.92	1.49	3.63
6 to 10 years	3.35	3.31	3.41	3.29
11 to 15 years	3.54	1.95	3.65	2.00
16 to 20 years	4.26	2.96	4.50	3.10
21+ years	8.06	8.58	8.63	9.28
Speaking English - %				
Yes, speaks English	94.29	88.02	94.14	87.92
Does not speak English or N/A	5.71	11.98	5.86	12.08
Literacy - %				
No, illiterate (cannot read nor write)	10.46	12.54	10.93	13.10
Can't read, can write	0.08	0.04	0.09	0.04
Can't write, can read	2.12	1.61	2.27	1.72
Yes, literate (reads and writes)	87.34	85.81	86.71	85.15
Woman employed - %				
Not in the labor force	95.61	89.96	96.05	90.64
Yes, in the labor force	4.39	10.04	3.95	9.36
Living in a farm				
Not farm	62.84	68.88	61.20	66.95
Farm	37.16	31.12	38.80	33.05
Occupational income score [spouse] - mean	21.52	21.83	21.27	21.48
Urban Area				
Not Urban	75.35	73.54	76.19	74.72
Urban	24.65	26.46	23.81	25.28

(continued)

Table 11 (continued). Descriptives: percentages and means. All married women with spouse present that are older than 15 years.

Census Division - %				
New England Division	7.68	6.28	7.31	6.04
Middle Atlantic Division	20.99	18.34	20.71	18.21
East North Central Division	22.62	18.53	22.66	18.58
West North Central Division	13.83	11.65	14.12	11.90
South Atlantic Division	12.70	12.63	12.87	12.87
East South Central Division	9.28	8.01	9.37	8.20
West South Central Division	7.92	11.87	8.10	11.99
Mountain Division	1.99	4.96	1.96	4.94
Pacific Division	2.98	7.74	2.88	7.27
Military/Military reservations		0.01		
Total	671,317	271,704	569,945	228,331

* The child mortality analysis takes into account all married women with spouse present that are older than 15 years and had at least 1 child

Table 12. Rate ratios from Poisson regression of children ever born in 1900. Married women

	Base		Full		Interactions	
	IRR	P>|t|	IRR	P>|t|	IRR	P>|t|
Ethnicity						
US Born - White	0.716	0.000	1.000	0.998	0.981	0.757
US Born - Other No White	1.100	0.000	1.147	0.022	1.078	0.224
2nd generation - Immigrants	0.829	0.000	1.159	0.013	1.105	0.104
Foreign Born - Immigrants	0.825	0.000	1.068	0.000	1.030	0.075
Italy Born	ref.		ref.		ref.	
Italy 2nd generation	1.037	0.321	1.258	0.001	1.158	0.128
Sweden Born	0.851	0.000	0.989	0.218	0.971	0.187
Sweden 2nd generation	0.980	0.359	1.128	0.058	1.103	0.199
Age of woman						
15-19			1.192	0.000	0.984	0.836
20-24			1.216	0.000	1.162	0.000
25-29			1.108	0.000	1.088	0.001
30-34			ref.		ref.	
35-39			0.912	0.000	0.889	0.000
40-44			0.819	0.000	0.801	0.000
45-49			0.709	0.000	0.679	0.000
>49			0.510	0.000	0.503	0.000
Years in the US						
N/A (born in the US)			ref.		ref.	
0 to 5 years			1.238	0.000	1.239	0.000
6 to 10 years			1.343	0.000	1.339	0.000
11 to 15 years			1.359	0.000	1.348	0.000
16 to 20 years			1.329	0.000	1.309	0.000
21+ years			1.206	0.002	1.183	0.005
Speaking English						
Yes, speaks English			ref.		ref.	
Does not speak English			1.011	0.000	1.012	0.000
Literacy						
No, illiterate (cannot read nor write)			ref.		ref.	
Can't read, can write			0.986	0.472	0.995	0.783
Can't write, can read			0.992	0.038	1.006	0.155
Yes, literate (reads and writes)			0.864	0.000	0.876	0.000
Woman employed						
Not in the labor force			ref.		ref.	
Yes, in the labor force			0.915	0.000	0.918	0.000
Living in a farm						
Not farm			ref.		ref.	
Farm			1.103	0.000	1.102	0.000
Occupational income score [of spouse]			0.997	0.000	0.997	0.000
Urban Area						
Not Urban			ref.		ref.	
Urban			0.957	0.000	0.957	0.000
Census Region						
New England Division			ref.		ref.	
Middle Atlantic Division			1.110	0.000	1.109	0.000
East North Central Division			1.125	0.000	1.123	0.000
West North Central Division			1.219	0.000	1.216	0.000
South Atlantic Division			1.414	0.000	1.409	0.000
East South Central Division			1.386	0.000	1.381	0.000
West South Central Division			1.447	0.000	1.442	0.000
Mountain Division			1.244	0.000	1.240	0.000
Pacific Division			1.060	0.000	1.057	0.000

Interactions Ethnicity*Age of women						
US Born - White * 15-19					1.260	0.003
US Born - White * 20-24					1.072	0.029
US Born - White * 25-29					1.036	0.148
US Born - White * 35-39					1.015	0.511
US Born - White * 40-44					0.997	0.911
US Born - White * 45-49					1.010	0.702
US Born - White * >49					0.979	0.414
US Born - Other No White * 15-19					1.140	0.104
US Born - Other No White * 20-24					0.996	0.906
US Born - Other No White * 25-29					0.967	0.182
US Born - Other No White * 35-39					1.046	0.054
US Born - Other No White * 40-44					1.074	0.004
US Born - Other No White * 45-49					1.123	0.000
US Born - Other No White * >49					1.141	0.000
2nd generation - Immigrants * 15-19					1.221	0.017
3rd generation - Immigrants * 20-24					1.083	0.015
4th generation - Immigrants * 25-29					1.042	0.105
5th generation - Immigrants * 35-39					1.020	0.387
6th generation - Immigrants * 40-44					1.028	0.253
7th generation - Immigrants * 45-49					1.067	0.017
8th generation - Immigrants * >49					1.047	0.085
Foreign Born - Immigrants * 15-19					1.062	0.484
Foreign Born - Immigrants * 20-24					0.982	0.580
Foreign Born - Immigrants * 25-29					0.993	0.792
Foreign Born - Immigrants * 35-39					1.049	0.037
Foreign Born - Immigrants * 40-44					1.055	0.028
Foreign Born - Immigrants * 45-49					1.072	0.010
Foreign Born - Immigrants * >49					1.032	0.237
Italy 2nd generation * 15-19					1.121	0.556
Italy 2nd generation * 20-24					1.204	0.120
Italy 2nd generation * 25-29					1.100	0.388
Italy 2nd generation * 35-39					1.065	0.602
Italy 2nd generation * 40-44					1.125	0.420
Italy 2nd generation * 45-49					1.001	0.993
Italy 2nd generation * >49					1.085	0.695
Sweden Born * 15-19					1.115	0.602
Sweden Born * 20-24					1.038	0.485
Sweden Born * 25-29					1.004	0.905
Sweden Born * 35-39					1.028	0.354
Sweden Born * 40-44					1.066	0.040
Sweden Born * 45-49					1.096	0.007
Sweden Born * >49					0.954	0.134
Sweden 2nd generation * 15-19					1.225	0.401
Sweden 2nd generation * 20-24					1.109	0.204
Sweden 2nd generation * 25-29					0.999	0.983
Sweden 2nd generation * 35-39					1.036	0.616
Sweden 2nd generation * 40-44					0.973	0.716
Sweden 2nd generation * 45-49					0.902	0.348
Sweden 2nd generation * >49					0.866	0.395
Constant	0.301	0.000	0.280	0.000	0.288	0.000
N	671293		671293		671293	
Overall p	0.000		0.000		0.000	
Log likelihood	-1638201		-1501694		-1500786	

Table 13. Rate ratios from Poisson regression of children ever born in 1910. Married women

	Base		Full		Interactions	
	IRR	P>|t|	IRR	P>|t|	IRR	P>|t|
Ethnicity						
US Born - White	0.693	0.000	0.849	0.000	0.856	0.000
US Born - Other No White	1.050	0.000	1.054	0.000	0.989	0.617
2nd generation - Immigrants	0.721	0.000	0.937	0.000	0.910	0.000
Foreign Born - Immigrants	0.801	0.000	0.921	0.000	0.902	0.000
Italy Born	ref.		ref.		ref.	
Italy 2nd generation	1.110	0.006	1.138	0.001	1.054	0.550
Sweden Born	0.720	0.000	0.858	0.000	0.884	0.001
Sweden 2nd generation	0.829	0.000	0.880	0.000	0.835	0.002
Age of woman						
15-19			1.214	0.000	0.900	0.273
20-24			1.254	0.000	1.151	0.000
25-29			1.115	0.000	1.092	0.001
30-34			ref.		ref.	
35-39			0.921	0.000	0.950	0.045
40-44			0.820	0.000	0.866	0.000
45-49			0.714	0.000	0.707	0.000
>49			0.529	0.000	0.520	0.000
Years in the US						
N/A (born in the US)			ref.		ref.	
0 to 5 years			1.115	0.000	1.120	0.000
6 to 10 years			1.184	0.000	1.183	0.000
11 to 15 years			1.214	0.000	1.199	0.000
16 to 20 years			1.234	0.000	1.205	0.000
21+ years			1.180	0.000	1.137	0.000
Speaking English						
Yes, speaks English			ref.		ref.	
Does not speak English			1.033	0.000	1.031	0.000
Literacy						
No, illiterate (cannot read nor write)			ref.		ref.	
Can't read, can write			0.943	0.225	0.953	0.312
Can't write, can read			1.029	0.000	1.037	0.000
Yes, literate (reads and writes)			0.884	0.000	0.894	0.000
Woman employed						
Not in the labor force			ref.		ref.	
Yes, in the labor force			0.925	0.000	0.927	0.000
Living in a farm						
Not farm			ref.		ref.	
Farm			1.149	0.000	1.148	0.000
Occupational income score [of spouse]			0.997	0.000	0.997	0.000
Urban Area						
Not Urban			ref.		ref.	
Urban			0.938	0.000	0.937	0.000
Census Region						
New England Division			ref.		ref.	
Middle Atlantic Division			1.091	0.000	1.089	0.000
East North Central Division			1.068	0.000	1.065	0.000
West North Central Division			1.159	0.000	1.155	0.000
South Atlantic Division			1.311	0.000	1.307	0.000
East South Central Division			1.292	0.000	1.286	0.000
West South Central Division			1.288	0.000	1.284	0.000
Mountain Division			1.178	0.000	1.175	0.000
Pacific Division			1.062	0.000	1.058	0.000
Military/Military reservations			0.667	0.085	0.659	0.076
Interactions Ethnicity*Age of women						
US Born - White * 15-19					1.444	0.000

US Born - White * 20-24					1.130	0.000
US Born - White * 25-29					1.030	0.282
US Born - White * 35-39					0.948	0.042
US Born - White * 40-44					0.914	0.001
US Born - White * 45-49					0.965	0.213
US Born - White * >49					0.960	0.115
US Born - Other No White * 15-19					1.383	0.001
US Born - Other No White * 20-24					1.050	0.161
US Born - Other No White * 25-29					1.013	0.646
US Born - Other No White * 35-39					1.016	0.565
US Born - Other No White * 40-44					1.013	0.627
US Born - Other No White * 45-49					1.108	0.001
US Born - Other No White * >49					1.132	0.000
2nd generation - Immigrants * 15-19					1.400	0.001
3rd generation - Immigrants * 20-24					1.161	0.000
4th generation - Immigrants * 25-29					1.048	0.102
5th generation - Immigrants * 35-39					0.954	0.087
6th generation - Immigrants * 40-44					0.916	0.002
7th generation - Immigrants * 45-49					0.988	0.686
8th generation - Immigrants * >49					1.082	0.004
Foreign Born - Immigrants * 15-19					0.921	0.442
Foreign Born - Immigrants * 20-24					0.989	0.748
Foreign Born - Immigrants * 25-29					0.993	0.810
Foreign Born - Immigrants * 35-39					0.995	0.849
Foreign Born - Immigrants * 40-44					0.997	0.906
Foreign Born - Immigrants * 45-49					1.066	0.028
Foreign Born - Immigrants * >49					1.059	0.032
Italy 2nd generation * 15-19					1.645	0.010
Italy 2nd generation * 20-24					1.103	0.401
Italy 2nd generation * 25-29					1.082	0.502
Italy 2nd generation * 35-39					1.054	0.709
Italy 2nd generation * 40-44					1.141	0.435
Italy 2nd generation * 45-49					1.317	0.160
Italy 2nd generation * >49					0.938	0.791
Sweden Born * 15-19					0.000	0.978
Sweden Born * 20-24					1.104	0.324
Sweden Born * 25-29					1.060	0.353
Sweden Born * 35-39					0.910	0.060
Sweden Born * 40-44					0.900	0.028
Sweden Born * 45-49					1.000	0.995
Sweden Born * >49					1.009	0.842
Sweden 2nd generation * 15-19					1.240	0.540
Sweden 2nd generation * 20-24					1.225	0.049
Sweden 2nd generation * 25-29					1.163	0.070
Sweden 2nd generation * 35-39					0.938	0.428
Sweden 2nd generation * 40-44					0.751	0.020
Sweden 2nd generation * 45-49					1.128	0.258
Sweden 2nd generation * >49					1.224	0.100
Constant	0.303	0.000	0.321	0.000	0.325	0.000
N	271700		271700		271700	
Overall p	0.000		0.000		0.000	
Log likelihood	-662051.9		-615171.9		-614576	

Table 14. Equations Predicting the Ratio of Actual to Expected Child Deaths for Individual Women by Nativity and Residence, U.S. 1900

Fixed Effects	Total				Native-Born				Foreign-Born			
	Region*		County-level		Region*		County-level		Region*		County-level	
Independent Variables	*Coef.*	*P>|t|*	*Coef.*	*P>|t|*	*Coef.*	*P>|t|*	*Coef.*	*P>|t|*	*Coef.*	*P>|t|*	*Coef.*	*P>|t|*
Race of wife												
White	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
Black	0.386	0.000	0.353	0.000	0.374	0.000	0.341	0.000	--	--	--	--
Nativity of wife												
Native, native mother	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	--	--	--	--
Native, Canadian mother	0.043	0.036	0.080	0.000	0.046	0.027	0.078	0.000	--	--	--	--
Native, Mexican mother	-0.070	0.271	0.014	0.839	-0.094	0.147	0.068	0.364	--	--	--	--
Native, Danish mother	-0.087	0.229	-0.030	0.686	-0.096	0.187	-0.032	0.668	--	--	--	--
Native, Norwegian mother	-0.076	0.018	-0.010	0.771	-0.081	0.013	-0.020	0.581	--	--	--	--
Native, Swedish mother	-0.119	0.007	-0.070	0.119	-0.125	0.005	-0.069	0.134	--	--	--	--
Native, English mother	-0.066	0.000	-0.039	0.022	-0.062	0.000	-0.036	0.039	--	--	--	--
Native, Scotish mother	-0.015	0.645	0.013	0.694	-0.010	0.752	0.016	0.619	--	--	--	--
Native, Welsh mother	0.021	0.636	0.038	0.407	0.022	0.633	0.044	0.337	--	--	--	--
Native, Irish mother	0.079	0.000	0.094	0.000	0.085	0.000	0.096	0.000	--	--	--	--
Native, French mother	-0.070	0.111	-0.048	0.277	-0.067	0.128	-0.047	0.293	--	--	--	--
Native, Dutch mother	-0.078	0.156	-0.040	0.474	-0.078	0.154	-0.036	0.532	--	--	--	--
Native, Swiss mother	-0.093	0.067	-0.069	0.171	-0.092	0.071	-0.068	0.182	--	--	--	--
Native, Italian mother	0.169	0.048	0.156	0.067	0.161	0.060	0.144	0.093	--	--	--	--
Native, Austrian mother	-0.103	0.216	-0.076	0.365	-0.105	0.210	-0.077	0.360	--	--	--	--
Native, German mother	-0.050	0.000	-0.033	0.000	-0.048	0.000	-0.032	0.000	--	--	--	--
Native, Russian mother	-0.246	0.007	-0.296	0.001	-0.249	0.006	-0.262	0.005	--	--	--	--
Native, Oth, Foreign mother	0.103	0.003	0.131	0.000	0.096	0.005	0.139	0.000	--	--	--	--
Canadian	0.084	0.000	0.103	0.000	--	--	--	--	-0.022	0.392	-0.033	0.225
Mexican	0.197	0.000	0.234	0.000	--	--	--	--	0.305	0.000	0.182	0.058
Danish	-0.053	0.108	-0.001	0.977	--	--	--	--	-0.132	0.001	-0.119	0.004
Norwegian	-0.055	0.016	-0.008	0.736	--	--	--	--	-0.143	0.000	-0.131	0.000
Swedish	-0.120	0.000	-0.084	0.000	--	--	--	--	-0.209	0.000	-0.210	0.000
English	0.073	0.000	0.080	0.000	--	--	--	--	-0.030	0.271	-0.051	0.071
Scotish	0.060	0.052	0.063	0.040	--	--	--	--	-0.045	0.229	-0.070	0.067
Welsh	0.197	0.000	0.205	0.000	--	--	--	--	0.101	0.043	0.063	0.225
Irish	0.175	0.000	0.172	0.000	--	--	--	--	0.072	0.004	0.053	0.039
French	0.091	0.075	0.094	0.067	--	--	--	--	-0.002	0.970	-0.016	0.775
Dutch	-0.084	0.064	-0.043	0.362	--	--	--	--	-0.161	0.001	-0.162	0.003
Swiss	0.057	0.187	0.083	0.053	--	--	--	--	-0.033	0.484	-0.018	0.714
Italian	0.047	0.032	0.059	0.007	--	--	--	--	*ref.*	--	*ref.*	--

Austrian	-0.088	0.001	-0.083	0.002	--	--	--	--	-0.147	0.000	-0.171	0.000
German	0.015	0.111	0.031	0.002	--	--	--	--	-0.074	0.002	-0.086	0.000
Russian	-0.153	0.000	-0.179	0.000	--	--	--	--	-0.218	0.000	-0.269	0.000
Other foreign	0.080	0.000	0.097	0.000	--	--	--	--	0.014	0.553	-0.008	0.749
Age of wife	0.016	0.000	0.016	0.000	0.014	0.000	0.015	0.000	0.020	0.000	0.021	0.000
Literacy of wife												
Literate	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
Illiterate	0.119	0.000	0.105	0.000	0.135	0.000	0.119	0.000	0.072	0.000	0.080	0.000
Wife speaks English												
Yes	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
No	0.107	0.000	0.088	0.000	0.066	0.025	0.004	0.887	0.126	0.000	0.098	0.000
Literacy of husband												
Literate	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
Illiterate	0.059	0.000	0.060	0.000	0.064	0.000	0.067	0.000	0.031	0.080	0.028	0.113
Husband speaks English												
Yes	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
No	0.047	0.007	0.015	0.395	0.106	0.002	0.017	0.635	0.041	0.038	0.024	0.229
Census Division												
New England	*ref.*	--	--	--	*ref.*	--	--	--	*ref.*	--	--	--
Mid Atlantic	0.033	0.000	--	--	0.049	0.000	--	--	-0.003	0.842		
East North Central	-0.011	0.224	--	--	0.008	0.446	--	--	-0.066	0.000	--	--
West North Central	0.004	0.717	--	--	0.027	0.021	--	--	-0.070	0.000	--	--
South Atlantic	0.070	0.000	--	--	0.087	0.000	--	--	-0.013	0.702	--	--
East South Central	0.114	0.000	--	--	0.130	0.000	--	--	0.016	0.774	--	--
West South Central	0.198	0.000	--	--	0.222	0.000	--	--	-0.018	0.609	--	--
Mountain	0.109	0.000	--	--	0.134	0.000	--	--	0.017	0.566	--	--
Pacific	-0.128	0.000	--	--	-0.108	0.000	--	--	-0.187	0.000	--	--
Residence												
Cities 100,000+	0.100	0.000	0.059	0.000	0.101	0.000	0.043	0.021	0.075	0.000	0.045	0.111
Cities 25,000 - 99,999	0.053	0.000	0.039	0.003	0.067	0.000	0.046	0.002	0.007	0.767	-0.002	0.954
Cities 5,000 - 24,999	-0.015	0.114	-0.018	0.098	-0.021	0.051	-0.021	0.071	-0.009	0.688	-0.032	0.202
Cities 1,000 - 4,999	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
Rural	-0.016	0.045	-0.023	0.006	-0.015	0.086	-0.021	0.025	-0.039	0.057	-0.058	0.000
Property												
Owns farm	-0.092	0.000	-0.079	0.000	-0.087	0.000	-0.072	0.000	-0.098	0.002	-0.107	0.001
Rents farm	-0.049	0.000	-0.042	0.000	-0.045	0.000	-0.038	0.002	-0.108	0.002	-0.089	0.014
Owns home	-0.051	0.000	-0.044	0.000	-0.053	0.000	-0.045	0.000	-0.043	0.000	-0.043	0.000
Rents home	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
Wife in Labor Force												
No	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
Yes	0.168	0.000	0.1664	0.000	0.151	0.000	0.148	0.000	0.267	0.000	0.000	0.000

Husband's occupation												
Professional, Technical	-0.217	0.000	-0.2161	0.000	-0.217	0.000	-0.2115	0.000	-0.217	0.000	-0.2242	0.000
Farmers and Farm Operatives	-0.182	0.000	-0.1854	0.000	-0.191	0.000	-0.1918	0.000	-0.151	0.000	-0.1414	0.000
Managers, Official, Proprietors	-0.174	0.000	-0.1768	0.000	-0.189	0.000	-0.1869	0.000	-0.112	0.000	-0.1226	0.000
Clerical and Sales	-0.215	0.000	-0.2161	0.000	-0.227	0.000	-0.2256	0.000	-0.152	0.000	-0.1578	0.000
Craftsmen	-0.094	0.000	-0.0956	0.000	-0.097	0.000	-0.0931	0.000	-0.082	0.000	-0.0882	0.000
Apprentices, Operatives	-0.034	0.000	-0.0429	0.000	-0.039	0.000	-0.0424	0.000	-0.019	0.165	-0.0413	0.004
Service Workers	-0.060	0.000	-0.0669	0.000	-0.058	0.000	-0.0614	0.000	-0.060	0.018	-0.0676	0.008
Farm Laborers	-0.119	0.000	-0.1055	0.000	-0.124	0.000	-0.1085	0.000	-0.163	0.000	-0.1184	0.001
Laborers	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--	*ref.*	--
No Occupational Response	-0.121	0.000	-0.118	0.000	-0.135	0.000	-0.129	0.000	-0.066	0.059	-0.0674	0.057
Age of husband	-0.026	0.000	-0.025	0.000	-0.028	0.000	-0.028	0.000	-0.007	0.015	-0.0085	0.004
Age-squared of husband	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.0001	0.001
Constant	0.867	0.000	0.898	0.000	0.941	0.000	0.997	0.000	0.478	0.000	0.4977	0.000
N	507,233		507,233		405,703		405,703		101,381		101,381	
Adjusted R-Squared/overall	0.036		0.033		0.036		0.033		0.034		0.033	

* Census region/division dummy variables in model after Preston and Haines (1991).

Figure 1. Immigration from Scandanavian countries and Italy to the U.S., 1850-1940