The Consequences of Career Choice: Family and Income Disparities Among Women in Science and Other Elite Professions

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ABSTRACT

Women now attain bachelor's and graduate degrees at rates that equal or exceed men's. Despite this progress, sex segregation in fields of study persists. Men are more likely than women to major in science, particularly physical science and engineering, and data indicate that gender convergence among science majors is not likely in the near future. Explanations for the persisting shortfall of women in the physical sciences and engineering must account for broader trends in education and the consequences of women's major choice for their careers and family lives. Using data from the 1980 to 2000 Census and the 2009 American Community Survey, we analyze trends over time in highly-educated women's occupational choices and the consequences of their choices in terms of marriage, fertility and earnings. Women's career choices, especially in high-status, demanding occupations in the sciences, have consequences for all three outcomes.

The Consequences of Career Choice: Family and Income Disparities Among Women in Science and Other Elite Professions

Women now attain bachelor's, master's, professional, and doctoral degree at rates that equal or exceed men's rates (for a review, see Buchmann, DiPrete and McDaniel 2008). Women also have made much progress in many high status professions as well as in many branches of science. The number of women undergraduates majoring in science and engineering has increased consistently since 1966; since 2000, women garner slightly more than half of all bachelor's degrees in science and engineering (National Science Foundation, Division of Science Resources Statistics 2009). Inspection of specific fields within the broad category of science and engineering reveals great variation in women's representation. Women now comprise the majority of students completing bachelor's degrees in the biological sciences, the agricultural sciences, chemistry and ocean sciences, but remain the minority in nearly all other science and engineering fields (see Figure 1). This pattern underscores persistent sex segregation in fields of study generally, and the sciences in particular (Turner and Bowen 1999; Charles and Bradley 2002; 2009).

FIGURE 1 ABOUT HERE

Why do women remain underrepresented in many science fields? And what is the prognosis for the future? The slow rate of progress of women in some fields of science and engineering contrasts women's rapid progress in higher education in general.
By 2000, women received 57% of all bachelor's degrees and this gap has remained stable to the present (Snyder and Dillow 2010). Currently, women are more likely than men to attend graduate school; they earned 61% of all master's degrees and 51% of doctoral

degrees in 2008, the most recent year for which data are available (Snyder and Dillow 2010). Similar trends have occurred within professional degrees. In 1970, women earned 8% of medical degrees, 5% of law degrees, and 1% of dentistry degrees (Freeman 2004). In 2008, women earned 49% of medical degrees, 47% of law degrees, and 45% of dentistry degrees, (Snyder and Dillow 2010).

Prior research has stressed both micro-level, individual factors as well as macro-level, institutional factors to explain the growing female advantage in college completion. Micro-level explanations focus on gender differences in cognitive and non-cognitive skills and the effect of family background on educational attainment (Buchmann and DiPrete, 2006; Reynolds and Burge, 2008; Jacob, 2002; Goldin et al., 2006). Notable institutional-level forces include the spread of egalitarian norms, structural changes in higher education, and women's rising labor force participation rates as well as rising gender-specific returns to a college degree (Buchmann and DiPrete, 2006; Goldin et al., 2006).

Explanations for the persisting shortfall of women in the physical sciences and engineering must take account of these broader trends in higher education and the consequences for women's field of study decisions for their careers and family lives. Research shows that women's underrepresentation in science is due in part to women's higher attrition than men at each stage of the science "pipeline" (Berryman 1983; Long 2001; Sonnert 1995; Sonnert et al. 2007). Using a life course perspective, Xie and Shauman (2003) recognize that individual decision-making and structural constraints interact in complex ways to shape the educational and career trajectories of individuals. The life course is comprised of different, interconnected trajectories in education, family and career, and the events and changes in one domain often affect the course of the trajectories of other domains. Individuals make career choices not simply on the basis of job-specific values (i.e. the type of job they want to have), but in terms of values pertinent to other salient social roles. Thus, gendered patterns in major and career choice are determined not only by intrinsic interests, but also by considerations about future life goals regarding family formation and career-family balance. In particular, many young women may perceive predominantly female branches of study to fit better with gendered norms related to family formation (Hakim, 2000; Lappegård, 2002; Lappegård and Rønsen, 2005) and these perceptions, in turn, shape their career decisions.

Prior research does not consider whether the consequences for women's career choices in physical sciences and engineering are different from those in other sciences or other elite careers. The ability to combine work and family is likely higher in some fields than others. Much research has documented the "chilly climate" for women in the sciences, making it difficult for women to be accepted in science professions (Flam 1991; Ginorio 1995; Blickenstaff 2005). Women's choices to enter into science or not, and to enter into physical science or engineering versus life science may be due to their assessment of different levels of compatibility with family goals for various prestigious careers.

Much prior research focuses exclusively on science majors and scientists in searching for answers to the question of why many science fields fail to attract more women (National Research Council, 2006; National Science Foundation, 2004; Zuckerman et al., 1992; Davis, 1996; Valian, 1998; Hanson, 1996; Brainard and Carlin, 1997; Fox and Stephan, 2001). But this extensive literature cannot address the broader occupational environment in which other elite career options are increasingly available to women. Because most prior research does not compare science majors and scientists to other types of majors and careers, these studies cannot compare the returns to science careers relative to other elite careers for women. Research on the incompatibility of work and family roles for women in science has determined that career-family conflicts are one reason women choose careers other than those in science or decide to leave science fields. But this research has not considered how much career-family conflict exists in other elite careers such as medicine and law that women have moved into in large numbers. Therefore, we do not know whether the popularity of different careers for women is related to differences in perceived or actual career-family incompatibilities of these fields or differences in their appeal to the women due to intrinsic features of these fields.

Using data from the 1980, 1990, and 2000 Integrated Public-Use Microdata from the Census as well as 2009 American Community Survey we analyze trends over time in highly-educated women's representation in a variety of science and non-science elite professions. We also compare the marriage and fertility statuses and average earnings of women within these different occupational categories.

Women in Science: Trends

The number of degrees earned by women has increased dramatically across all fields in recent decades and women have made strides to close the gender gap in science. The top panel of Figure 2 presents the total number of bachelor's degrees award to men and women in science and engineering (S&E) and non-science and engineering (non-

S&E) fields from 1989 to 2008. While women far surpass men in the number of non-S&E degrees earned, it is also striking that women have attained parity with men in attaining bachelor's degrees in S&E fields. A male-favorable gender gap in S&E bachelor degree attainment existed from 1989 to 1998 but by the year 2000 equal numbers of men and women earned S&E degrees in the United States.

FIGURE 2 ABOUT HERE

The bottom panel of figure 2 displays the total number of doctoral degrees award to men and women in S&E and non-S&E fields over the same time period. In 1989, men and women earned the same number of doctoral degrees in non-S&E fields, but women's completion of doctoral degrees increased rapidly over time such that by 2008, 15,429 women earned non-S&E doctoral degrees, compared to 8,894 earned by men. The pattern for S&E doctoral degrees is quite different. Men's S&E doctoral degree completion has remained steady, at approximately 10,000 earned per year from 1989 to 2008 (with a notable decline from 2001 to 2006 when men's degrees dipped below 10,000 per year). Meanwhile, women's completion of S&E degrees has doubled over time, from 4,960 per year in 1989 to 9,476 in 2008. While women have not yet reached parity with men in S&E doctoral degrees, if the trend line continues at the same trajectory, women and men should be at parity in science and engineering doctoral degrees in the coming years.

Data and Methods

We analyze trends in highly-educated women's careers, incomes, and family formation patterns using decennial census data from 1980 to 2000 from the Integrated Public Use Microdata Series (IPUMS) (5% samples) and the 2009 American Community

Survey (ACS). We restrict the sample to women aged 30-44 because we want to understand the extent to which family formation rates and career-family compatibility differ across occupational groups. By the ages of 30 to 44, women have most likely completed their educations and made choices about their careers and family formation (Hertz 2004). We further restrict the sample to women with bachelor's degree or higher who are currently employed in elite or professional occupations so that we can compare highly-educated women who are working in different elite occupations.

Our main variable of interest is a women's current occupation. Since we are interested in the relationships between women's family decisions and earnings across elite occupations, we examine women working in elite or professional occupations. The Census' occupational classification scheme for 1990 offers a consistent, long-term classification of occupations comparable from 1980 to 2009. The occupational scheme contains 389 categories that can be aggregated into broader occupational categories[1]. From this, we created an 8 category occupational code representing only professional and managerial occupations. The categories are split into science-related and non-science related professions. Science-related professions include: 1) math, engineering or physical scientists, 2) life scientists, 3) medical doctors, and 4) other health professionals. Non-science related professions include: 5) lawyers and judges, 6) business, including managerial and management-related occupations[2], 7) teachers, including primary,

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[1] These occupational categories include managerial and professional; technical, sales and administrative; service; farming, forestry, and fishing; precision, production, craft, and repairers; operatives and laborers; and non-occupational responses.

[2] Managerial and management-related professions both fall under the broader umbrella of business professions but are separated because managerial represent higher-level business professions, including chief executives, legislatures, managers and administrators, while management-related professions include accountants, insurance underwriters, human resource personnel, analysts and other management support occupations.

secondary and tertiary education[3], and 8) other professional occupations, including social scientists, clergy, and librarians. Appendix A presents further detail on each occupational category.

We examine trends over time in occupations for women, as well as investigate differences in family formation, marriage and earnings for women across professional occupations in order to provide an overview of the relationship between women's career choices, their earnings, and family statuses. We create a measure that includes five categories of current family status using information from women's current marital status and age of her children. This measure includes women that are 1) single with no children, 2) single with children, 3) married with no children, 4) married with children under the age of five and 5) married with children aged 5 or older. We include all children living in the household, including step-children and adopted children, in order to capture the complexity of American families. We split married women with children into two categories; those with children under the age of 5 and those with children aged 5 or older in order to determine if there are differences in women's occupational and income status based on if she has young children or not. Women with younger children are more likely to experience work-family conflict because young child require a great deal more care and can cost more money as they would likely be in childcare versus school for the majority of the workday. It is important to note that we are unable to measure any children not currently living in the household. Since the sample comprises highly-educated, professional women, few of them are likely to have had children so young that

[3] The income levels and family status rates of primary and secondary versus post-secondary teachers were similar, so we combined them into one category. We include all teachers in one category because we are unable to distinguish between science and non-science teachers, or college/university professors and other post-secondary teachers.

those children are old enough to be living on their own. While we would like to compare this measure to a woman's total fertility or the number of children ever born to her, this variable is not available in the census data.

Income is measured as the individual's total pre-tax wage and salary income for the past 12 months and includes wages, salaries, commissions, cash bonuses, tips and other money income received from an employer. Payments-in-kind or reimbursements for business expenses are not included. Amounts are expressed in constant 1999 dollars.

Descriptive Statistics

First, we examine trends over time among highly-educated women working in professional careers (see Table 1 and Figure 3). One of the most striking changes in occupations from 1980 to 2009 is the exodus of women out of teaching and into other occupations. In 1980, almost 37% of women working in professional occupations were teachers, compared to 27% in 2009. Of course, teaching is still the one of the most common occupations for professional women, but over time, women have moved into other occupations. In 1980, the second most common occupation for women was business, but by 2009, business surpassed teaching to become the most common occupation, comprising 38% of working professional women. In addition to teaching and business, professional health occupations (excluding medical doctors) comprise one of the largest shares of professional working women (13%), and this occupation has remained relatively popular over time, comprising between 13 and 15% of working, professional women over the past 30 years.

TABLE 1 & FIGURE 2 ABOUT HERE

After the business and health fields, the largest increases of professional women have been in the occupations in math, engineering and physical science as well as lawyers and judges and medical doctors. Only 2% of professional women were working in math, engineering, or physical science 1980, compared to 5% percent in 2009. The percentage of women working as lawyers and judges doubled over this time period as well, from less than 1% in 1980 to 2% in 2009. The percentage of women working as medical doctors experienced a similar rate of growth, doubling from less than 1% in 1980 to over 2% in 2009. Women increased their participation in life sciences from 0.3% in 1980 to 0.6% in 2009. While these changes may appear small, it is clear that over time women have moved into occupations in the sciences as well as law, and these shifts have occurred mainly at the expense of teaching.

Among women working within the science professions, the largest number work in the health professions. This is not surprising given that this category includes registered nurses, a predominately female field. After health professionals, women are most likely to work in math, engineering and physical science, followed by medical doctors. The smallest percentage of women works in the life sciences. It may be surprising that fewer women are working in the life sciences given that women are far more likely to major in biology and other life sciences in college than physical science or engineering (Turner and Bowen 1999; Sonnert et al. 2007). However, life science majors may enter other high-status professions, including medicine and other health professions or teaching at the K-12 or post-secondary level.[4]

[4] Ideally we would separate K-12 and post-secondary teachers by the subject they teach in order to identify women teaching science, but the data do not permit this distinction.

Table 2 presents the percentage of women aged 30 to 44 with a bachelor's degree or higher in each family status category by occupation from 1980 to 2009. Figure 4 presents this information for 2009 only. Across occupations in 2009, there is a great deal of variation in the percentage of women in each family status. Women working the life sciences are the most likely to be single with no children (approximately 36%) followed by lawyers and judges (30%). Teachers and other health professionals are the least likely to be single with no children (less than 18% of women for each group). Single (unmarried) women with children are not common among highly-educated working professionals. Less than 15% of women in each occupation is unmarried and has children. Women working in the life sciences, medical doctors and lawyers and judges are the least likely to be unmarried with children (4.2, 5.6, and 6.8% of women, respectively). However, it is unclear if these women are divorced with children or never married with children since we only compare women who are not currently married. Among teachers and health professionals, women are most likely to be married with children aged 5 or older (over 30% of women). These percentages are higher than women in any other occupation. In contrast, medical doctors and lawyers and judges are more likely to be married with children under the age of 5, and compared to other occupations, doctors and lawyers are more likely to have young children. The difference among women with older and younger children suggests that women with careers that require more education are more likely to have younger children. In other words, they delay having children until later ages and therefore, have infants or toddlers in their household. Teachers and health professionals are more likely to have older children, which could be due to the fact that they are able to marry and have children at earlier ages, therefore in our data, have older children. Comparing women working in science professions, women in life science are far more likely to be single with no children and less likely to be single with children compared to women in math, engineering and physical sciences. However, these two occupations have similar percentages of women married without children and with children.

Table 3 and Figure 5 present average income by professional occupation for working women with a bachelor's degree and with an advanced degree. We present information for each educational level in order to compare women who are more alike. For women with a bachelor's degree only, income information is not available for medical doctors or lawyers and judges as these occupations require an advanced degree. In 1980, among women with a bachelor's degree only, women working in math, engineering and physical science earned the highest income ($40,492), followed by women in the life sciences and business ($36,553 and $31,664, respectively). By 2009, women in business earned the highest average income ($50,140) surpassing women in math, engineering and physical science ($48,530) and life science ($40,530). Women working in health professions earn more than women working in life sciences in 2009 ($43,082). Over the previous four decades, women's incomes in business grew the most: almost $20,000, followed by women in the health professions, approximately $16,000. In contrast, women working as teachers earned the lowest income at $26,043 on average and teachers' incomes have experienced the least amount of growth over four decades.

Among women with advanced degrees, medical doctors and lawyers and judges earned the highest incomes in 2009 ($86,497 and $79,923, respectively). Yet, in 1980, following doctors, women working in life science and math, engineering and physical science occupations earned the highest incomes, but lawyers' and judges' income surpassed that of women working in the sciences in 1990. Over time, doctors and lawyers and judges have experienced the greatest increase in income. Teachers, life science and other professionals have experienced little income growth over time, while women in business, health professionals and math, engineering and physical sciences experienced moderate growth in income. Currently, while doctors and lawyers earn the highest income, teachers and other professionals earn the lowest average income, even when they have an advanced degree. Women working in business with advanced degrees earn more than women working in any science field with the exception of doctors. These findings suggest that there are greater returns to higher education in the elite fields of medicine and the law than in other professions. Also, for women with a bachelors or advanced degree, working in the business field is more lucrative than working in math, engineering, physical or life science.

In sum, our descriptive statistics show that women working in the sciences are not alike. There are clear divisions between women working in math, engineering, physical and life science, medicine and in the health profession. Women working as health professionals and teachers have the lowest incomes and highest rates of marriages as well as are the most likely to have children at younger ages. Women in life sciences differ from women in other science careers in that they have the highest rates of never marrying and childlessness combined with relatively low incomes. Women working in math, engineering and physical sciences fair slightly better in comparison to the life sciences in terms of income, getting married and having children. Women working in medicine appear to be more similar to women working in the law, compared to other science or professional fields. Women in medicine and the law earn the highest incomes of all professional women, but also are likely to marry and have children compared to women working in other sciences. It is also interesting that women working in business earn higher incomes and are more likely to be married and have children than women in math, engineering, physical or life sciences. The descriptive statistics suggest that there are greater incentives for highly-educated professional women to enter into medicine, law or business in terms of higher incomes as well as greater likelihoods of marrying and having children compared to women in the sciences. These different incentives may be one reason why women are not as likely to work in math, engineering, physical or life science occupations.

Future Analysis Plans

The next step of this paper is to determine further how the differences among these occupations in career and family outcomes have changed from the 1980s through the present. We also will construct global measures of the tradeoffs between career and family that exist across occupations for highly educated women. Our global measures of tradeoffs are derived from standard decomposable measures of inequality. Generalized entropy indices of inequality, including the Atkinson index, the square of the coefficient of variation, and the Theil index have the property (as does the Gini index, albeit with some complications) that overall inequality can be decomposed into a component that is between groups and a component that is within groups (Bourguignon, 1979; Cowell, 1980). The Theil index can be written:

$$T = \overbrace{\sum_{k=1}^{K} \phi_k \frac{\bar{x}_k}{X} ln\left(\frac{\bar{x}_k}{X}\right)}^{between\,group\,inequality} + \overbrace{\sum_{k=1}^{K} \phi_k \frac{\bar{x}_k}{X} T_k}^{within\,group\,inequality}$$

where k indexes groups, x_k is the within group mean, X is the grand mean, φk is the proportion of the population in group k, and T_k is the Theil index for group k. The extent to which within-occupation inequality in earnings for women incumbents exists across family types becomes a measure of the extent of tradeoff between career and family that exists for that occupation's female incumbents.[5] We will divide women into subgroups based on year of data collection, educational degree (bachelor's level or advanced degree), their age (five year age groups defined as 30-34, 35-39, and 40-44) and their family status (married or partnered with no children in the household, married or partnered with children under 5 years of age in the household, married or partnered with children older than 5 in the household, unpartnered with children in the household, and other arrangements – living alone, living with parents, etc). Within each age/education group, we will compute generalized entropy indices of inequality and decompose them into within and between-family-group components. The proportion of inequality that is between-group is a measure of tradeoffs between family and earnings made by women in each of these occupational groups. We will compare the size of career-family tradeoffs across occupational groups in order to establish whether the tradeoffs between career and family are larger in physical science and engineering than in other science occupations,

[5] Our approach can usefully be compared with alternatives such as the modeling strategy used by Waldfogel and colleagues in estimating the wage penalties of motherhood (Waldfogel, 1998a,b). Standard decomposition methods would be problematic because the need to take account of the now well-known tendency for between- group differences to depend upon the overall level of inequality, which includes the within-group as well as the between-group component (Blau and Kahn, 2000). We will establish the extent of sensitivity of the results to the particular measure of inequality that is used e.g., Gini vs. Atkinson vs. Theil vs. a full-distribution approach to the decomposition (Jenkins and Kerm, 2005).

whether the tradeoffs are larger in science occupations than in non science elite occupations, and whether tradeoff differences across occupational groups vary by age. We will also compare the evolution of these measures over time to determine the trends in between group inequality as measured by family type for women, and whether these trends have evolved differently across the elite occupations that constitute the choice set for women who are interested in professional and managerial careers.[6]

Rates of family formation will typically vary by occupation. Aside from using the distribution of women across family type itself as a measure of tradeoffs, we will construct a second set of earnings-based tradeoff measures by standardizing the distributions so that the proportion of women in each family type is the same across occupations within groups defined by age and education. We will then construct tradeoff measures parallel to those described above. By comparing the unstandardized and standardized results, we will determine the extent to which career-family tradeoffs involve differential propensities to form families of different types and the extent to which they arise from the different earnings patterns across groups, conditional on the distribution of family types.

The measures discussed above express tradeoffs in terms of own career earnings. We also will determine the extent to which women in alternative elite occupations experience a tradeoff between family choices and material standard of living. For these third set of measures, we will recompute the inequality measures using standard measures of household size-adjusted household income (Atkinson et al., 1995), which are a

[6] The 5% PUMS provides adequate sample size to compute these estimates. To take a relatively extreme example, there were about 1.4 million engineers in the U.S. in 1979, of which 3% were female, which implies a sample size of 2000 female engineers in the 1980 5% PUMS. In 2000, there were about 2 million engineers in the U.S., of which 10% were female, which implies a sample size of 10,000 female engineers in the 2000 5% PUMS. As necessary, we will use standard imputation techniques to effect comparability in the occupational groups across the 1980, 1990, and 2000 censuses, and we will use bootstrapping to obtain estimates of standard errors for our measures.

common proxy for standard of living. By comparing the two measures for the subset of women in each occupation al group who are partnered, we will establish the extent to which occupational groups that have relatively large tradeoffs between own-career earnings and family formation also have relatively large tradeoffs between standard of living and family formation, and the extent to which partner's income suppresses the impact of the woman's career-family incompatibility on standard of living risk. By comparing the two measures using unstandardized distributions and including single women, we establish the extent to which career-family incompatibility creates standard of living risk through its impact on the likelihood of being partnered or of having children. The findings will address an important neglected question in prior research: to what degree to are the consequences for women's career choice in physical sciences and engineering different from those in other sciences or other elite careers? The ability to combine work and family is more likely in some fields than others. Women's choice to enter into science or not, and physical science or engineering compared to life science may be due, in part to differences women's ability to combine work and family while pursuing a prestigious career in different fields.

Research on the incompatibility of work and family roles for women in science has determined that career-family conflicts are one reason women choose to not enter science or decide to leave science. But this research has not considered how much career-family conflict exists in alternative elite careers that women have moved into in large numbers. Our research will shed light on this issue and help determine whether the popularity of different careers for women is related to differences in perceived or actual career-family incompatibilities or differences in their appeal to the women due to intrinsic features of these fields.

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Appendix A

Coding of occupational classification scheme into professional occupations from census variable OCC1990, including numeric code. Please note that n.e.c. means not classified elsewhere.

Science-Related

1) Math, Engineering and Physical Science
043 architects
044 aerospace engineer
045 metallurigical/materials engineer
047 petroleum, mining and geological engineer
048 chemical engineer
053 civil engineer
055 electrical engineer
056 industrial engineer
057 mechanical engineer
059 other engineer
064 computer systems analysts/ computer scientist
065 operations and systems researchers and analysts
066 actuary
067 statistician
068 mathematician/math scientist
069 physicists and astronomers
073 chemist
074 atmospheric and space scientist
075 geologist
076 physical scientist, other

2) Life Science
077 agricultural/food scientist
078 biological scientist
079 forester/conservation scientist
083 medical scientist

3) Dentists and Medical Doctors
084 physicians
085 dentists
086 veterinarians
087 optometrists
088 podiatrists
089 other health and therapy

4) Other Health Professionals
095 registered nurses

096 pharmacists
097 dietitians and nutritionists
098 respiratory therapist
099 occupational therapist
103 physical therapist
104 speech therapist
105 therapist, n.e.c.
106 physician's assistant

Non- Science Related

5) Lawyers and Judges
178 lawyers
179 judges

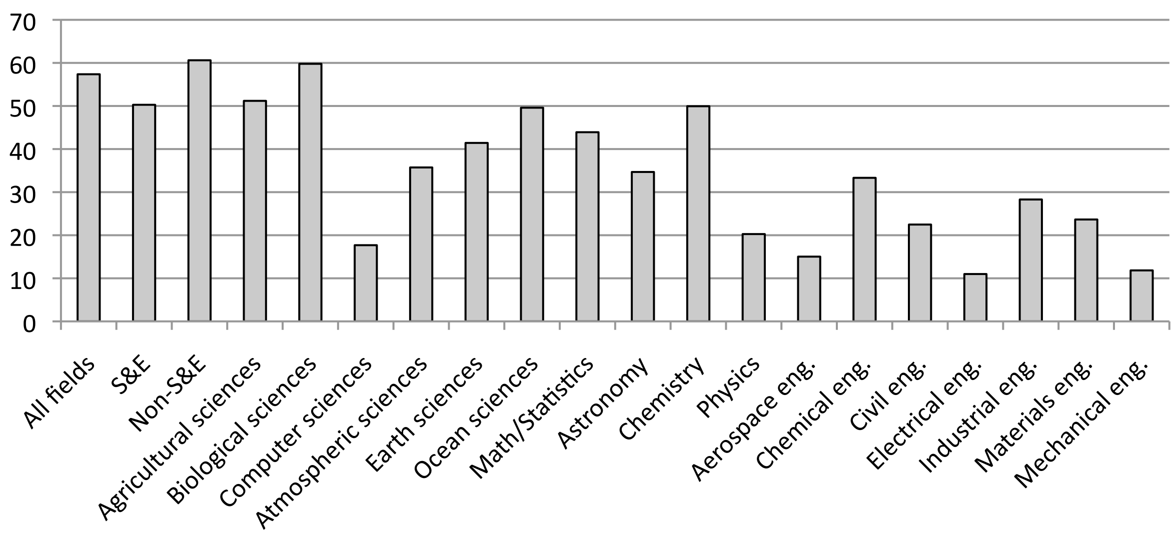
6) Business
003 legislator
004 chief executives and public admin
007 financial managers
008 human resource and labor relations manager
013 managers in marketing, advertising and public relations
014 managers in education and related fields
015 managers of medicine and health occupations
016 postmasters and mail superintendents
017 managers of food-serving/lodging establishments
018 managers of properties/real estate
019 funeral directors
021 managers of service organizations
022 managers and administrators
023 accountant and auditors
024 insurance underwriters
025 other financial specialists
026 management analysts
027 personnel, HR, training and labor relation specialists
028 purchasing agents/buyers of farm products
029 buyers, wholesale and retail
033 purchasing managers, agents and buyers
024 business and promotion agents
035 construction inspectors
036 inspectors/compliance officers outside construction
037 management support occupations

7) Teachers
113/154, teachers, postsecondary
155/163, teachers, except postsecondary

8) Other Professional Occupations

164 librarian
165 archivist/curator
166 economists, market researchers and survey researchers
167 psychologists
168 sociologists
169 social scientists, n.e.c.
174 social worker
175 recreation worker
176 clergy/religious worker
183/200 writers, artists, entertainers, athletes and other professionals, n.e.c.

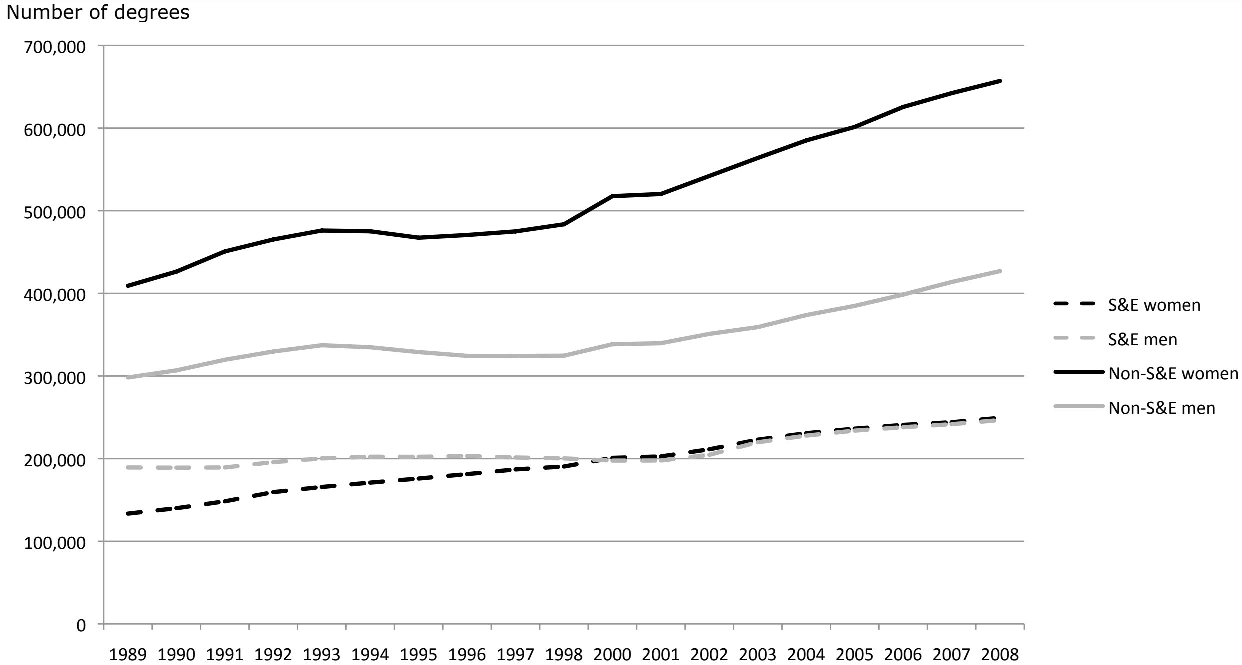
Figure 1: Percentage of Female Students Completing Various Science & Engineering Bachelor's Degrees, 2008



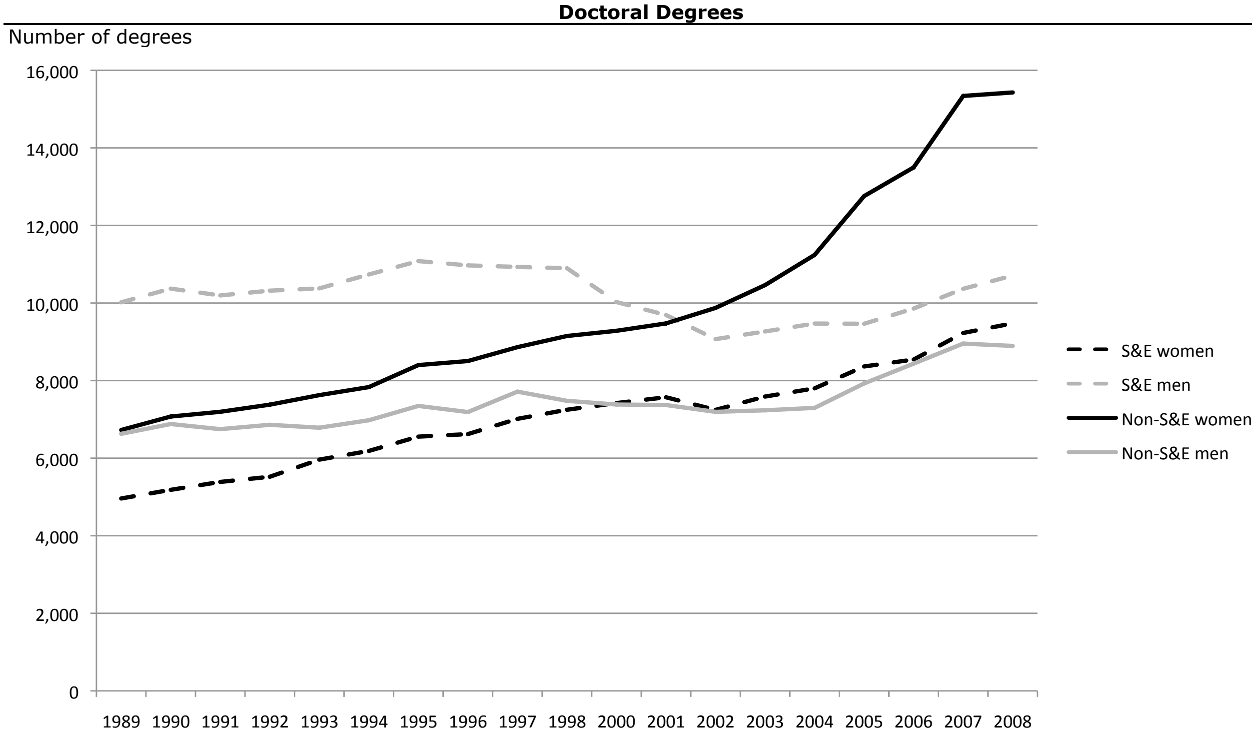
SOURCE: National Science Foundation, Division of Science Resources Statistics, special tabulations of U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Figure 2: Trends in Bachelor's and Doctoral Degrees Awarded in Science and Non-Science Fields, by Gender, 1989-2008

Bachelor's Degrees



Doctoral Degrees

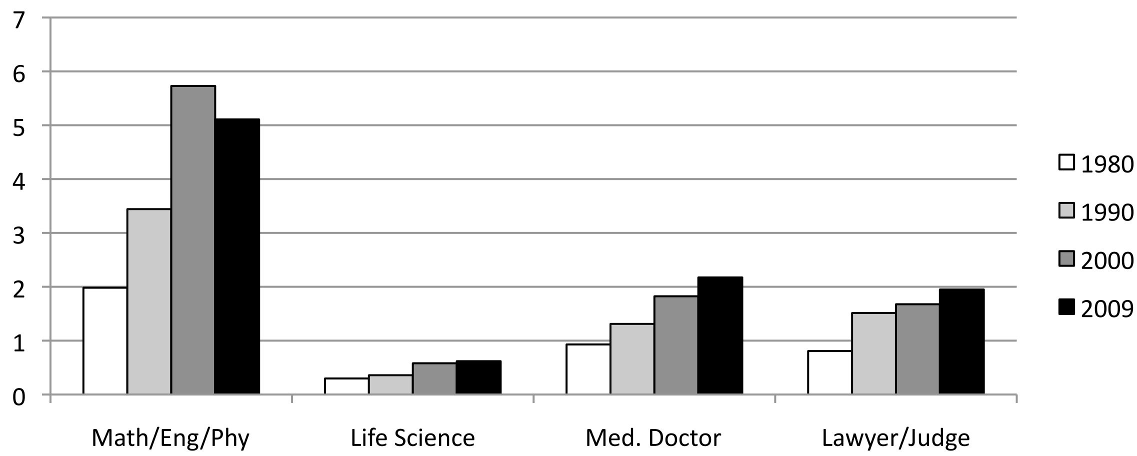


NOTES: Data not available for 1999. Dpctoral degree data in this table differ from doctoral degree data in this report that are based on NSF Survey of Earned Doctorates (SED). SED data are for research doctorates only. Greatest differences are in psychology, education, and medical/other health sciences. Bachelor degree data based on degree-granting institutions eligible to participate in Title IV federal financial aid programs and do not match data published before 2009 that were based on accredited higher education institutions.

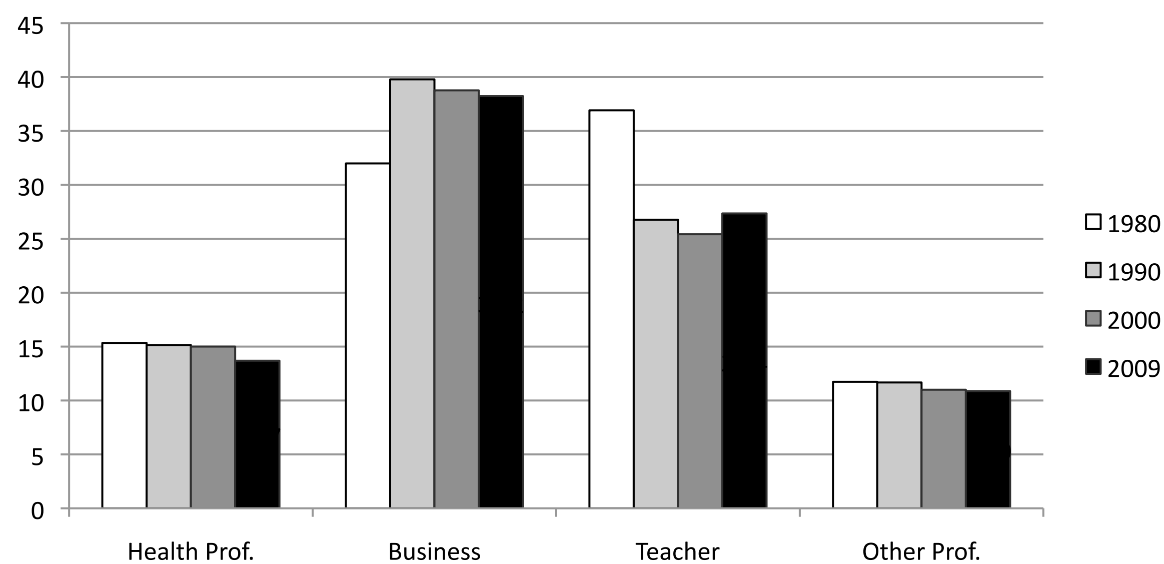
SOURCE: National Science Foundation, Division of Science Resources Statistics, special tabulations of U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey, 1989–2008.

Figure 3: Trends in Professional Occupations for Women Aged 30-44 with BA or Higher

Occupations in which less than 5% of working women work

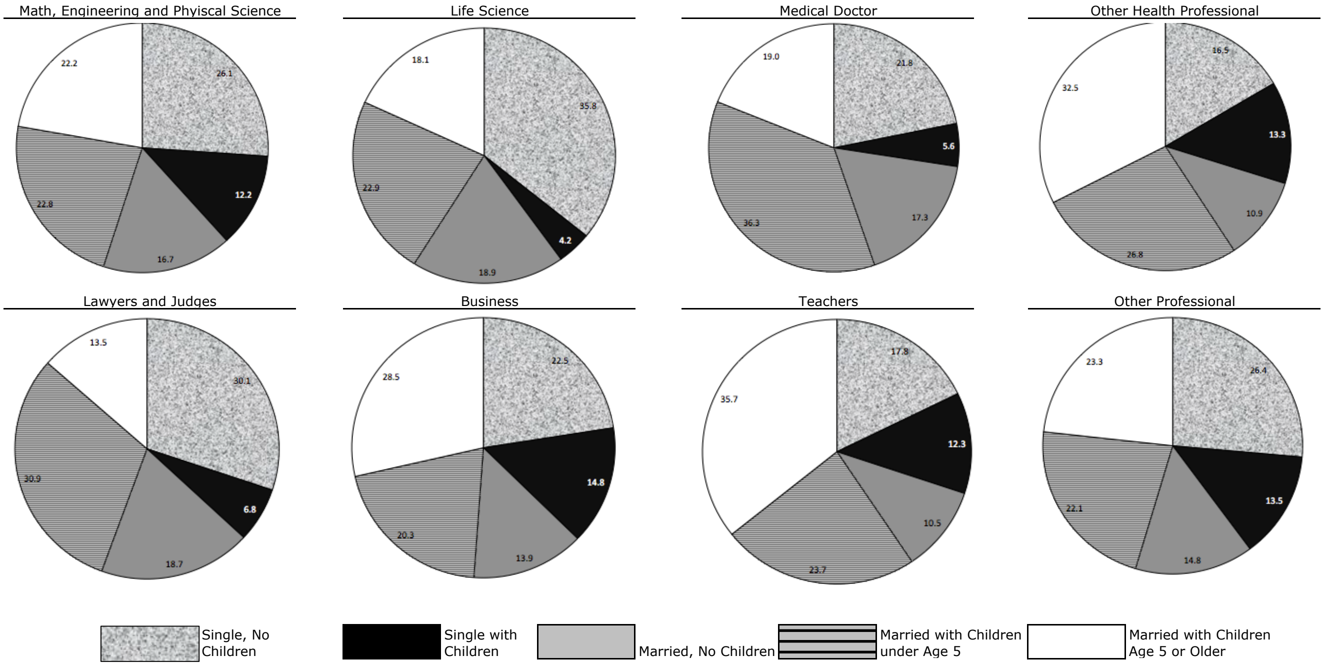


Occupations in which more than 5% of working women work



Source: IPUMS 1980-2000, ACS 2009

Figure 4: Percentage of Women in Each Family Status by Occupation, 2009

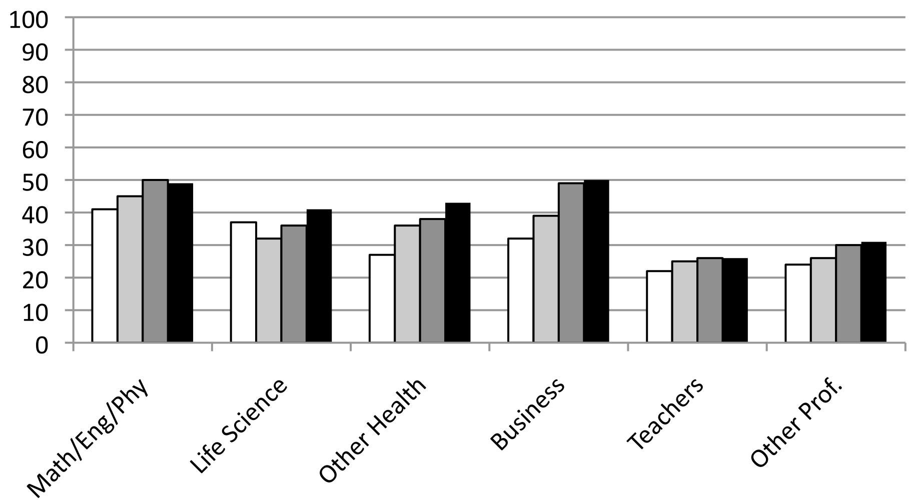


Source: 2009 ACS

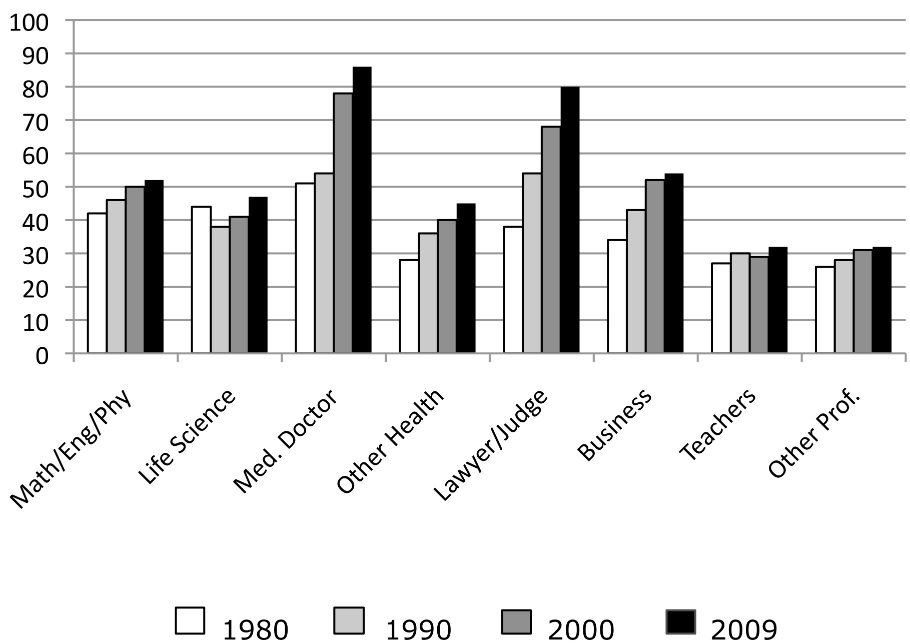
Figure 5: Trends in Income by Occupation for Women Aged 30-44 with a BA or Higher, 1980-2009

Average income (in 1999 dollars) rounded to nearest thousand

With a Bachelor's Degree



With an Advanced Degree (Greater than a BA)



Source: IPUMS 1980-2000, ACS 2009

Table 1: Trends in Professional Occupations for Women Aged 30-44 with a BA or Higher

	1980	1990	2000	2009
Science				
Math, Engineering & Physical Sci.	2.0	3.4	5.7	5.1
Life Science	0.3	0.4	0.6	0.6
Medical Doctors	0.9	1.3	1.8	2.2
Other Health Professionals	15.3	15.1	15.0	13.7
Non-Science				
Lawyers & Judges	0.8	1.5	1.7	2.0
Business	32.0	39.8	38.8	38.2
Teachers	36.9	26.8	25.4	27.4
Other Professionals	11.7	11.7	11.0	10.9
Total	100.0	100.0	100.0	100.0

Source: IPUMS 1980-2000, ACS 2009

Math, engineering and physical science includes computer science, business includes managerial and management occupations, teachers include primary through post-secondary teachers.

Table 2: Family Status by Professional Occupation, 1980-2009

	% Single No Children				% Single with Children				% Married, No Children			
	1980	1990	2000	2009	1980	1990	2000	2009	1980	1990	2000	2009
Science												
Math, Engineering & Physical Sci.	26.7	30.7	26.2	26.1	14.1	9.7	10.6	12.2	18.2	20.2	17.8	16.7
Life Science	30.2	30.0	31.1	35.8	10.4	6.3	4.5	4.2	19.8	22.5	20.4	18.9
Medical Doctors	20.9	26.3	24.8	21.8	4.4	6.2	5.2	5.6	17.4	19.1	16.2	17.3
Other Health Professionals	15.6	17.3	15.6	16.5	12.5	10.6	10.8	13.3	9.4	12.4	12.0	10.9
Non-Science												
Lawyers & Judges	35.3	34.3	30.2	30.1	11.3	4.0	5.8	6.8	21.4	20.4	20.5	18.7
Business	20.3	22.6	22.3	22.5	15.4	12.9	13.1	14.8	14.7	17.2	15.9	13.9
Teachers	17.3	15.9	16.0	17.8	7.9	8.9	10.7	12.3	13.4	11.2	10.8	10.5
Other Professionals	28.0	26.7	26.5	26.4	12.5	10.6	11.4	13.5	14.1	16.3	15.5	14.8

	% Married, Children Under Age 5				% Married, Children Age 5 or Older			
	1980	1990	2000	2009	1980	1990	2000	2009
Science								
Math, Engineering & Physical Sci.	12.5	19.4	19.6	22.8	28.5	20.1	25.8	22.2
Life Science	11.3	22.2	22.2	22.9	28.3	19.0	21.8	18.1
Medical Doctors	29.4	28.5	33.3	36.3	27.9	19.9	20.5	19.0
Other Health Professionals	19.3	24.3	23.1	26.8	43.2	35.3	38.4	32.5
Non-Science								
Lawyers & Judges	13.6	26.4	26.2	30.9	18.4	14.9	17.3	13.5
Business	9.4	14.8	18.0	20.3	40.2	32.6	30.7	28.5
Teachers	19.8	18.4	19.2	23.7	41.5	45.6	43.3	35.7
Other Professionals	12.8	17.6	19.7	22.1	32.7	28.9	26.9	23.3

Note: Sample includes 30-44 year-old working women with a BA or higher. Data are weighted.

Source: 1980-2000 IPUMS, 2009 ACS

Table 3: Income by Professional Occupation, 1980-2009

	1980	1990	2000	2009
With a Bachelor's Degree				
Science				
Math, Engineering & Physical Sci.	40,492	44,745	49,650	48,530
Life Science	36,553	31,462	36,421	40,530
Medical Doctors	---	---	---	---
Other Health Professionals	27,337	36,001	38,941	43,082
Non-Science				
Lawyers & Judges	---	---	---	---
Business	31,664	39,427	49,004	50,140
Teachers	22,427	25,256	25,467	26,043
Other Professionals	24,002	26,431	29,751	30,725
With an Advanced Degree				
Science				
Math, Engineering & Physical Sci.	42,360	46,305	50,173	51,561
Life Science	43,467	37,511	41,116	47,402
Medical Doctors	51,352	53,705	77,805	86,497
Other Health Professionals	28,070	36,294	39,835	44,781
Non-Science				
Lawyers & Judges	38,079	52,638	67,665	79,923
Business	33,900	42,612	52,263	53,716
Teachers	26,947	29,714	29,359	32,004
Other Professionals	25,417	28,383	30,815	32,446

Note: Total Pre-tax personal wages from previous calendar year, in constant 1999 dollars.
Sample includes 30-44 year-old working women with a BA or higher. Data are Weighted
Source: 1980-2000 IPUMS, 2009 ACS.