Earnings by gender: evidence from Census 2000

Do women of comparable experience, as measured by age and education, earn the same as men in the same occupations? A look at the occupations identified in Census 2000 indicates that a sizable unexplained gap remains

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People are curious as to what others earn in their jobs. Career counselors need to tell their clients what wage or salary to expect from a particular occupation, those concerned about gender discrimination in hiring and promotions need to know what others earn so they can investigate claims, and workers claiming loss of wages due to injuries need to know the profile of earnings by age and occupation. The list of those wanting to know more about wages and earnings seems endless.

Of particular interest is the ratio of women's earnings to men's earnings. The U.S. Census Bureau reported that, "The female-to-male earnings ratio [for year-round full-time workers] was 0.77 in 2005," well above the ratio of 0.64 recorded for 1955, the first year for which the Census Bureau calculated the ratio.[1]

This article looks at the distribution of earnings by occupation for all year-round full-time workers and separately for men and women as reported on Census 2000. Earnings include income from wages, salaries, and self-employment. The article also provides a summary of the main results of a more extensive Census 2000 Special Report.[2]

It is not easy to thoroughly describe the earnings distribution. This article uses two factors to ease explication: median earnings (earnings at the 50th percentile) and earnings dispersion (as measured by the ratio of earnings at the 90th percentile to earnings at the 10th percentile) for all year-round full-time civilian workers 16 years or older (hereinafter called "workers") by selected characteristics and across occupations.[3]

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Median earnings

The median earnings of the 83.0 million year-round full-time workers in 1999 was $33,000; average (mean) earnings was $43,000.[4] Earnings are "rightward skewed"—this means that of that half of workers earnings above the median, many have earnings many times the median. Of all year-round full-time workers, 10 percent earned $15,000 or less, and 1 percent earned $5,600 or less (this last group includes workers with losses from self-employment). At the top end of the distribution, 10 percent earned $75,000 or more, 5 percent earned $100,000 or more, 2 percent earned $150,000 or more, and 1 percent earned $220,000 or more.

By occupation. Only two occupations among the 505 civilian occupations coded by the Census Bureau have median earnings of $100,000 or higher: *physicians and surgeons* (median earnings of $120,000) and *dentists* ($100,000).[5] Seven additional occupations have median earnings in the $75,000-$90,000 range: *chief executives* ($88,000); *podiatrists* ($84,000); *lawyers* ($82,000); *engineering managers* and *optom-*

etrists ($80,000); and *petroleum engineers* and *natural sciences managers* ($75,000).[6]

Occupations with low median earnings are *dishwashers* (median earnings of $13,000); *counter attendants, cafeteria, food concession, and coffee shop* and *child care workers* (both at $14,000); *maids and housekeeping cleaners; dining room and cafeteria attendants and bartender helpers; food preparation workers; teacher assistants; hosts and hostesses, restaurant, lounge, and coffee shop*; and *combined food preparation and serving workers, including fast food* (all at $15,000).[7] Interestingly, seven of these nine (and three of the next five—*waiters and waitresses*; *personal and home care aides; food preparation and serving related workers, all other*; *cooks*; and *cashiers*—all at $16,000) are in the retail food services business (restaurants).[8]

Only the largest occupations can support more detailed analysis. In order to present reasonably reliable results, most of the remaining analysis covers occupations with at least 10,000 workers for demographic groups with at least 1,000 workers.

Occupation and demographic characteristic. The familiar relationship between female and male earnings is illustrated in Table 1. It is clear from the data that women at every percentile level of their earnings distribution earn less than men at the same percentile level. This ranges from women earning 90 percent of men at the 3rd percentile, to 74 percent at the median (50th percentile), to 46 percent at the 99th percentile. But these comparisons do not control for other factors, such as differences in age, education, and occupation. In other words, do women of comparable experience (as measured by age and education) earn the same as men in the same occupation? Note that if earnings differences do exist, they are not necessarily due to discrimination in hiring or promotion, although these factors may contribute to the differences. Other underlying factors, such as free choice, geographic location, educational opportunities, industrial growth, cultural marriage and employment practices, gender-based preferences, the presence of unions, work history and experience, and many other factors may contribute to differences in remuneration.[9]

Median earnings by gender. The occupations with the highest median earnings for men and for women are shown in Table 2. The highest paid occupation for men and for women is *physicians and surgeons*, but the female median in this occupation ($88,000) is but 63 percent that of the male median ($140,000). Different degrees of specialization within an occupation and different choices of industry or business organization may affect the ratio. For example, women might choose more frequently than men to practice in lower paid medical specialties (such as pediatrics) or in lower paid institutional settings (such as health maintenance organizations).[10] Fifteen of the listed occupations for men also appear on the list for women, and in all cases, the female median is less than that for men. In fact, the occupation that is third on the list for women (*dentists*) makes about the same ($68,000) as the occupation that is last on the list for men (*management analysts,* $67,000).

A similar pattern is shown for the lowest paid occupations. (See table 3.) Sixteen occupations appear on both lists, and in all cases but one (*dining room and cafeteria attendants and bartender helpers*), women make less than men in the same occupation. In only five occupations with 10,000 or more workers—*hazardous materials removal workers; telecommunications line installers and repairers; meeting and convention planners; dining room and cafeteria attendants and bartender helpers;* and *helpers, construction trades*—are female median earnings at least 100 percent of male median earnings, but the ratios for an additional six occupations—*highway maintenance workers; dieticians and nutritionists; engineering managers; other transportation workers; electronic home entertainment equipment installers and repairers;* and *tire builders*—are not statistically different from 1.000. Perhaps surprisingly, women are a majority of the workforce in only two of those eleven occupations—*meeting and convention planners;* and *dieticians and nutritionists*. Only three additional occupations have estimated ratios that fall in the range 95–100 percent range—*radio and telecommunications equipment installers and repairers; postal service clerks;* and *postal service mail sorters, processors, and processing machine operators*.[11] In only four occupations do women earn statistically less than 60 percent of men—*paper goods machine setters, operators, and tenders; securities, commodities, and financial services sales agents; personal financial advisors;* and *judges, magistrates, and other judicial workers*.

The effect of education and age. Choice of occupation, age (an imperfect proxy for work experience), and education also affect earnings. Compared with all women versus all men, women aged 35 to 54 have a lower earnings ratio than men aged 35 to 54 at all points in the distribution—at the median, women aged 35 to 54 earn 71.4 percent of similar men at the median, compared with 73.7 percent for all women compared with all men. Education has mixed effects on this difference. The only women aged 35 to 54 to earn more than 71.4 percent of men at the median are those with some college education, but only

Table 1. Female earnings as a fraction of male earnings at 1-percent intervals, 1999

Percentile	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Earnings ratio	0.865	0.833	0.900	0.868	0.842	0.846	0.855	0.800	0.807	0.813	0.809	0.778	0.817	0.789	0.750
Percentile	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Earnings ratio	0.784	0.800	0.786	0.785	0.780	0.782	0.766	0.752	0.771	0.760	0.787	0.784	0.769	0.741	0.754
Percentile	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**
Earnings ratio	0.750	0.744	0.755	0.733	0.740	0.767	0.767	0.764	0.761	0.750	0.769	0.758	0.735	0.715	0.743
Percentile	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**64**	**55**	**56**	**57**	**58**	**59**	**60**
Earnings ratio	0.743	0.736	0.750	0.735	0.737	0.732	0.732	0.725	0.747	0.750	0.746	0.723	0.721	0.721	0.726
Percentile	**61**	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**	**71**	**72**	**73**	**74**	**75**
Earnings ratio	0.711	0.715	0.717	0.716	0.709	0.714	0.700	0.708	0.720	0.724	0.721	0.717	0.709	0.727	0.678
Percentile	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
Earnings ratio	0.678	0.683	0.700	0.696	0.695	0.692	0.675	0.676	0.686	0.694	0.667	0.656	0.659	0.663	0.649
Percentile	**91**	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**...**	**...**	**...**	**...**	**...**	**...**
Earnings ratio	0.663	0.619	0.64	0.625	0.592	0.588	0.567	0.504	0.457	**...**	**...**	**...**	**...**	**...**	**...**

NOTE: Data are based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see **www.census.gov/prod/cen2000/docs/sf3.pdf.**

SOURCE: U. S. Census Bureau, Census 2000.

Table 2. Occupations with the highest median earnings, by gender, 1999

Men	Median (dollars)	Women	Median (dollars)
All year-round full-time workers	$38,000	All year-round full-time workers	$28,000
Physicians and surgeons	140,000	Physicians and surgeons	88,000
Dentists	110,000	Engineering managers	75,000
Chief executives	95,000	Dentists	68,000
Lawyers	90,000	Lawyers	66,000
Judges, magistrates, and other judicial workers	88,000	Optometrists	65,000
		Pharmacists	63,000
Natural sciences managers	84,000	Chief executives	60,000
Optometrists	84,000	Economists	60,000
Actuaries	80,000	Computer and information systems managers	58,000
Engineering managers	80,000	Sales engineers	57,000
Economists	73,000		
Astronomers and physicists	71,000	Actuaries	56,000
Chemical engineers	70,000	Air traffic controllers and airfield operations specialists	56,000
Computer and information systems managers	70,000	Chemical engineers	56,000
Financial analysts	70,000	Computer software engineers	55,000
Marketing and sales managers	70,000	Natural sciences managers	55,000
Pharmacists	70,000	Aerospace engineers	54,000
Veterinarians	70,000	Electrical and electronics engineers	54,000
Personal financial advisors	69,000	Astronomers and physicists	51,000
Air traffic controllers and airfield operations specialists	67,000	Engineers, all others	51,000
Management analysts	67,000	Computer programmers	50,000
		Environmental engineers	50,000
		Judges, magistrates, and other judicial workers	50,000
		Materials engineers	50,000
		Mechanical engineers	50,000

NOTE: Occupations listed are those with 10,000 or more year-round full-time workers, at least 1,000 male workers, and at least 1,000 female workers. Because of sampling error, the estimates in this table may not be significantly different from one another or from estimates for other occupations not listed in the table. Data are based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see **www.census.gov/prod/cen2000/docs/sf3.pdf**.

SOURCE: U. S. Census Bureau, Census 2000.

Table 3. Occupations with the lowest median earnings, by gender, 1999

Men	Median (dollars)	Women	Median (dollars)
All year-round full-time workers	$38,000	All year-round full-time workers	$28,000
Dishwashers	14,000	Dishwashers	12,000
Dining room and cafeteria attendants and bartender helpers	15,000	Farmers and ranchers	12,000
Counter attendants, cafeteria, food concession, and coffee shop	16,000	Counter attendants, cafeteria, food concession, and coffee shop	13,000
Food preparation workers	16,000	Child care workers	14,000
Combined food preparation and serving workers, including fast food	17,000	Cashiers	15,000
Cooks	17,000	Combined food preparation and serving workers, including fast food	15,000
Miscellaneous agriculture workers	18,000	Cooks	15,000
Maids and housekeeping cleaners	19,000	Dining room and cafeteria attendants and bartender helpers	15,000
Miscellaneous personal appearance workers	19,000	Food preparation workers	15,000
Parking lot attendants	19,000	Graders and sorters, agricultural products	15,000
Personal and home care aides	19,000	Hosts and hostesses, restaurant, lounge, and coffee shop	15,000
Service station attendants	19,000	Laundry and dry-cleaning workers	15,000
Waiters and waitresses	19,000	Maids and housekeeping cleaners	15,000
Cleaners of vehicles and equipment	20,000	Pressers, textile, garment and related materials	15,000
Farmers and ranchers	20,000	Service station attendants	15,000
Grounds maintenance workers	20,000	Teacher assistants	15,000
Helpers, construction trades	20,000	Waiters and waitresses	15,000
Hosts and hostesses, restaurant, lounge, and coffee shop	20,000	Bartenders	16,000
Hotel, motel, and resort desk clerks	20,000	Counter and rental clerks	16,000
Teacher assistants	20,000	Hotel, motel, and resort desk clerks	16,000
Tellers	20,000	Parking lot attendants	16,000
		Personal and home care aides	16,000
		Sewing machine operators	16,000

NOTE: Occupations listed are those with 10,000 or more year-round full-time workers, at least 1,000 male workers, and at least 1,000 female workers. Ties in estimated median earnings are listed alphabetically. Because of sampling error, the estimates in this table may not be significantly different from one another or from estimates for other occupations not listed in the table. Data are based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see **www.census.gov/prod/cen2000/docs/sf3.pdf**.

SOURCE: U. S. Census Bureau, Census 2000.

slightly more, 72.1 percent. So education alone contributes little toward equality between men's and women's median earnings.

Earnings dispersion

The median indicates only one property of the earnings distribution. Also of interest are measures of earnings dispersion. This article uses a common measure of dispersion—the ratio of the value at the 90th percentile of earnings to that at the 10th percentile (denoted as P90/10), and computed only for those with positive earnings. The higher the value, the more the earnings dispersion present in that occupation. As a basis for comparison, P90/10 for all (positive) earners is 5.00, which means that the earnings at the 90th percentile are five times the earnings at the 10th percentile. High dispersion (that is, a high ratio) can be interpreted as indicating the presence of substantial spread in earnings among workers within the group being studied; low dispersion indicates substantial evenness.

As the population of year-round full-time workers is disaggregated into more homogeneous groups with respect to their earnings, the dispersion ratio will fall for each of those groups. If disaggregated by gender, the weighted average ratio falls from 5.00 to 4.90, only a 2-percent reduction; this implies that, among all workers, there is about as much earnings dispersion among women as there is among men. (Disaggregating women into those with

Table 4. Occupations with the most similar and dissimilar earnings, 1999

Occupations with most similar earnings	P90/10[1]	Occupations with most dissimilar earnings	P90/10[1]
All year-round full-time workers	5.00	All year-round full-time workers	5.00
Postal service clerks	1.89	Farmers and ranchers	14.29
Postal service mail carriers	1.92	Securities, commodities, and financial services sales agents	10.68
Occupational therapist assistants and aides	2.00	Animal breeders	10.55
Postal service mail sorters, processors, and processing machine operators	2.01	Health diagnosing and treating practitioners, all others	9.85
Radiation therapists	2.07	Financial analysts	9.05
Occupational therapists	2.13	Chiropractors	9.00
Respiratory therapists	2.16	Real estate brokers and sales agents	8.67
Roof bolters, mining	2.22	Physicians and surgeons	8.57
Postmasters and mail superintendents	2.25	Chief executives	8.33
Speech-language pathologists	2.25	Personal financial advisors	8.33
Nuclear engineers	2.27	Podiatrists	7.84
Aerospace engineers	2.32	Artists and related workers	7.56
Tellers	2.33	Animal trainers	7.50
Signal and track switch repairers	2.34	Musicians, singers, and related workers	7.24
Textile winding, twisting, and drawing out machine setters, operators and tenders	2.36	Door-to-door sales workers, news and street vendors, and related workers	7.23
Pharmacists	2.37	Tax preparers	7.20
Payroll and timekeeping clerks	2.39	Models, demonstrators, and product promoters	6.96
Dental assistants	2.40	Entertainers and performers, sports and related workers, all others	6.90
Registered nurses	2.41	Writers and authors	6.88
Marine engineers and naval architects	2.42	Actors	6.87

[1] P90/10 is the ratio of earnings at the 90th percentile to earnings at the 10th percentile; calculations include earners with positive earnings only.

NOTE: Dispersion measures include earners with positive earnings only. Because of sampling error, the estimates in this table may not be significantly different from one another or from other occupations not listed in this table. Data are based on a sample.

SOURCE: U. S. Census Bureau, Census 2000.

children at home and those with no children at home, an additional proxy for work experience, further reduces the ratio, but only to 4.87, suggesting little or no gain for accounting for that difference.[12]) Individual disaggregations by age (three categories), education (four categories), and occupation (505 categories) reduce the ratio from 5.00 to 4.87, 3.83, and 3.88, respectively, suggesting that much is to be gained by examining education and occupation (but not age) as sources of dispersion.

Table 4 presents the 20 occupations with the least and the most dispersed earnings.[13] Some of the occupations with the most similar earnings as measured by the P90/10 ratio are *postal service clerks; postal service mail carriers; occupational therapist assistants and aides;* and *postal service mail sorters, processors, and processing machine operators*.[14] Several other therapist occupations also appear on this list.

In part because of self-employment expenses that offset income, the occupation *farmers and ranchers* is one of the occupations with the most dissimilar earnings, even when those with net losses are excluded (as is done here), with a P90/10 ratio of 14.29. *Farmers and ranchers* is one of only six occupations where the number of workers with losses exceeded 2 percent of all earners, and the only one where more than 10 percent lost money in 1999 (12.6 percent had negative earnings). Another occupation with high earnings dispersion is *securities, commodities, and financial services sales agents*.[15]

Specialization within occupations can explain some of this measured dispersion. For example, the broad occupation *physicians and surgeons* includes eight detailed occupations: *anesthesiologists; family and general practitioners; internists, general; obstetricians and gynecologists;*

Table 5. Earnings dispersion by gender, 1999

Characteristics	Number of year-round full-time workers	P90/10[1]	
		All workers	Weighted average across occupations
Men	48,684,640	5.27	4.10
Men aged 35 to 54	27,080,120	4.90	3.90
Less than a high school education	2,635,440	4.00	3.66
High school graduate, no college	7,171,920	3.50	3.36
Some college	8,259,690	3.72	3.41
Bachelor's degree or higher	9,013,080	5.24	4.32
Women	34,088,450	4.35	3.29
Women aged 35 to 54	19,128,510	4.20	3.28
Less than a high school education	1,389,490	3.50	3.24
High school graduate, no college	5,125,400	3.39	3.01
Some college	6,717,800	3.46	3.01
Bachelor's degree or higher	5,895,830	3.70	3.27
Women with no children at home	21,385,740	4.31	3.30
Women aged 35 to 54 with no children at home	10,801,660	4.07	3.25
Less than a high school education	793,710	3.60	3.24
High school graduate, no college	3,016,970	3.31	2.99
Some college	3,760,330	3.43	2.99
Bachelor's degree or higher	3,230,640	3.57	3.25
Women with children at home	12,702,710	4.23	3.25
Women aged 35 to 54 years with children at home	8,326,850	4.29	3.32
Less than a high school education	595,780	3.44	3.22
High school graduate, no college	2,108,420	3.40	3.04
Some college	2,957,460	3.40	3.01
Bachelor's degree or higher	2,665,190	3.78	3.29

[1] P90/10 is the ratio of earnings at the 90th percentile to earnings at the 10th percentile; calculations include earners with positive earnings only.

NOTE: Dispersion measures include earners with positive earnings only. Data are based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see **www.census.gov/prod/cen2000/docs/sf3.pdf**.

SOURCE: U. S. Census Bureau, Census 2000.

pediatricians, general; psychiatrists; surgeons; and *physicians and surgeons, all other* (which includes such specialties as *cardiologist; dermatologist;,* and *ophthalmologist*). It is likely that *cardiologists* earn more than *internists*, but a mail-out/mail-back survey such as the decennial census is unable to make the distinctions among these occupations because so many doctors enter only "M.D." as their response.

Twelve of the 20 occupations with the most dispersed earnings are occupations where self-employment income is important. It appears that in most if not all of these occupations, personal initiative or a special skill can result in substantial earnings rewards for the most successful workers. High variability of earnings within an occupation might also indicate occupational categories that are too broad (as suggested in the above discussion of *physicians and surgeons*) or perhaps the inability of respondents to provide unambiguous descriptions of their occupation did not allow consistent coding.

Gender, work experience, education, and occupation. The next investigation is of dispersion measures by gender to see if controlling for work experience, education, and occupation results in a more equal (less disperse) distribution of earnings between men and women. Table 5 presents overall dispersion measures for men and women, for men and women aged 35 to 54, and for women aged 35 to 54 with and without children at home (an additional proxy for experience).[16] First, by examining the P90/10 ratios for all workers in a category (the next-to-last column of table 5), it is clear that earnings dispersion is less for women than for men—an overall P90/10 ratio for all workers of 4.35 for women versus 5.27 for men.[17]

Dispersion as measured by P90/10 is lower for men and women when the comparison is restricted to all workers aged 35 to 54. However, versus women aged 35 to 54, dispersion is lower for women aged 35 to 54 with no children at home, but higher for women aged 35 to 54

with children at home. Controlling for education for the most part shows substantial further reductions in dispersion for each level of education except Bachelor's degree or more.[18]

Weighted averages of P90/10 across occupations within age-gender-education categories are shown in table 4, thus allowing the ratios to differ *further* by occupation. By comparing these estimates with those in the third column of the table, one notes that it is uniformly true that accounting for occupation further reduces measured dispersion.[19]

As noted, women's earnings are more similar than men's: 4.35 versus 5.27 (17 percent less dissimilar). (See table 6.) This is also true for prime-age workers, those aged 35 to 54: the overall P90/10 ratio for these workers is 4.95–4.90 for men and 4.20 for women (14 percent less dissimilar). Computing ratios for all eight education-gender combinations (4 by 2) for those aged 35 to 54 yields a weighted average ratio of 3.91, a 21-percent reduction in dispersion. Finally, when age is controlled by restricting the universe to those aged 35 to 54, and gender, education, and occupation are taken into account (4040 categories, or 2 by 4 by 505), the ratio for year-round full-time workers aged 35 to 54 is reduced from 4.95 to 3.47, a 30-percent reduction. Women's earnings at this greatest level of disaggregation still remain more similar than men's—a ratio of 3.11, 84 percent of the ratio for men, 3.72.

Table 7 presents the effects of age and education on earnings dispersion across occupations. When educational differences are examined, the range between the 10th percentile and the 90th percentile (and therefore the ratio between the two) for men with less than a complete college education is smaller than the range for men with a Bachelor's degree or more; the same apparent result for women is not statistically significant. Apparently, there is more variation in the earnings among both men and possibly women aged 35 to 54 *within the same occupation* who have completed college than for those who have not. Controlling for gender and education for those aged 35 to 54 yields a weighted average 10.5 percent reduction in dispersion in the 43 largest occupations (those with 500,000 year-round full-time workers or more).

THE GENDER GAP IN EARNINGS was studied by the U.S. Government Accountability Office (GAO) using the Panel Study of Income Dynamics. Their report concluded:[20]

> Of the many factors that account for difference in earnings between men and women, our model indicated that work patterns are key. Specifically, women have fewer years of work experience, work fewer hours per year, are less likely to work a full-time schedule, and leave the labor force for longer periods of time than men. Other factors that account for earnings differences include industry, occupation, race, marital status, and job tenure. When we account for difference between male and female work patterns as well as other key factors, women earned, on average, 80 percent of what men earned in 2000....Even after accounting for key factors that affect earnings, our model could not explain all of the differences in earnings between men and women.

This study of Census 2000 data confirms and extends these GAO findings. There is a substantial gap in median earnings between men and women that is unexplained,

Table 6. Summary of earnings dispersion by gender, education, and occupation, 1999

Characteristics	Ratio of earnings at the 90th percentile to earnings at the 10th percentile			
	All year-round full-time workers	Men	Women	Weighted average across genders
All year-round full-time workers	5.00	5.27	4.35	4.90
Year-round full-time workers aged 35–54	4.95	4.90	4.20	4.61
Weighted averages for year-round full-time workers aged 35–54 using four education categories	–	4.20	3.52	3.91
Weighted average for year-round full-time workers aged 35–54 using four education categories and 505 occupation categories	–	3.72	3.11	3.47

NOTE: Table includes earners with positive earnings only. Data are based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see **www.census.gov/prod/cen2000/docs/sf3.pdf**. Dash indicates not applicable.

SOURCE: U.S. Census Bureau, Census 2000.

Table 7. Distribution of P90/10 earnings dispersion measure across occupations for selected percentiles,1999

Characteristics	P10	P25	P50	P75	P90
Men					
All year-round full-time workers	2.730	3.042	3.496	4.222	5.309
Age 35–54 years	2.546	2.830	3.333	4.117	5.342
Less than a high school education	2.887	3.072	3.470	4.000	5.201
High school graduate	2.540	2.778	3.063	3.676	4.748
Some college	2.471	2.714	3.107	3.750	4.700
Bachelor's degree or more	2.453	2.899	3.599	4.502	6.153
Women					
All year-round full-time workers	2.547	2.769	3.172	3.820	4.619
Age 35–54 years	2.506	2.736	3.128	3.784	4.835
Less than a high school education	2.643	2.818	3.074	3.638	4.432
High school graduate	2.466	2.632	2.959	3.344	4.091
Some college	2.381	2.576	2.986	3.541	4.333
Bachelor's degree or more	2.381	2.664	3.157	4.160	5.600

NOTE: Occupations listed are those with 10,000 or more year-round full-time workers, at least 1,000 male workers, and at least 1,000 female workers. Data are based on a sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see **www.census.gov/prod/cen2000/docs/sf3.pdf**.

SOURCE: U.S. Census Bureau, Census 2000.

even after controlling for work experience (to the extent it can be represented by age and presence of children), education, and occupation. Further, women have more similar earnings than men within the same occupation, controlling for age and education. Many reasons not studied here may help to explain the difference.

The starkest illustration of this general conclusion comes from a comparison of the median earnings of men and women (1) in the highest paid occupation for men and for women—*physicians and surgeons*—for those aged 35 to 54 with the highest level of education (a Bachelor's degree or more), and (2) for men and women in one of the lowest paid occupations for each—*dishwashers*—for those aged 35 to 54 with the lowest level of education (less than a high school education). Overall, all female year-round full-time workers have median earnings of $28,000, 74 percent of comparable male median earnings. For *physicians and surgeons* aged 35 to 54 with a Bachelor's degree or more, this ratio is 69 percent; for *dishwashers* aged 35 to 54 with less than a high school education, this ratio is 87 percent. Thus, after taking account of age, education, and occupation, some differentials remain, although they are reduced somewhat in some occupations. □

NOTES

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[1] Carmen DeNavas-Walt, Bernadette D. Proctor, and Cheryl Hill Lee, *Income in the United States: 2005* (U.S. Census Bureau Current Population Reports P60–231, August 2006). See **http://www.census.gov/hhes/income/histinc/p36.html** for the time series of estimates.

[2] Daniel H. Weinberg, *Evidence from Census 2000 About Earnings by Detailed Occupation for Men and Women* (U.S. Census Bureau Census 2000 Special Report CENSR-15, May 2004).

[3] Year-round means an individual worked 50 or more weeks in 1999 (or is an elementary or secondary school teacher who worked 37 or more weeks), including paid vacations. Full-time means the individual worked 35 or more hours a week. If this limitation had not been imposed, occupations where part-time or part-year work is prevalent would have lower earnings and higher earnings dispersion simply because of the fewer hours worked by some each year, not because of variation within the occupation for comparably employed individuals. Workers in the Armed Forces are excluded.

[4] The estimates in this article are based on responses from a sample of 15.4 percent of the U.S. population (12,739,145 observations of year-round full-time workers, with an average weight of 6.5). As with all surveys, estimates may vary from the actual values because of sam-

pling variation or other factors. All statements made in this article have undergone statistical testing including adjustments for multiple comparisons and are significant at the 90-percent confidence level, unless otherwise noted. Differences that are not statistically different may still reflect "real" differences, especially as the width of confidence intervals depends on the size of the sample and the number of workers in an occupation; uncertainty remains in the magnitude and direction of the difference. To protect confidentiality, all earnings figures are reported to two significant digits only and the number of workers is rounded to the nearest 10. All calculations of derived ratios and percentages are done using unrounded estimates. Standard errors and confidence intervals are not presented because they are often within rounding error. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see **www.census.gov/prod/cen2000/doc/sf3.pdf**.

[5] To make distinctions among occupations clearer, series of titles are separated by semicolons. For detailed information about each occupation, see Executive Office of the President, Office of Management and Budget, *Standard Occupational Classification Manual: 2000* (Bernan Associates/National Technical Information Service, Washington, DC, October 2000).

[6] The earnings of the following occupations are not different from those of the others listed: *podiatrists* from all others listed except *physicians and surgeons*; *engineering managers* from *optometrists* and *natural sciences managers*; *natural sciences managers* from *optometrists* and *petroleum engineers*. Also, the median earnings of *petroleum engineers* and *natural sciences managers* are not different from those of *actuaries*. *Podiatrists* are the only medical specialty identified separately by Census 2000.

[7] The earnings of the following occupations are not statistically different from those of the others listed: *hosts and hostesses, restaurant, lounge, and coffee shop* from the other eight occupations; and *teacher assistants*, *maids and housekeeping cleaners*, *dining room and cafeteria attendants and bartender helpers*, and *food preparation workers* from one another.

[8] Some 15 percent of *cashiers* work in the *accommodation and food services* major industry group as well. The earnings of the following occupations are not statistically different from those of the others listed: *food preparation and serving related workers, all other* and *hosts and hostesses, restaurant, lounge, and coffee shop* from all occupations listed in this paragraph; *waiters and waitresses* and *cooks* from *personal and home care aides*.

[9] For further information on the possible sources of occupational differences in earnings between men and women, see Francine D. Blau, Marianne A. Ferber, and Anne E. Winkler, *The Economics of Women, Men, and Work*, 4th ed. (New York, Prentice-Hall, 2001).

[10] For a discussion of the relationship between earnings and choice of specialty, see S. G. Yoder, "The Influence of Economic Factors on Medical Students' Career Choices," *Institute of Medicine, Medical Education and Societal Needs: A Planning Report for the Health Professions* (Washington, DC, National Academy Press, July 1983).

[11] A number of other occupations have ratios not statistically different from 0.950, including all those with ratios 0.920 to 0.949, except one.

[12] The difference between 4.90 and 4.87 is, however, statistically significant.

[13] There is no mathematical relationship between the median and the measure of earnings dispersion used here.

[14] Because of sampling error, many of these P90/10 ratio estimates are not significantly different from one another or from other occupations not listed.

[15] The P90/10 ratio for *securities, commodities, and financial services sales agents* is not statistically different from that of *animal breeders* or *health diagnosing and treating practitioners, all other.* (No ratio for those listed as most dissimilar is different from that for *animal breeders.*)

[16] Research has shown that work experience affects earnings (see, for example, Orley C. Ashenfelter and David Card, *Handbook of Labor Economics* (Amsterdam, North-Holland/Elsevier, 1999); there is no measure of that on Census 2000. Age is a proxy for experience, but women who have given birth often spend some time out of the labor market. Fertility is not measured on Census 2000 either, so the presence of children aged 0–17 years at home is used as a proxy for fewer years of work experience. Of course, some women with children at home spent little time out of the labor market, and some without children at home might well have spent significant time out of the labor market, so the measure is imperfect, but suggestive.

[17] The overall P90/10 ratio for all year-round full-time workers aged 35 to 54 is 4.95. The weighted average when this group is disaggregated by gender is 4.61 (4.60 if women are further subdivided into those with and without children at home), the ratio when disaggregated by gender and education is 3.91, and the ratio when disaggregated by gender, education, and occupation is 3.47.

[18] Men aged 35 to 54 with a Bachelor's degree or more have a higher level of earnings dispersion than other men aged 35 to 54, but a lower level of earnings dispersion than all men. The following combinations have P90/10 ratios that are not different from one another: women with less than a high school education, compared with women who are high school graduates or those with some college; women with no children at home with less than a high school education, compared with their counterparts with some college or a Bachelor's degree or more; women with children at home with less than a high school education, compared with their counterparts who are high school graduates or those with some college; and women with children at home who are high school graduates, compared with their counterparts with some college.

[19] Only the reduction for women with children at home with less than a high school education is not statistically significant.

[20] U.S. Government Accountability Office, "Women's Earnings: Work Patterns Partially Explain Difference Between Men's and Women's Earnings," GAO–04–35, October 2003, p. 2.