

# An Evaluation of the Gender Wage Gap Using Linked Survey and Administrative Data

## Executive Summary

The gender wage gap, commonly defined as the percentage difference between the median wages of men and women working full-time year-round, narrowed significantly between 1960 and 2000, as women’s wages increased both absolutely and relatively compared with men’s wages. Research shows that a key driver of the narrowing gender wage gap over this period was a narrowing of the gender gap in human capital and labor force characteristics driving workers’ earnings. Since 2000, however, the narrowing of the wage gap has slowed. To understand the main contributors to the current gender wage gap, this study uses new data sources that combine large-scale, nationally representative survey data and administrative records. These combined data sources provide a more complete picture of men’s and women’s pay than would be possible with survey-reported earnings.

This study uses the Current Population Survey (CPS) and American Community Survey (ACS) linked with administrative earnings and work history records from the Social Security Administration (SSA) and the Internal Revenue Service (IRS). Using these linked sources, **the study finds a gender wage gap of 18 to 20 percent.** That is, on average, women earned 80 to 82 percent of men’s earnings.

Figure 1. Gender Wage Ratio

### Gender wage ratio: administrative records and survey data



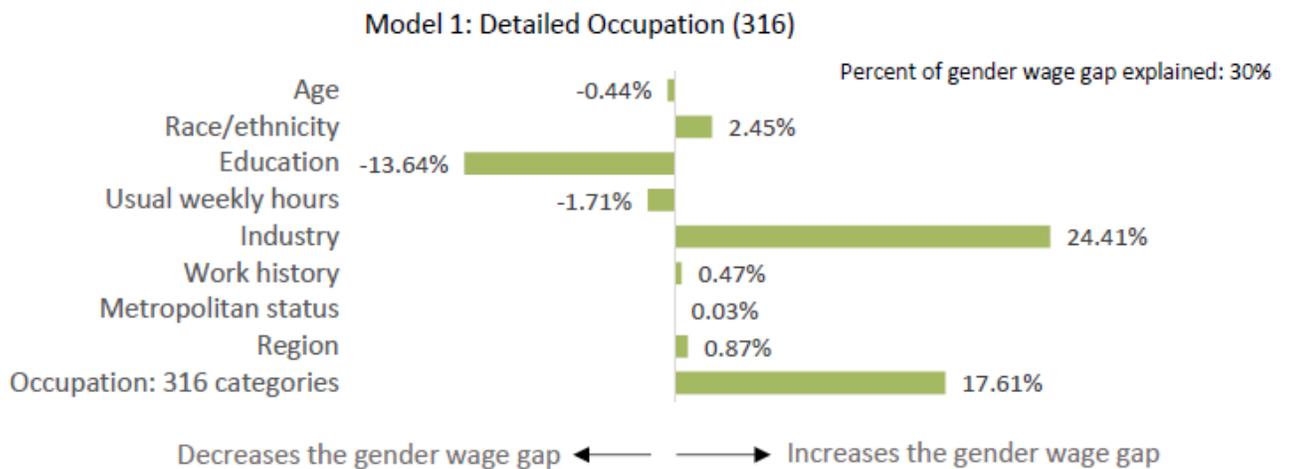
Administrative records wage sources: 1-Year American Community Survey (2015-2016) responses linked to IRS Form W-2 administrative records.  
Survey data wage source: 1-Year American Community Survey (2015-2016).  
Note: Sample is restricted to adults 25 to 54 working full-time, year-round. All estimates presented are approved for release by the Census Bureau Disclosure Review Board, item #CBDRB-FY19-CES005-012 and #CBDRB-FY20-CES010-004.

Using CPS and SSA records, the gender wage gap was 20 percent, whereas using ACS and IRS records indicated a gender wage gap of 18 percent. The gender wage ratio was lower when using combined survey and administrative records (0.82 using ACS and IRS data) compared with using solely survey data sources (0.83 using only ACS data) (Figure 1).

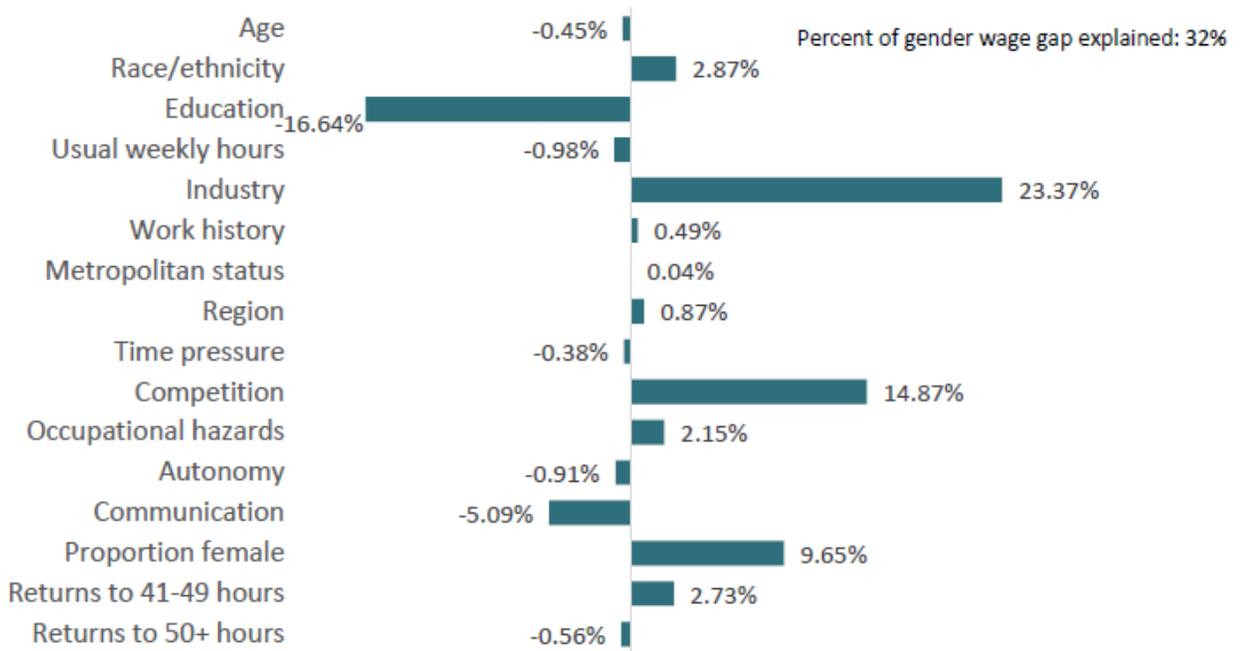
Although the average wage gap factors in hours and weeks worked, it does not account for gender differences in occupation and industry distribution. Women were more concentrated than men in lower-paying industries and occupations, and this difference accounted for 42 percent (24.4 percent and 17.6 percent) of the gender wage gap that could be explained (30%) in a standard Oaxaca-Blinder decomposition model (Figure 2, model 1). Values to the right of the figure contributed to a larger gender wage gap, while values to the left in the figure contributed to a smaller gender wage gap.

Figure 2. Percentage of the Gender Wage Gap Explained

**Percentage of the Gender Wage Gap Explained by Each Variable in the Oaxaca-Blinder Decomposition Models: American Community Survey and O\*NET Online**



Model 2: Occupational Characteristics



Source: 1-Year American Community Survey (2015-2016) responses linked to IRS Form W-2 administrative records (2005- 2016) and O\*NET Online 2019.

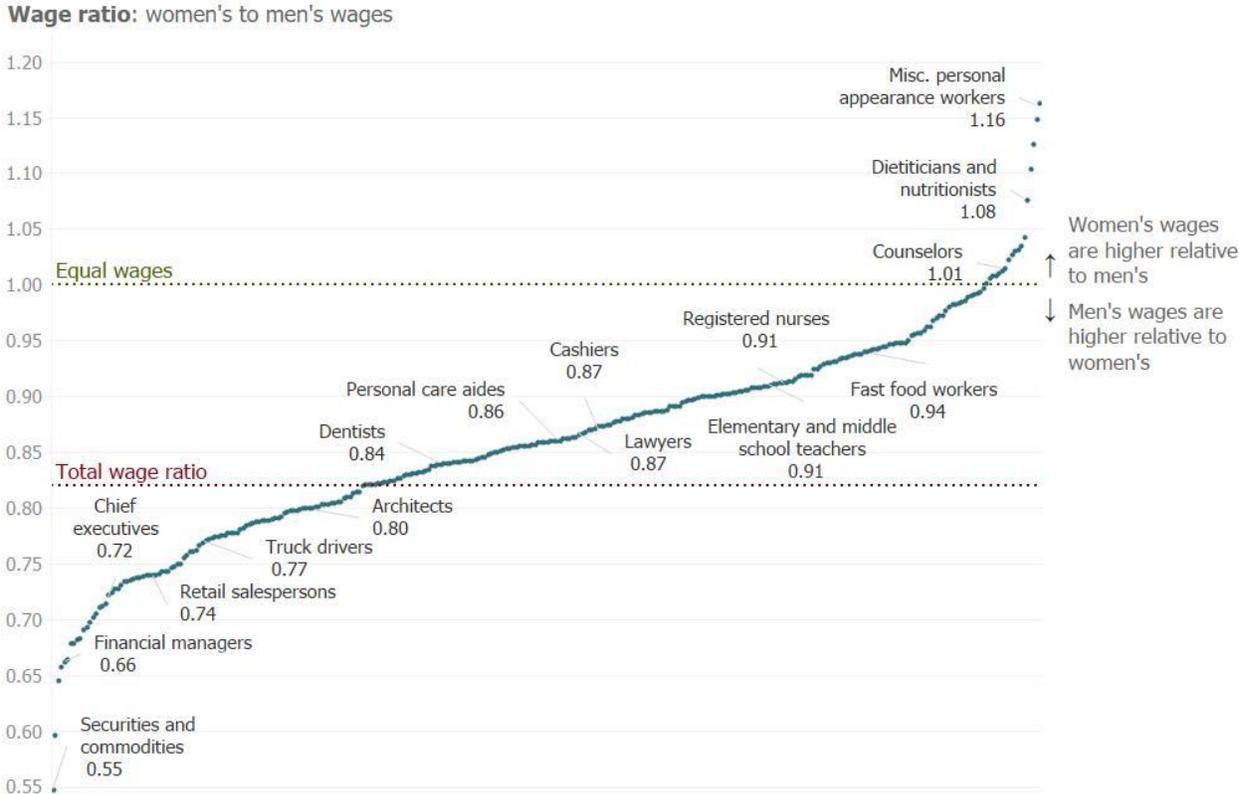
Note: Sample is restricted to adults 25 to 54 working full-time, year-round. All estimates above are approved for release by the Census Bureau Disclosure Review Board, item #CBDRB-FY2019-CES005-002.

Which characteristics of the occupations contributed to women’s lower pay? One characteristic that mattered was the gender composition of women’s versus men’s occupations. Compared with men, women worked in occupations where a larger share of the workers were women. These occupations had lower wages than those that employed more men even after accounting for worker differences in demographic and economic characteristics and job characteristics. As a result, **the greater concentration of women in occupations with a larger share of women workers accounted for 10 percent of the gender wage gap** (Figure 2, model 2). Compared with men, women also worked in occupations that required less competition. Since competition is associated with higher wages, **the greater concentration of women in occupations that required less competition increased the gender wage gap**. In contrast, women’s higher concentration in **occupations that prioritized communication and offered more worker autonomy lowered the gender wage gap**.

In both decomposition models, the portion of the gender wage gap that could not be explained by differences in men’s and women’s work histories, work hours, industry and occupation distribution, and job characteristics was between 68 and 70 percent, yielding an unexplained wage gap of 14 to 15 percent. That is, of an estimated wage gap of 21 percent, statistical models explain between 6 and 7 percentage points of the gap, leaving 14 to 15 percentage points unexplained, similar to other major studies on this topic.

Figure 3. Gender Wage Ratio by Occupation

### Gender wage ratio by occupation



Source: 1-Year American Community Survey (2015-2016) responses linked to IRS Form W-2 administrative records (2005-2016). Note: Sample is restricted to adults 25 to 54 working full-time, year-round. All estimates presented are approved for release by the Census Bureau Disclosure Review Board, item #CBDRB-FY19-CES005-012.

Differences in the sorting of men and women between occupations do not fully explain the gender wage gap; men and women are paid differently within occupations as well. The size of the gender wage gap varies significantly by occupation even as men earn more than women in nearly all occupations. **While wages are at parity in some occupations, gaps are as large as 45**

**percent in others.** Across the 316 occupations in this study, **occupations in finance and sales had the largest gender wage gaps**, or lowest female-to-male wage ratios (Figure 3). For example, securities and commodities workers had a gender wage ratio of 0.55, indicating a wage gap of 45 percent. Finance managers had a wage ratio of 0.66, or a wage gap of 34 percent. Women earned more than men in 17 occupations, though none of these were statistically different from a wage ratio of 1.00, or equal wages.

The full report and appendix tables are available at: <https://www.census.gov/library/working-papers/2020/adrm/CES-WP-20-34.html>.

Authors<sup>1</sup>:

**Thomas B. Foster** is a sociologist in the Center for Economic Studies at the Census Bureau.

**Marta Murray-Close** is an economist in the Center for Economic Studies at the Census Bureau.

**Liana Christin Landivar** is a sociologist at the Women’s Bureau, U.S. Department of Labor and Special Sworn Status researcher at the Census Bureau.

**Mark deWolf** is an economist at the Women’s Bureau, U.S. Department of Labor and Special Sworn Status researcher at the Census Bureau.

---

<sup>1</sup> The research program of the Center for Economic Studies (CES) produces a wide range of analyses to improve the statistical programs of the U.S. Census Bureau. Many of these analyses take the form of CES research papers. The papers have not undergone the review accorded Census Bureau publications and no endorsement should be inferred. This paper is released to inform interested parties of ongoing research and to encourage discussion of work in progress. Any views expressed are those of the authors and not necessarily those of the U.S. Census Bureau or the Department of Labor. All results have been reviewed to ensure that no confidential information is disclosed. Republication in whole or part must be cleared with the authors. This study was sponsored by the U.S. Department of Labor, Women’s Bureau through Interagency Agreement number 0094-2018-002.