# Gender Economics, Race, and Intersectionality: 

## Inequalities among adult women and men in the U.S. by race and ethnicity,

## 2017 through 2019 combined

(working paper)


#### Abstract

This article explores inequalities through the socioeconomic factors of salary, marital status, consumer expenditures, education, and occupations of adult women and adult men by race and ethnicity. It explores the ranking, or hierarchy, by sex and race when it comes to wages and salaries in the US: women tended to make less than their male counterparts, with White and Asian men amongst those with higher income, and Hispanic women consistently amongst those with lower income. In addition, the paper examines microeconomic and demographic inequalities faced by women of different races and ethnicity as compared to men, and reasons why such disparities exist. The data showed persistent hierarchical trends based on one's self-identified race category and a binary interpretation of sex.


On January 21, 2017, there were women's marches that occurred all around the world. According to the Women's March mission, these marches sought to bring attention to inequalities experienced along the lines of gender, race, class, and other identities with a particular focus on women. Topics included racial inequality, workers' rights, reproductive rights, and the gender wage gap ${ }^{1}$. The most recent Current Population Survey data compiled by the Women's Bureau show women being paid less than men in the U.S. since the 1960s, with White and Asian men earning more than other groups. ${ }^{2}$ Consequently, women were more likely to have a lower socioeconomic status than men, and Blacks and Hispanics were more likely to have a lower socioeconomic status than Whites and Asians.

This paper explored the issues of gender economics, with an intersectional dimension of race and ethnicity. It also discusses the microeconomic inequalities faced by women as compared to men, including the Gender Pension Gap, Pink Tax, healthcare costs, educational attainment, occupations, and marital statuses. Moreover, regression analysis shows the same persistent inequalities in income, stratified by race and sex. The coefficients of the multivariate semi-log dependent linear regression suggested that, outside of Asian men, subpopulations in the US are making at least 15 to 25 percent less than White males. All these factors depicted economic inequalities faced by intersected subpopulations, which not only disserves these population groups, but disserves the US economy as a whole.

## Definitions and concepts

Socioeconomic status (SES) describes an individual's or group's position within a ranked social structure. SES depends on a combination of factors, which can determine the level of access one has to goods, services, and opportunities in a society.

Ethnicity referred to Hispanics or Latinos, who could be of any race. The U.S. Office of Management and Budget (OMB) defined Hispanic or Latino as a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. In the article, the authors defined the Hispanic or Latino population as a mutually exclusive. Thus, Asians were defined herein as non-Hispanic Asians, Blacks or African Americans were non-Hispanic Blacks or African Americans, and so on for the remaining race categories.

Adult women and adult men. The term "adult" was defined as any person who was 25 years of age, or older. This was based on many recent studies that suggested adulthood starts at the age of 25 . Scientifically speaking, the frontal cortex area of the brain does not totally mature until 25 years of age. According to Dr. Jay Giedd of the National Institutes of Health (NIH), the frontal cortex manages judgment, decision-making and impulse control ${ }^{3}$. Coincidently, this is also the minimum age to be elected into the House of Representatives in the U.S.

Feminist Economics, or gender economics, are used interchangeably in general, and analyze the interrelationship between gender and the economy. This field of study gives serious attention to the plight of women, and challenges the definitions of economics based on rational choice theorizing and markets. ${ }^{4}$ Moreover, feminist economics analyzes patriarchy and capitalism as interrelated forms of dominance. Against this background, questions arise about the distribution and disposal of property, income, power, and knowledge. ${ }^{5}$ Gender economics also takes the unpaid, non-market intermediated part of the economy and
society into account, and examines the driving forces behind common dichotomies such as economic-social; productivereproductive; masculine-feminine; paid-unpaid or public-private.

Intersectionality. In addition to inequalities between women and men, this essay considers the influence of intersectionality. Intersectionality, a term first coined in 1989 by Kimberlé Crenshaw, was a concept often used to describe the ways in which issues surrounding things like race, sex, and class are interconnected ${ }^{6}$. Merriam-Webster dictionary defines it as the complex, cumulative way in which the effects of multiple forms of discrimination (such as racism, sexism, and classism) combine, overlap, or intersect, especially in the experiences of marginalized individuals or groups. ${ }^{7}$

## Data and Design

The graphs, tables, and charts in this article used public-use microdata from the U.S. Bureau of Labor Statistics (BLS) Consumer Expenditure Surveys and the U.S. Census Bureau American Community Survey (ACS). The Consumer Expenditure Surveys (CE) is a nationwide household survey conducted by BLS to find out how Americans spend their money. CE data are collected for BLS by the U.S. Census Bureau. BLS publishes 12 -month estimates of consumer expenditures twice a year. The CE consists of two surveys, the Quarterly Interview Survey (CEQ) and the Diary Survey. The data in this review article are from the CEQ, which was designed to collect data on large and recurring expenditures that consumers can be expected to recall for a period of 3 months or longer, such as rent and utilities ${ }^{8}$. The sample used in this study was drawn from publication years 2017, 2018, and 2019 combined.

The ACS is an ongoing survey, conducted by the U.S. Census Bureau, which provides vital information on a yearly basis about our nation and its people. Information from the survey generates data that help determine how more than $\$ 675$ billion in federal and state funds are distributed each year. Data from the ACS provide information regarding jobs and occupations, educational attainment, salaries, demographics, and other topics ${ }^{9}$. The samples from the ACS data were also drawn from 2017, 2018, and 2019 combined, amassing information from nearly nine million individual records. Data from the CEQ and ACS are used as a means of complement, comparison, and validation.

This Monthly Labor Review article explores inequalities through the socioeconomic factors of salary, marital status, consumer expenditures, education, and occupations of adult women and adult men by race and ethnicity. An initial analysis of salary will compare estimates from the CE and ACS. Data regarding the salary of adult men and adult women will control for educational attainment and occupation. The data showed persistent hierarchical trends based on one's self-identified race category and a binary interpretation of sex.

## CE versus ACS: Salary/Wage of adult women and adult men by race and ethnicity

Income is a major component when understanding inequalities, and how it can determine one's socioeconomic status. Having the means to acquire goods and services through a medium of exchange greatly impacts where one will live, how they purchase food, and, essentially, where they are ranked in society. The World Economic Forum's 2017 Gender Gap report reveals that it will take 217 years to completely remove the disparity between the sexes around the world, and 168 years specifically in North America. ${ }^{10}$ According to the Institute for Women's Policy Research, women full-time, year-round workers made only 80 cents for every dollar earned by men, a gender wage gap of 20 percent, in 2015 . Given current trends, it would take 44 years-or until 2059-for women to finally reach pay equality. The current rate of change for women of color are even slower: Black women would have to wait until 2124, and Hispanic women would have to wait until 2233 for equal pay. ${ }^{11}$

With salary being a major component of income, this article looked into the salaries and wages of men and women by race and ethnicity through both CE and ACS data. Graph A depicts the mean, along with the $25^{\text {th }}, 50^{\text {th }}$, and $75^{\text {th }}$ percentiles for salaries of each group.

Graph A BLS vs ACS: Annual salaries/wages of adult women and adult men in the U.S. by race and ethnicity, 2017 to 2019 combined


Through simple observation, one can see that the CE and ACS data seem to validate each other. The validity of the means statistics were further assessed using the unpaired $t$-Test,

$$
\mathrm{t}=\frac{\bar{X}_{1}-\overline{X_{2}}}{\sqrt{\frac{s_{1}^{2}}{n_{1}}+\frac{s_{2}^{2}}{n_{2}}}}
$$

where $\bar{X}_{1}, s_{1}^{2}$, and $n_{1}$ are the first sample mean, sample variance, and sample size, respectively. Through these tests, the mean differences of each group between the CE and ACS salaries and wages were considered not to be statistically significant.

Table B: Statistical mean comparison of salary and wage data from American Community Survey and Consumer Expenditure by sex, race, and ethnicity, 2017 through 2019 combined

| Subgroup |  |  |  |  |  |  |
| ---: | :--- | ---: | ---: | ---: | ---: | ---: |
| No. |  |  | ACS <br> Sample <br> Size | CE <br> Sample <br> Size |  | ACS Mean | CE Mean | Mean |
| :---: |
| Difference |$|$

As such, the data from both sources suggests that adult men within each racial group make more than their adult women counterparts. In addition, examining the intersection of race and sex, here is the ranking of the different race, ethnicity, and sex populations based on the mean salaries and wages:

| CE Order by Mean Salary/Wage | ACS Order by Mean Salary/Wage |
| :--- | :--- |
| Asian Men | Asian Men |
| White Men | White Men |
| Pacific Men | Multirace Men |
| Multirace Men | Asian Women |
| Asian Women | Pacific Men |
| Native Men | White Women |
| White Women | Multirace Women |
| Black Men | Hispanic Men |
| Multirace Women | Black Men |
| Pacific Women | Native Men |
| Hispanic Men | Pacific Women |
| Native Women | Black Women |
| Black Women | Native Women |
| Hispanic Women | Hispanic Women |

Certain patterns emerged when looking at the order of salary and wages, and were consistent or correlated with other socioeconomic factors. According to the ACS data, White and Asian men earned more than the other groups, with mean values over $\$ 70,000$; Hispanic women earned the least among the intersected groups, with a mean value just above $\$ 34,000$. Furthermore, Black and Native American or Alaskan Native men make the least when compared to other men with $\$ 45,268$ and $\$ 44,349$, respectively; Asian and White or Caucasian women tend to make the most when compared to other women with $\$ 58,924$ and $\$ 48,354$. The paper will continue to explore the additional socioeconomic factors of expenditures, marriage, education, and occupation to get a better understanding of such patterns. Since BLS's CEQ is the only federal government survey that provides information on the complete range of consumers' expenditures along with characteristics, these data were used to examine expenditure amounts and percentages. The ACS data were used for the marriage, education, and occupation sections, along with the multivariate regression analysis. ${ }^{12}$

## Expenditure amounts by sex, race, and ethnicity

Aggregated expenditure data can provide information about consumer behavior in the U.S. population. However, looking at demographic subgroups of the population can give us a deeper understanding of consumption preferences and spending behaviors. Graph C shows the expenditure categories of single consumer households, illustrating adult women's and adult men's spending patterns when there were no other members in the consumer unit.


The Gender Pension Gap
Graph C shows certain trends and concepts that seem to be reoccurring in other studies. For instance, across all races, men tend to have higher amounts allocated towards pension plans and insurance versus women. According to the CE data, men spent about $\$ 1,300$ more, on average, in this category than women. This less-known "gender pension gap" was significantly wider than the more familiar gender pay gap. Women face a number of obstacles both before and during retirement, typically resulting in lower financial security in retirement as compared to men. Women have longer retirements because they live longer, so they must target a higher level of savings than men to achieve the same levels of annual income throughout their entire retirement.

In addition, women tended to accumulate less savings than men in the years before they retire. According to an article on the World Economic Forum, ${ }^{13}$ most women married to men will spend more time living alone in retirement, because most women will outlive their husbands. This means that they will likely live alone for a number of years, estimated to be approximately 4.5 years in the US, without anyone to share expenses. The article also notes that women spend more on healthcare, estimated to be approximately seven percent a year in the US, and are less likely to have a spouse to care for them in place of professional careers.

## Personal Care

Women generally spent more than men on personal care, as depicted in Graph C. The one exception was Native American or Alaskan Natives, whose data are more variable, as noted previously. ${ }^{14} \mathrm{Graph} \mathrm{D}$ shows that women allocated a higher portion of their budget expenses to Personal care products, and in many cases, double the percentage as compared to their adult men counterparts. Personal care products and services includes products for the hair, oral hygiene products, shaving needs, cosmetics and bath products, electric personal care appliances, other personal care products, and personal care services for males and females. ${ }^{15}$

There may be many reasons for differences in adult men's budget compared to adult women's budget, but evidence shows that prices are higher for many products marketed toward women as compared to those products for men. According to a report from the Joint Economic Committee, women are disadvantaged as consumers - frequently paying substantially more than men for similar goods and services. "Pink Tax" is a phenomenon characterized by gender-based price discrimination. Common products and services marketed to women, ranging from razors and soaps to dry cleaning, often cost more than similar products marketed to men. In addition, there is a great deal of evidence that there are significant price differences for practically identical products. In some cases, the only difference is the color. ${ }^{16}$ Furthermore, within the realm of Pink Tax, there is a specific occurrence coined "Tampon Tax," in which feminine hygiene products have been taxable even though a wide variety of other goods, such as dietary and family planning products, have been exempt. ${ }^{17}$ Legislation was created in nine states to alleviate this regressive tax, with more states following suite. It is important to note that the Pink Tax phenomenon may not constitute intentional gender discrimination. Differences in prices marketed toward women could be the result of tariffs on imported goods, product differentiation, and price fixing. However, the frequency with which female consumers found themselves paying higher prices for gender-specific goods and services effectively became a tax on being a woman.

## Expenditure percentages by sex, race, and ethnicity

Personal spending data offered great insight on how people choose and prioritize their wants and needs. Graph D depicts the category percentages spent by single consumer units. It showed that adult women spent a higher percentage on Healthcare, while adult men spent a higher percentage on Alcohol and Tobacco and smoking supplies.


## Healthcare and pregnancy

Numerous studies have found that women spend significantly more on Healthcare than men over their lifetimes. CE data suggests that single adult women spent 10.9 percent, or $\$ 3,828$, of their income on Healthcare, compared to 6.2 percent, or $\$ 2,991$, for single adult men between 2018 and 2019. ${ }^{18}$ Although the data in this article shows variations based upon race and ethnicity, which can speak to the intersectionality that exists within each subgroup, it still demonstrates a similar pattern, with most adult women spending more than their adult men counterparts. An important reason women spend more is longevity: U.S. women have a life expectancy of 81 while men have a life expectancy of $76 .{ }^{19}$ That gives women an average five extra years to rack up medical bills. Furthermore, research indicates that women visit the doctor more frequently, especially as they have children, and tend to seek out more preventive care. The National Center for Health Statistics found that women made $30 \%$ more visits to physicians' offices than men between 1995 and 2011. ${ }^{20}$

In addition, women tend to spend more on healthcare, specifically related to their reproductive health, as compared to men. Throughout life, women have more instances of interventions for reproductive health. Women have historically paid higher health insurance premiums in part because of these expected costs related to pregnancy. ${ }^{21}$ Amounts varied from state to state, but an uncomplicated cesarean section was approximately $\$ 15,800$; an uncomplicated vaginal birth was $\$ 9,600 .{ }^{22}$ Furthermore, in 2010, Medicaid financed approximately $48 \%$ of births in the US. ${ }^{23}$ Also, aside from direct expenses, pregnancy can influence income potential, employment, and educational attainment.

## Risky Behavior

Alcohol consumption and smoking are risky behaviors, especially when done in excess. Excessive drinking increases the risk of many chronic diseases and violence, and can impair short- and long-term cognitive function. ${ }^{24}$ Smoking lead to disease, disability, and harms nearly every organ of the body. ${ }^{25}$ Data from CE publication tables Table 4110/4100 showed that consumer units of single females 25 years and older, spent less than consumer units of single males 25 years and older when it came to the purchase of Alcohol and Tobacco and smoking supplies between 2018-2019. ${ }^{26}$ Graph D illustrated that adult men also tended to spend higher percentages on Alcohol and Tobacco and smoking supplies than their adult women counterparts.

The Dietary Guidelines 2015-2020 defined moderate drinking as up to one drink per day for women, and up to two drinks per day for men. High-risk drinking was the consumption of four or more drinks on any day, or 8 or more drinks per week for women; for men, it was five or more drinks on any day, or 15 or more drinks per week. Binge drinking is the consumption within about two hours of four or more drinks for women, and five or more drinks for men. ${ }^{27}$ When examined from the intersection of race and sex, Multirace men spent the highest percent on Alcohol (regardless of race or sex), at 1.7 percent of
their expenditure total. When we examined this from race amongst women, we found that Multirace women spent the most on average, at 0.9 percent of their expenditure total.

According to the Centers for Disease Control and Prevention, $14.0 \%$ of all adults, or 34.3 million people (i.e., $15.8 \%$ of men, and $12.2 \%$ of women) were current cigarette smokers in 2017. ${ }^{28}$ Cigarette smoking causes more than 480,000 deaths each year in the US, making it riskier than the Human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries and firearm-related incidents, combined. ${ }^{29}$ In this category, Multi-race men spent the highest percent on Tobacco and smoking supplies, with 2.0 percent of their expenditure total. Amongst adult women, Native American women spent the highest percent, with 1.3 percent of their expenditure total.

## American Indians/ Alaska Natives (AIAN) and Tobacco Use

Further information from the CDC show that American Indians/Alaska Natives have the highest prevalence of cigarette smoking compared to all other racial/ethnic groups in the United States. ${ }^{30}$ Subsequently, AIAN have a higher risk of experiencing tobacco-related disease and death due to high prevalence of cigarette smoking and other commercial tobacco use, including cardiovascular disease, lung cancer, and Diabetes. Moreover, more American Indian/Alaska Native women smoke during their last 3 months of pregnancy-26.0\% compared to $14.3 \%$ of whites, $8.9 \%$ of African Americans, $3.4 \%$ of Hispanics, and $2.1 \%$ of Asians/Pacific Islanders. ${ }^{31}$ Historically, tobacco industry product promotions to American Indians/Alaska Natives featured symbols and names with special meanings to this group. ${ }^{32}$

## Marital status as a socioeconomic factor

Marriage was one of many major life-changing decisions that adults make, and it had an informative interrelationship with socioeconomic status. Marriage could provide the opportunity to increase one's socioeconomic status, as two people were able to pool their incomes, resources, and social capital. An article on Socioeconomic Patterns of Marriage and Divorce suggested that married people were better off financially than unmarried people, and marital status may provide valid and observable demarcation of social classes by their likely economic and social outcomes. ${ }^{33}$

Using ACS data, the marital status column chart showed the breakout of marital statuses for adult women and adult men who were 25 years of age or older, by race and ethnicity.


Men tended to have higher percentages for being married than their women counterparts across all races. This makes sense, as the number of women in the U.S. was generally greater than the number of men. Women also had higher rates of divorce than their male counterparts, and are more likely to be widowed, due to women living longer than men.

However, the married status percentages were the highest for Asian men, Asian women, and White men at 69.5, 67.0, and 61.9 percent, respectively. The married status percentages were the lowest for Native American or Alaskan Native women, Black men, and Black women at 40.5, 40.4, and 31.2 percent.

## Black Americans and marriage in the US

Marriage patterns in the US tended to reflect the need for a certain level of socioeconomic stability. Differences in employment, earnings, and wealth might account for a sizeable portion of the contemporary racial gap in marriage.

Additionally, persistent patterns of racial stratification, such as high rates of residential segregation, which affects the accumulation of wealth, school quality, and young men's risk of incarceration, combined with economic disadvantage to depress black marriage rates. ${ }^{34}$ Subsequently, the depressed rates of marriage amongst Black Americans serve as a contributing factor in lower socioeconomic status level as compared to the other subpopulations in the US.

## Educational attainment by sex, race, and ethnicity

Women have made great strides in education in the U.S. For the first time since measurement began in 1940, adult women were more likely than adult men to have a bachelor's degree in 2014, according to the American Community Survey ${ }^{35}$. Subsequently, studies showed that obtaining a Bachelor's degree was correlated with a decreased probability of divorce, ${ }^{36}$ but it also increased one's earning potential. Depicted in Graph F, ACS data show adult women having a higher percentages of educational attainment at the Associate's degree level than their respective male counterparts in each race and ethnicity. In addition, women have higher percentages of Bachelor's degrees than men within each subgroup. Furthermore, Asian men had the highest percent of those with a Bachelor's degree or higher at 58 percent. Hispanic men had the highest percent of those with a High school diploma or less at 61 percent.

Graph F Educational attaiment of adult men and adult women in the U.S. by race and ethnicity, 2017 through 2019
combined


## Asian Americans and "model minority" myth

Asian men and Asian women had the highest percentages of those with a Master's, Professional, or Doctorate degrees at 28 and 22 percent, respectively. Such statistics surrounding the Asian population has given fuel to stereotypes of Asian Americans being seen as inherently intelligent, and exemplified as the "model minority." Such generalizations may not fully examine the different ethnicities and respective educational attainments of people within the Asian population in the US, nor do they show how factors like the creation of the "middleman minority," Immigration Act of 1965, social out-casting, and residential location contributed to the culture of Asian Americans. ${ }^{37}$ Moreover, such "good stereotypes" could exert societal pressures upon this subpopulation. For instance, a psychological study from the Journal of Women and Therapy concluded that such generalizations could result in increased expectations on Asians, and subsequent suicides among Asian American women. ${ }^{38}$

## Hispanic Americans and educational attainment

Hispanic men and Hispanic women had the highest percentages for High school graduate or less, at 62 and 56 percent, respectively. For many Hispanics, economic factors remain an obstacle to college enrollment. In a 2014 National Journal poll, $66 \%$ of Hispanics who got a job or entered the military directly after High school cited the need to help support their family as a reason for not enrolling in college. ${ }^{39}$ In addition, the Pew Research article also cites that Hispanics are less likely than other groups to enroll in a four-year college, attend an academically selective college, and enroll full-time.

## Occupation category distribution by sex, race, and ethnicity

Despite the progress that women have made in the U.S., inequality tended to consistently permeate the labor force along gender lines. A report by the Government Accountability Office showed that in 2010 women constituted 59 percent of the lowwage workforce, with Black and Hispanic women being disproportionately represented. ${ }^{40}$ Another statistic from the Bureau of

Labor Statistics in 2009 showed that only 24 percent of CEOs in the U.S. were women and they earned 74.5 percent as much as men CEOs.

## Gender Biases in Occupations

Table G uses ACS data, showing 25 different occupation categories, and their frequency percentages, by sex, race, and ethnicity. According to the ACS, occupation described the kind of work a person does on the job. Questions regarding employment was asked of all people 15 years old and over who had worked in the past five years, but this study filtered the data only for those 25 years of age and older.


The data seemed consistent with a research collaboration from LinkedIn and the Global Gender Gap Report, which found that men are distinctively underrepresented in Education and Health and Welfare, while women are strongly under-represented in Engineering, Manufacturing and Construction and Information, Communication and Technology. ${ }^{41}$ Adult women had noticeably higher representation in the Office and Administrative Support occupations than their male counterparts, with percentages approximately 9 percent or higher. It is important to note that adult Asian women also had an equally high percentage in the Healthcare Practitioners and Technical occupations.

Adult men had considerably higher representation in the Transportation and Material Moving occupations, at 9.0 percent or higher. White and Asian adult men slightly deviated from this pattern. White men had 8.0 percent in Transportation and Material Moving occupations, but had their highest amount in Sales and Related occupations with 9.3 percent. Asian men only 5.7 percent in Transportation and Material Moving occupations, and had the highest percent in Computer and Mathematical occupations at 12.4 percent. Computer and Mathematical occupations are in high demand and yield higher pay, which could be a contributing factor to explain their higher income.

## NILF

The category of those who were unemployed - those who never worked, or were not in the labor force (NILF) who last worked more than five years ago, ${ }^{42}$ also provided insight. This group included those who were marginally attached to the labor force and discouraged workers. In this category, adult men were below 23 percent, except for Black and Native American or Alaskan native men, with 26.6 and 29.8 percent, respectively.

Adult women had figures of 23 percent or more across all races. Often times, women are designated as stay-at-home moms or the caregivers - an activity that is not considered in the economy or GDP. This was a major issue of Feminist economics, which
argues that such unpaid, non-market intermediated part of the economy and society be taken into account. ${ }^{43}$ In addition, even those women who may be employed, are still more often deemed the caregiver, which could affect income and their employment, as they have to take time off from work, or leave a job to care for a family member.

## Annual Salaries and Wages: Controlling for Educational Attainment

One may argue that the reason some groups have higher salaries and wages than another is due to the level of education attainment. This make sense, as education is one of the strongest indicators of socioeconomic status. According to the American Psychological Association, low socioeconomic status among women correlated with lower education, poverty and poor health for children and families. ${ }^{44}$ Higher education typically yields a higher level of salary or wage. However, even when controlling for education, there still seems to be a persistent intersectional stratification based on sex, race and ethnicity. The data in Graph H and I shows that amongst those with Bachelor's degrees or advanced degrees, women made less than men within their race or ethnicity, White and Asian people made the most, and Native American and Hispanic women were among those making the least. When examining these patterns, it is important to note that race and ethnicity do not cause lower salaries, but rather, the systems which ascribe meaning to these racial and ethnic categories are what create inequitable outcomes.


## Bachelor's Degrees

Graph H, which is based on ACS data, illustrated the interquartile ranges and means of annual salaries earned by the race and ethnicity of adult women and adult men in the US, who have Bachelor's degrees. Adult women are earning less than their male counterparts in each race and ethnicity. Asian men had the highest median salaries of $\$ 71,000$, while White men had the
highest mean salaries of $\$ 93,617$. Native American or Alaskan Native women had the lowest mean salaries of $\$ 45,792$, while Native Hawaiian or Other Pacific Islander, Hispanic, and Native American or Alaskan Native women all had the lowest median salaries of $\$ 40,000$.

Master's, Professional, and Doctorate degrees
Graph I, which is also based on ACS data, showed that Asian women had a median salary of $\$ 75,000$, while White, Hispanic, Black, and Multi-race women had substantially lower amounts: $\$ 61,000, \$ 58,000, \$ 58,000$, and $\$ 60,000$, respectively. Native American or Alaskan Native women made the least in this category with a mean of $\$ 61,886$, and a median of $\$ 52,000$.

The Graph I, much like graph H, showed White men earning more than all other races and sexes with $\$ 125,391$ as the mean. On average, Asian men earned $\$ 128,910$, while Multi-race men, Hispanic men, and Black men earned $\$ 112,075, \$ 104,349$, and $\$ 86,524$, respectively. Of the men, Native American or Alaskan Native men made the least with $\$ 83,612$.

## Annual Salaries and Wages: Controlling for Occupation

Others may argue that occupation is the reason why there are such stark differences between men and women in salary and wage. Derived from the ACS data, Graph J and graph K show the distribution of annual salaries and wages based on intersectional groups, for two different categories: the computer and mathematical category, and the office and administrative support category. Annual salaries, controlled for occupation, seemed to tell a similar story as the graphs controlled for education.


Graph K: Annual salaries of adult women and adult men in Office and Administrative Support occupations in the U.S by race and ethnicity, 2017 to 2019 combined


## Computer mathematical occupations

The Computer and mathematical category includes occupations such as computer programmers, database administrators, statisticians, and actuaries. ${ }^{45}$ According to the ACS data, the average annual salary of someone within this STEM category is $\$$ 91384 for 2017 to 2019, combined. When examined based upon the intersection of sex, race, and ethnicity, Asian men had the highest salary, with a mean of $\$ 111,072$ and median of $\$ 100,000$. Native American or Alaskan Native women make the least with a mean and median of $\$ 57,604$ and $\$ 57,000$, respectively.

Office and administrative support occupations
Office and administrative support category includes occupations such as secretaries, office desk clerks, tellers, and postal service mail carriers. As previously observed, this category had much higher percentages for women than men across all races. However, the salaries and wages for men were much higher than those for women across all races and ethnicity in this womendominated category. Also, the interquartile range gave an idea of the distribution of salaries by each subgroup. As such, the distributions of salaries and wages were much more compacted and limited for women as compared to men, with Asian women being the exception.

## Regression Analysis

To analyze the effects of race/gender intersection, education, marital status, and occupation on wages and salaries, this article used a multivariate semi-log dependent linear regression based on ACS data. The White or Caucasian adult men, High School or less, Married, and Management, Business, Science, and Arts Occupational subgroups were left out of the model; these subpopulations were set as the baseline groups.

$$
\log (Y)=\alpha+\beta 1 X 1+\beta 2 X 2+\ldots . .+\beta n X n
$$

The interpretation of each coefficient represented the percentage difference in salary or wage as compared to the baseline group, while holding all other predictors constant (ceteris paribus). For instance, a 1-unit change in Xn corresponds to an approximated expected increase or decrease in the percent change of Y . However, since the Xn in these cases were the subpopulations represented by categorical binary variables, a 1-unit change in $X$ is essentially an on-off switch for a particular group. All coefficients in the regression model were statistically significant (i.e., had p-values < .001) except Hispanic Men (pvalue $=0.3622$ ) and Native Hawaiian or Pacific Islander men ( $p$-value $=0.2446$ ).

| Table L: Multivariate Log Linear Parameter Estimates 201$\log (Y)=\alpha+\beta 1 X 1+\beta 2 X 2+\ldots . .+\beta n X n$ |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Variable | Parameter | Standard | t Value | $\operatorname{Pr}>\|t\|$ | \% change |
|  | Estimate | Error |  |  | from excluded base arouns |
| Intercept | 10.7704 | 0.0019 | 5766.41 | <. 0001 |  |
| Some college | 0.1361 | 0.0013 | 101.42 | <. 0001 | 14.6\% |
| Associate's | 0.3320 | 0.0019 | 176.98 | <. 0001 | 39.4\% |
| Bachelor's | 0.6225 | 0.0015 | 411 | <. 0001 | 86.4\% |
| Master's, Professional, or Doctorate | 0.8854 | 0.0019 | 468.27 | <. 0001 | 142.4\% |
| White or Caucasian Women | -0.3697 | 0.0013 | -277.13 | <. 0001 | -30.9\% |
| Black or African American Men | -0.1226 | 0.0022 | -54.82 | <. 0001 | -11.5\% |
| Black or African American Women | -0.2447 | 0.0022 | -112.52 | <. 0001 | -21.7\% |
| Asian Men | -0.0789 | 0.0029 | -27.05 | <. 0001 | -7.6\% |
| Asian Women | -0.3437 | 0.0030 | -114.55 | <. 0001 | -29.1\% |
| Native Hawaiian or Pacific Islander Men | -0.0188 | 0.0162 | -1.16 | 0.2446 | -1.9\% |
| Native Hawaiian or Pacific Islander Women | -0.2045 | 0.0171 | -11.96 | <. 0001 | -18.5\% |
| Native American or Alaskan Native Men | -0.1738 | 0.0091 | -19.1 | <. 0001 | -16.0\% |
| Native American or Alaskan Native Women | -0.3590 | 0.0091 | -39.29 | <. 0001 | -30.2\% |
| Multi-race Men | -0.1815 | 0.0049 | -37.37 | <. 0001 | -16.6\% |
| Multi-race Women | -0.4148 | 0.0049 | -84.41 | <. 0001 | -34.0\% |
| Hispanic Men | 0.0017 | 0.0018 | 0.91 | 0.3622 | 0.2\% |
| Hispanic Women | -0.3043 | 0.0020 | -151.27 | <. 0001 | -26.2\% |
| Never Married | -0.6420 | 0.0011 | -582.07 | <. 0001 | -47.4\% |
| Widowed | -0.2671 | 0.0037 | -72.84 | <. 0001 | -23.4\% |
| Divorced | -0.0438 | 0.0017 | -26.59 | <. 0001 | -4.3\% |
| Separated | -0.1480 | 0.0036 | -41.53 | <. 0001 | -13.8\% |
| Business Operations Specialists | -0.0224 | 0.0032 | -6.96 | <. 0001 | -2.2\% |
| Financial Specialists | -0.0120 | 0.0037 | -3.29 | 0.001 | -1.2\% |
| Computer and Mathematical Occupations | 0.0977 | 0.0031 | 31.57 | <. 0001 | 10.3\% |
| Architecture and Engineering Occupations | 0.0393 | 0.0038 | 10.42 | <. 0001 | 4.0\% |
| Life, Physical, and Social Science Occupations | -0.1894 | 0.0056 | -33.97 | <. 0001 | -17.3\% |
| Community and Social Services Occupations | -0.5670 | 0.0040 | -143.62 | <. 0001 | -43.3\% |
| Legal Occupations | 0.0985 | 0.0052 | 19.01 | <. 0001 | 10.4\% |
| Education, Training, and Library Occupations | -0.7617 | 0.0025 | -310.75 | <. 0001 | -53.3\% |
| Arts, Design, Entertainment, Sports, and Media Occupations | -0.6518 | 0.0039 | -169.44 | <. 0001 | -47.9\% |
| Healthcare Practitioners and Technical Occupations | -0.0263 | 0.0025 | -10.56 | <. 0001 | -2.6\% |
| Healthcare Support Occupations | -0.5795 | 0.0032 | -180.19 | <. 0001 | -44.0\% |
| Protective Service Occupations | -0.2700 | 0.0036 | -74.77 | <. 0001 | -23.7\% |
| Food Preparation and Serving Occupations | -1.0695 | 0.0025 | -432.61 | <. 0001 | -65.7\% |
| Building and Grounds Cleaning and Maintenance Occupations | -0.8460 | 0.0032 | -266.62 | <. 0001 | -57.1\% |
| Personal Care and Service Occupations | -1.1229 | 0.0033 | -342.1 | <. 0001 | -67.5\% |
| Sales and Related Occupations | -0.5784 | 0.0021 | -275.45 | <. 0001 | -43.9\% |
| Office and Administrative Support Occupations | -0.4567 | 0.0020 | -223.41 | <. 0001 | -36.7\% |
| Farming, Fishing, and Forestry Occupations | -0.8776 | 0.0059 | -149.17 | <. 0001 | -58.4\% |
| Construction and Extraction Occupations | -0.2696 | 0.0028 | -98.15 | <. 0001 | -23.6\% |
| Installation, Maintenance, and Repair Workers | -0.1443 | 0.0033 | -44.38 | <. 0001 | -13.4\% |
| Production Occupations | -0.3053 | 0.0026 | -116.99 | <. 0001 | -26.3\% |
| Transportation and Material Moving Occupations | -0.5820 | 0.0024 | -247.89 | <. 0001 | -44.1\% |
| Military Specific Occupations | -0.2852 | 0.0083 | -34.45 | <. 0001 | -24.8\% |

The multivariate regression model analysis shows that educational attainment had a major positively-correlated influence on salary and wage. For instance, a person with a Master's, Professional, or Doctorate degree, would be expected to have a 142 percent change in salary as compared to someone with a High school diploma or less. In addition, all other intersectional groups have a negative correlation in salary when compared to the base group of White or Caucasian men. This supports the idea that there are strong correlations between a person's income and the intersection of the race, ethnicity, and binary sex in which they identified.

The model also identified the percent change between the Married baseline group and the rest of the marital status groups. Specifically, those who were never married had a 47 percent change decrease when compared to Married individuals. In addition, the regression model shows that Computer and Mathematical and Legal occupations yield a percent change increase as compared to Management, Business, Science, and Arts occupations. Conversely, Food preparation and serving, as well as Personal care and service occupations yield negative percent changes slightly higher than 65 percent.

## Conclusion

The objective of this article was to gain a further understanding and be able to identify correlations between microeconomics, gender, and race and economics. As such, the data from this essay showed a consistent inequality in income for adult women compared to adult men, drawing similar conclusions as other studies. Moreover, intersectionality of race and ethnicity on sex further illustrated how inequalities persisted throughout subgroups of the US population. Such experiences at the individual or subgroup level reflect the interlocking nature of systems of repression at the structural level.

As depicted in the data analysis, gender, race, and ethnicity continued to be associated with a certain level of microeconomic disadvantage. Incomes were persistently unequal across gender and race, but there were additional factors and phenomena that influence one's access to goods, services, opportunities, and general well-being. Although women are more likely to have a bachelor's degree than men, occupational fields still demonstrated stereotypical gender trends. There also seems to be strong trends along the lines of race and ethnicity, as Whites and Asians tend to have higher socioeconomic levels than their Black, Hispanic, and Native American counterparts.

In this study, the attempt to control for education and occupation could not capture all the factors that can be significant in explaining salary differences, such as job skill, added responsibilities, work experience, certifications, or specialization. ${ }^{46}$ The regression analysis also indicated that there may be some interlocking factors amongst the variables, which would require further study and analysis. Moreover, factors like state and region were not included in this analysis. These factors determine cost of living, and could have heavily influenced salaries, wages, and expenditures.

However, such strong and consistent trends amongst race and gender suggest that there is more to the story than these uncaptured factors. Socioeconomic inequalities based on gender and race have been recognized at many levels, and have resulted in attempts at change. At the federal level, legislators introduced the Pink Tax Repeal Act, introduced in the 114th Congress, which would make it illegal to charge men and women different prices for substantially similar consumer products and services at the national level. ${ }^{47}$ Moreover, there have been initiatives and campaigns to reduce disparities in occupations and education, including educating and enrolling women into STEM programs. It is also important to note that there are more subgroups or factors within those mentioned that have their particular inequalities, which may not have been detailed in the CE or ACS surveys, including groups based on religion, sexual orientation, or skin complexion.

Resolving the issues of inequality for some can have an economic benefit for all. According to Global Gender Gap Report 2017, notable recent estimates suggest that economic gender parity could add an additional $\$ 1.75$ billion to the Gross Domestic Product (GDP) of the US. ${ }^{48}$ Fair returns to skills and the availability of deeper talent pools are disrupted by existing gender biases-and the fields most affected, such as the care economy and the emerging technology sector, are losing out on the benefits of diversity. Corporations, governments, academia, and individuals are starting to address these issues, but need to continue to examine them at the institutional, structural and systemic levels.

## About the Authors:

Whitney J. Hewlett Noël
whitney.jh.noel@gmail.com
Whitney J. Hewlett Noël is a senior program analyst at the Center for Study of Social Policy, and health equity advocate, public health researcher, and cofounder at the Noël Collective. The author has previously co-authored a publication titled 'Public Health Accreditation and Collaborative Partnerships'.

Reginald A. Noël
inquiries@noelcollective.com
noel.reginald@bls.gov
Reginald A. Noël is an economist with the Office of Employment and Unemployment Statistics at the Bureau of Labor Statistics, cofounder CEO and data scientist at the Noël Collective. The author's previous publications included 'Income and spending patterns among black households' and 'Race, Economics, and Social Status.'
${ }^{1}$ Women's March: Our Mission
https://www.womensmarch.com/mission
2 Facts Over Time - Earnings and Ratios: "Median annual earnings by sex, race and Hispanic ethnicity"
https://www.dol.gov/wb/stats/NEWSTATS/facts/earn earnings ratio.htm\#earn-median
${ }^{3}$ Teen Brains: Still Under Construction
http://www.rglewis.com/Handouts/Brain\ Development\ 1\ page\ NIH.pdf
${ }^{4}$ Marianne A. Ferber, Julie A. Nelson. Feminist Economics Today: Beyond Economic Man. The University of Chicago Press, 2003
${ }^{5}$ Exploring Economics: Feminist Economics https://www.exploring-economics.org/en/orientation/feminist-economics
${ }^{6}$ Crenshaw, Kimberlé (1989). "Demarginalizing the intersection of race and sex: a Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics". University of Chicago Legal Forum, special issue: Feminism in the Law: Theory, Practice and Criticism. University of Chicago Law School: 139-168.
7 "Intersectionality." https://www.merriam-webster.com/dictionary/intersectionality
${ }^{8}$ Consumer Expenditures and Income: Overview
https://www.bls.gov/opub/hom/cex/home.htm
${ }^{9}$ What is the American Community Survey?
https://www.census.gov/programs-surveys/acs/about.html
10 "The Global Gender Gap Report 2017."
https://www.weforum.org/reports/the-global-gender-gap-report-2017
${ }^{11}$ Employment, Education, and Economic Change - Pay Equity \& Discrimination
https://iwpr.org/issue/employment-education-economic-change/pay-equity-discrimination
12 The BLS Consumer Expenditure Quarterly data did not having member-level weighting. Moreover, there were low number of observations for Native Hawaiian or Pacific Islanders and American Indians or Alaska Natives which resulted from further subsetting these groups by sex.
13 "The scary facts behind the gender pension gap." World Economic Forum.
https://www.weforum.org/agenda/2018/03/retired-women-less-money-pensions-than-men/
${ }^{14}$ As mentioned previously, there were low number of observations for Native Hawaiian or Pacific Islanders and American Indians or Alaska Natives in the CE data, which resulted from further subsetting these groups by sex. Subsequently, there was volatility and larger variances with certain expenditure categories of American Indians or Alaska Native women.
${ }^{15}$ Consumer Expenditure Surveys Glossary. "Other Expenditures." https://www.bls.gov/cex/csxgloss.htm
16 "The Pink Tax: How Gender-Based Pricing Hurts Women's Buying Power." Joint Economic Committee, United States Congress, December 2016. https://www.jec.senate.gov/public/ cache/files/8a42df04-8b6d-4949-b20b-6f40a326db9e/the-pink-tax---how-gender-based-pricing-hurts-women-s-buying-power.pdf
17 "Governor Cuomo Signs Legislation to Exempt Sales and Use Taxes on Feminine Hygiene Products."
https://www.governor.ny.gov/news/governor-cuomo-signs-legislation-exempt-sales-and-use-taxes-feminine-hygiene-products
${ }^{18}$ Table 4110 and 4100: Consumer units of single males/females by age of reference person: Average annual expenditures and characteristics, Consumer Expenditure Survey, 2017-2018. https://www.bls.gov/cex/2018/CrossTabs/singlesbyage/femalage.PDF and https://www.bls.gov/cex/2018/CrossTabs/singlesbyage/malesage.PDF
${ }^{19}$ Centers for Disease Control and Prevention, Mortality in the United States, 2012, October 2014
${ }^{20}$ Centers for Disease Control and Prevention, Health, United States, 2012, 2013.
21 "The Pink Tax: How Gender-Based Pricing Hurts Women's Buying Power." Joint Economic Committee, United States Congress, December 2016. https://www.jec.senate.gov/public/ cache/files/8a42df04-8b6d-4949-b20b-6f40a326db9e/the-pink-tax---how-gender-based-pricing-hurts-women-s-buying-power.pdf
22 "What It Costs to Have a Baby." WebMD. https://www.webmd.com/baby/features/cost-of-having-a-baby\#2
23 "Medicaid Covered Births, 2008 through 2010, in the Context of the Implementation of Health Reform." Women's Health Issues 23-5 (2013) e273-e280. https://www.whijournal.com/article/S1049-3867(13)00055-8/pdf
${ }^{24}$ Dietary Guidelines 2015 - 2020: Appendix 9. Alcohol. https://health.gov/dietaryguidelines/2015/guidelines/appendix-9/
${ }^{25}$ Smoking \& Tobacco Use: Fast Facts https://www.cdc.gov/tobacco/data statistics/fact sheets/index.htm
${ }^{26}$ Table 4110 and 4100: Consumer units of single males/females by age of reference person: Average annual expenditures and characteristics, Consumer Expenditure Survey, 2017-2018 https://www.bls.gov/cex/2018/CrossTabs/singlesbyage/femalage.PDF and https://www.bls.gov/cex/2018/CrossTabs/singlesbyage/malesage.PDF
${ }^{27}$ Dietary Guidelines 2015 - 2020: Appendix 9. Alcohol. https://health.gov/dietaryguidelines/2015/guidelines/appendix-9/
${ }^{28}$ Smoking \& Tobacco Use: Fast Facts https://www.cdc.gov/tobacco/data statistics/fact sheets/index.htm
${ }^{29}$ Health Effects of Cigarette Smoking: Smoking and Death.
https://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/effects_cig_smoking/index.htm
${ }^{30}$ American Indian/Alaska Natives and Tobacco Use
https://www.cdc.gov/tobacco/disparities/american-indians/index.htm
${ }^{31}$ Tong VT, Dietz PM, Morrow B. Trends in Smoking Before, During, and After Pregnancy—Pregnancy Risk Assessment Monitoring System, United States, 40 Sites, 2000-2010. Morbidity and Mortality Weekly Report 2013;62(SS06):1-19 [accessed 2018 Jun 12]
${ }^{32}$ American Indian/Alaska Natives and Tobacco Use
https://www.cdc.gov/tobacco/disparities/american-indians/index.htm
${ }^{33}$ Socioeconomic Patterns of Marriage and Divorce
http://www.budgetmodel.wharton.upenn.edu/issues/2016/2/3/socioeconomic-patterns-of-marriage-and-divorce

34 "The Growing Racial and Ethnic Divide in U.S. Marriage Patterns." R. Kelly Raley, Megan M. Sweeney, and Danielle Wondra. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4850739/
${ }^{35}$ Women Now at the Head of the Class, Lead Men in College Attainment https://www.census.gov/newsroom/blogs/random-samplings/2015/10/women-now-at-the-head-of-the-class-lead-men-in-collegeattainment.html
36 "The Growing Racial and Ethnic Divide in U.S. Marriage Patterns." R. Kelly Raley, Megan M. Sweeney, and Danielle Wondra. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4850739/
37 "The Extraordinary Educational Attainment of Asian-Americans: A Search for Historical Evidence and Explanations."
https://www.jstor.org/stable/2578933
${ }^{38}$ Noh, Eliza. "Terror as Usual: The Role of the Model Minority Myth in Asian American Women's Suicidality"
https://www.tandfonline.com/doi/abs/10.1080/02703149.2018.1430360
39 "Fact Tank: 5 Facts about Latinos and Education." Pew Research Center. http://www.pewresearch.org/fact-tank/2016/07/28/5-facts-about-latinos-and-education
${ }^{40}$ GENDER PAY DIFFERENCES - Progress Made, but Women Remain Overrepresented among Low-Wage Workers www.gao.gov/new.items/d1210.pdf
41 "The Global Gender Gap Report 2017."
https://www.weforum.org/reports/the-global-gender-gap-report-2017
${ }^{42}$ These are people outside of the labor force. This should not be confused with the unemployed, who are in the labor force. Persons are classified as unemployed and in the labor force if they do not have a job, have actively looked for work in the prior 4 weeks, and are currently available for work. Persons who were not working and were waiting to be recalled to a job from which they had been temporarily laid off are also included as unemployed. The unemployment rate represents the number unemployed as a percent of the labor force.
${ }^{43}$ Feminist Economics - Core Elements
https://www.exploring-economics.org/en/orientation/feminist-economics/
${ }^{44}$ Fact Sheet: Women \& Socioeconomic Status
http://www.apa.org/pi/ses/resources/publications/women.aspx
${ }^{45}$ American Community Survey and Puerto Rico Community Survey - 2017 Code List https://www2.census.gov/programssurveys/acs/tech docs/code lists/2017 ACS Code Lists.pdf?\#
46 Highlights of women's earnings in 2016
https://www.bls.gov/opub/reports/womens-earnings/2016/pdf/home.pdf
47 "The Pink Tax: How Gender-Based Pricing Hurts Women's Buying Power." Joint Economic Committee, United States Congress, December 2016. https://www.jec.senate.gov/public/ cache/files/8a42df04-8b6d-4949-b20b-6f40a326db9e/the-pink-tax---how-gender-based-pricing-hurts-women-s-buying-power.pdf
48 "The Global Gender Gap Report 2017."
https://www.weforum.org/reports/the-global-gender-gap-report-2017

