Motherhood In The Workforce - Milestone Report

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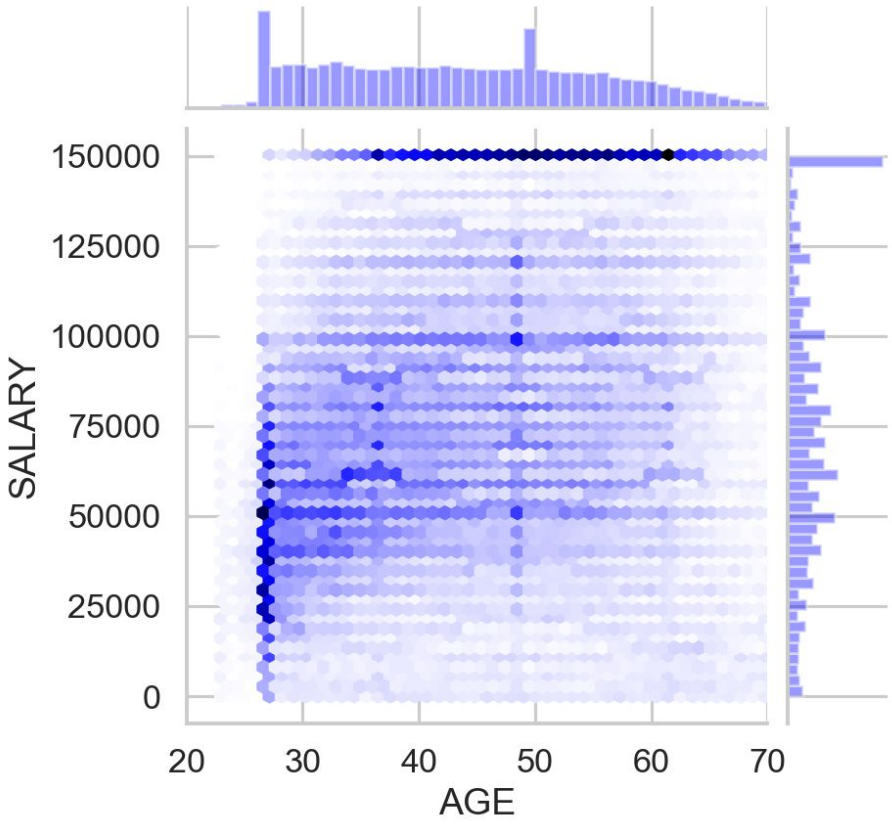


PROBLEM STATEMENT:

One societal norm is for people to have kids as they get older; however, women seem to carry most of the costs of parenthood. They spend nine or so months carrying and developing the fetus to term and then have to go through labor, delivery and recovery. Do the cost for women end there, or are their ways parenthood impacts women in the workforce more than their male counterparts?

The gender pay gap has been proven and overstudied. Pay disparity between men and women is a real thing. The question is does having children and all variables that are involved add to this disparity? Is the difference in sex the only reason why men and women get paid differently, or are there other factors such as family that play into it? With that in mind, are there characteristics of companies that are more friendly towards woman, particularly those with families?

TARGETED AUDIENCE:

- Individuals who are looking to pursue a career in STEM (anyone from high schoolers to college students who are thinking about their future as well as individuals who are thinking of a career change).
- Nonprofits who are interested in this realm of data and information.
- Companies who are looking to increase the gender diversity of their workforce and stay competitive in the business world.
- Recruiters and job hunting agencies/resources (such as LinkedIn, Indeed, etc.) would be interested in this project as they work to sell individuals on the companies they work for/are recruiting for.
- HR departments would also be interested as they seek to change their company's work culture and create space for the ever diversifying workforce.

DATASET DESCRIPTION

The dataset was gathered from IPUMS-Highered website: https://highered.ipums.org/highered/. The website offers detailed information about what the columns represent, what the labels reflect, and a description of the number based code.

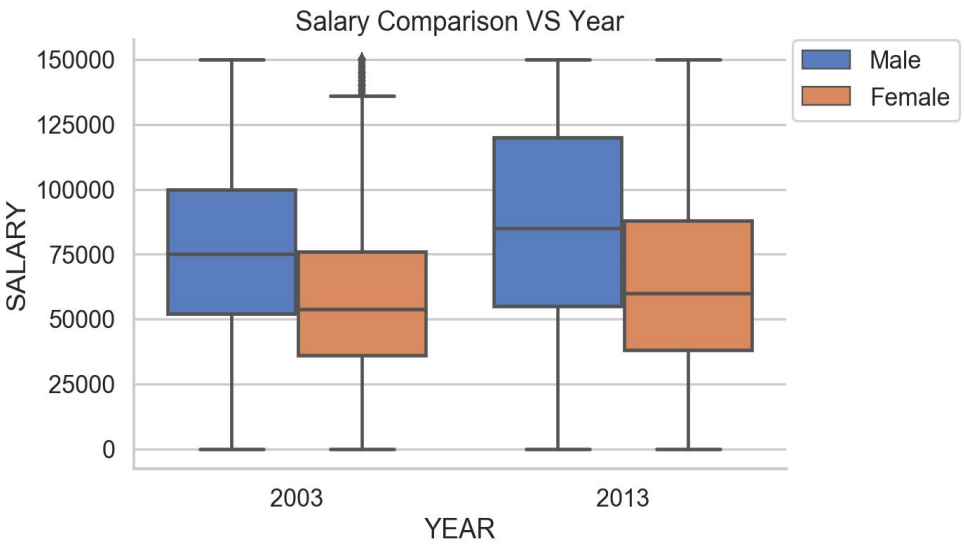
With python's pandas package, the data was read into the system as a DataFrame. With the 'info' attribute, I found 206,703 rows and 18 columns, with a size of 28.4 MB.

Various null values were filtered and replaced with python identifiers. Some columns seemed to have non-null values; however, after further investigation, this data has been engineered to have assigned non-null values to represent null datas. After reading the documentation, I input those values into the ‘na_values’ parameter of the pandas ‘read_csv’ function.

The data set comes in an engineered format where many entries were categorized using numbers to replace real meaning. For example, the ‘Gender’ column has 1 and 2 to represent female and male, respectively. I used dictionaries to create a key:value pair for most of the columns. Several groups of data were stored in different dataframes for easy manipulation. Some columns were left with NaN values since they contained real life meanings.

KEY FINDINGS

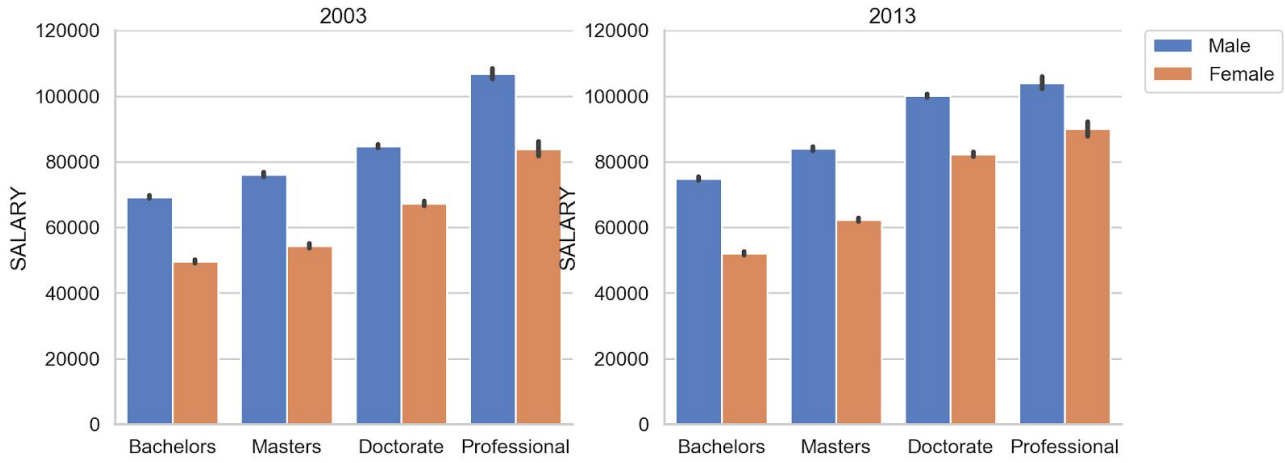
Gender Pay Discrepancies in 2003 and 2013



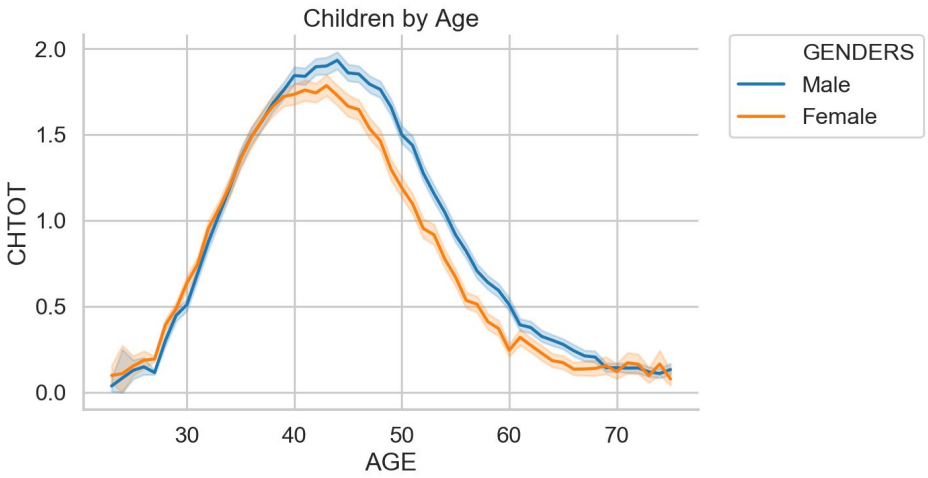
The boxplot shows the median and IQR for both men and women in the years 2003 and 2013. Although the salary has increased for both men and women, there still exists a gap. At initial glance, we see that men get paid more than women. In 2003 and 2013, we see that max salary for women was barely median salary for men. Furthermore, an increase in salary change favored men. Statistical analysis shows that the pay difference in 2003 was 26%, and in 2013, that difference dropped to 25%.

Gender Pay Discrepancies in Degrees

The barplot below shows the difference in pay for men and women who hold the same degrees. In 2013, women who held doctorate degrees only made as much as men with masters degree. Women who have the same educational background still do not qualify for the same pay as men with the same background.

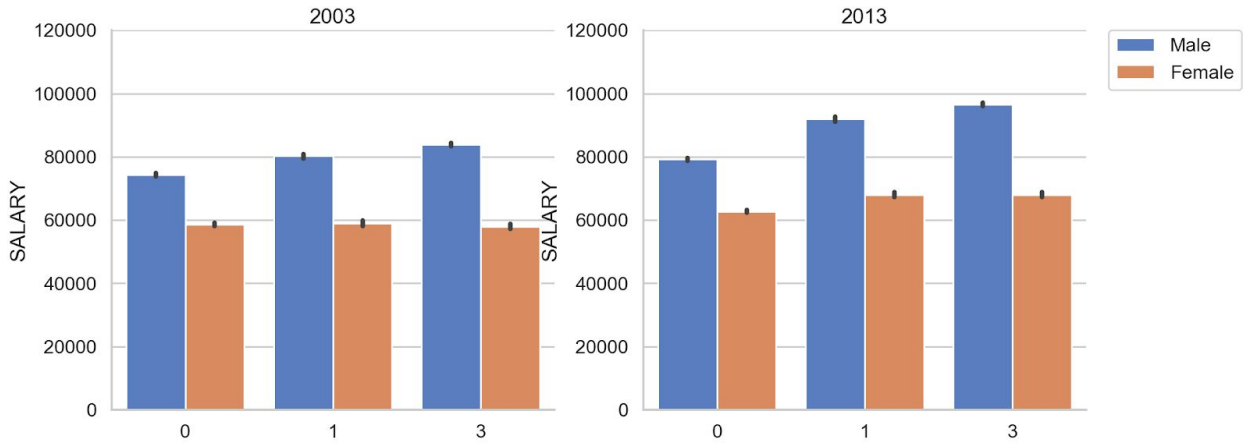


Children Distribution by Age



Based on the plot, men and women start having children after age 30. This plot establishes that men and women do not start having children until much later in life.

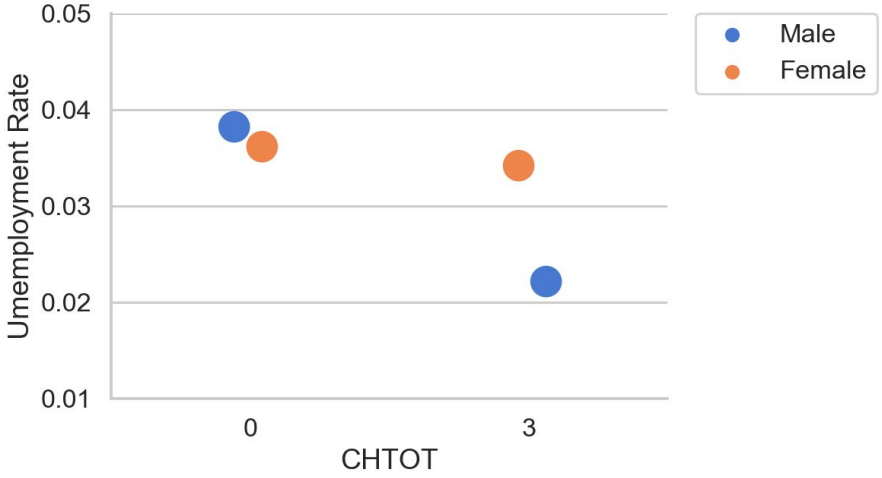
Gender Pay Discrepancies With And Without Children



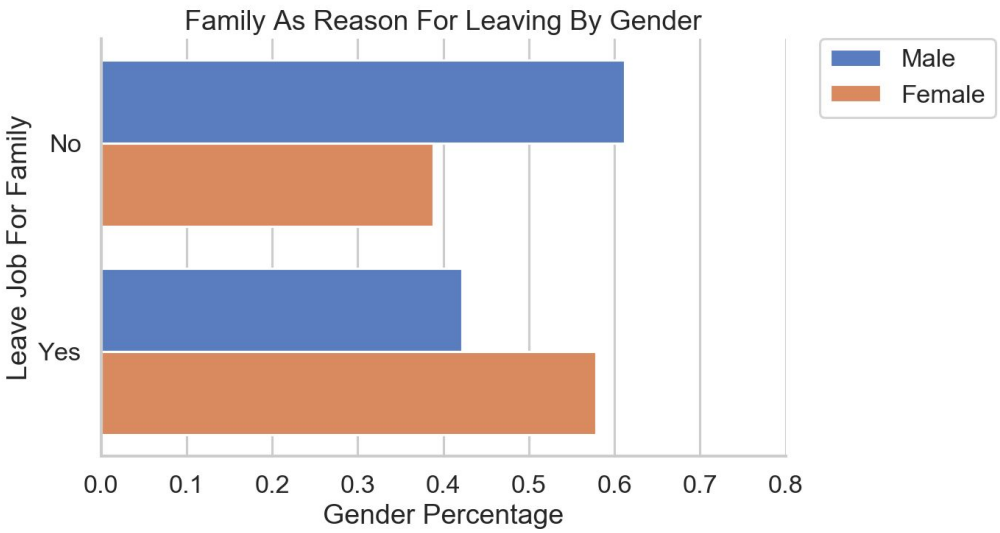
The hexagonal plot on the cover page shows that as one ages, one makes more money. Similarly, as one person ages, one would also theoretically have more children. The barplot above shows that as women age and have more children, the salary for said women stays the same as women who has no children. On the other hand, men experience a salary increase over time independent of the number of children they have. Statistical analysis shows that men with children make 39% more than women with the same amount of children. This begs the question, why are women with children, who are theoretically older and have more experience still making the same as those who are younger and do not have children?

Gender Unemployment and Children

Men and women with no children share the same unemployment rate. This could be due to a number of factors (such as new graduates); however, men and women with children share different rates of unemployment. Men with children have a lower unemployment rate than women with children. This could be due to the fact that most women leave the field to take care of their children whereas most men do not.

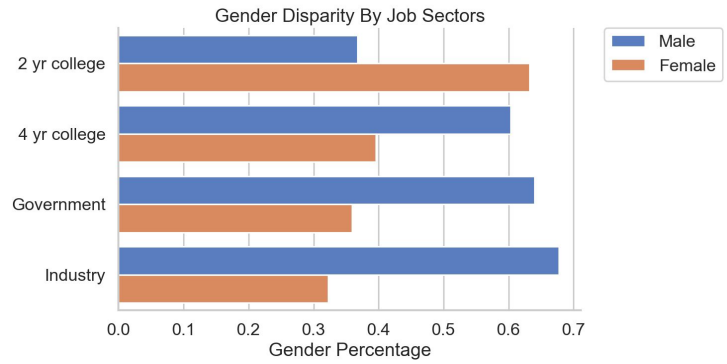


Family as Reason for Unemployment



A greater percentage of women leave their jobs due to family reasons (i.e. childcare, maternity, etc.). It has been established that as one ages, salary increases as well (up to age 60). Women who leave the workforce for family reasons for “x” number of years will not be able to catch up to a man who started at the same salary range.

Job Types with Children



Women with children tend to work at 2 year colleges. This is most likely due to work schedule and flexible responsibilities. Men with children are mostly seen in other sectors.

When salaries of each sectors are compared, 2 year colleges pay the least amount while industries pay the most. With all things considered, these plots show that women with children are paid less than men because they stay in job sectors that pay less.

SUMMARY

Through plots of the dataset and statistical analysis, the following was found:

1. There is an apparent gender pay gap observed from this survey despite having the same credentials and having the same number of children.
2. Women with children get paid the same amount as women without children.
3. Men and women with children work in different sectors that pay at opposite extremes of the salary range spectrum.
4. Women with children are more likely to leave their jobs for family reasons than men with children.