

# **Gender Discrimination Lawsuit**

**Group 6**

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# At First Glance...

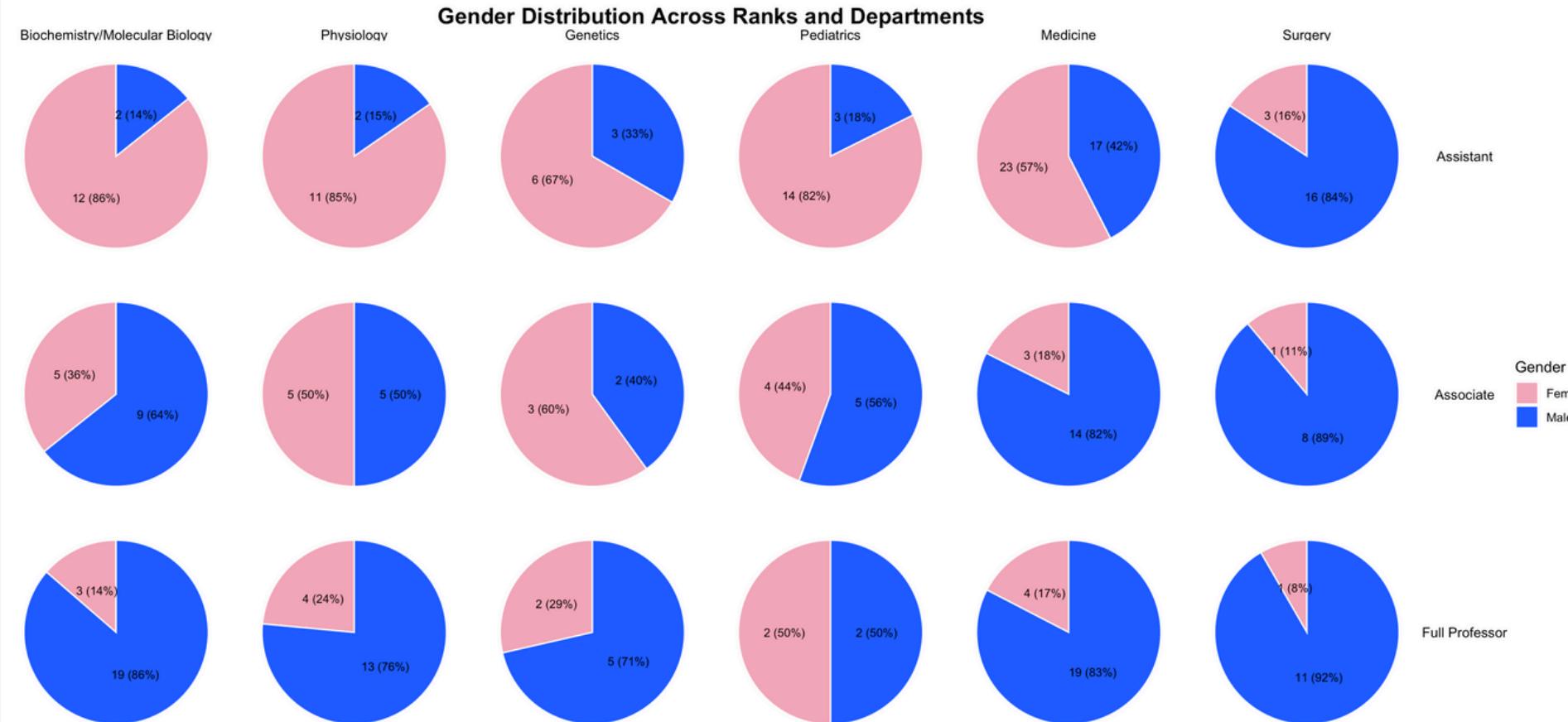


Fig. 1

## Insights

- While the overall results do suggest that there is gender discrimination
- These results **do not** account for key factors such as **experience, certification, publication rate or department**
- A deeper dive into the data is needed to find out the true drivers of the salary gap

## Highlights

- Females are more concentrated at Assistant Professor level, while males dominate higher levels.
- Average salaries for females appear lower than for males
- These charts suggest a gender pay gap and underrepresentation of females at higher levels

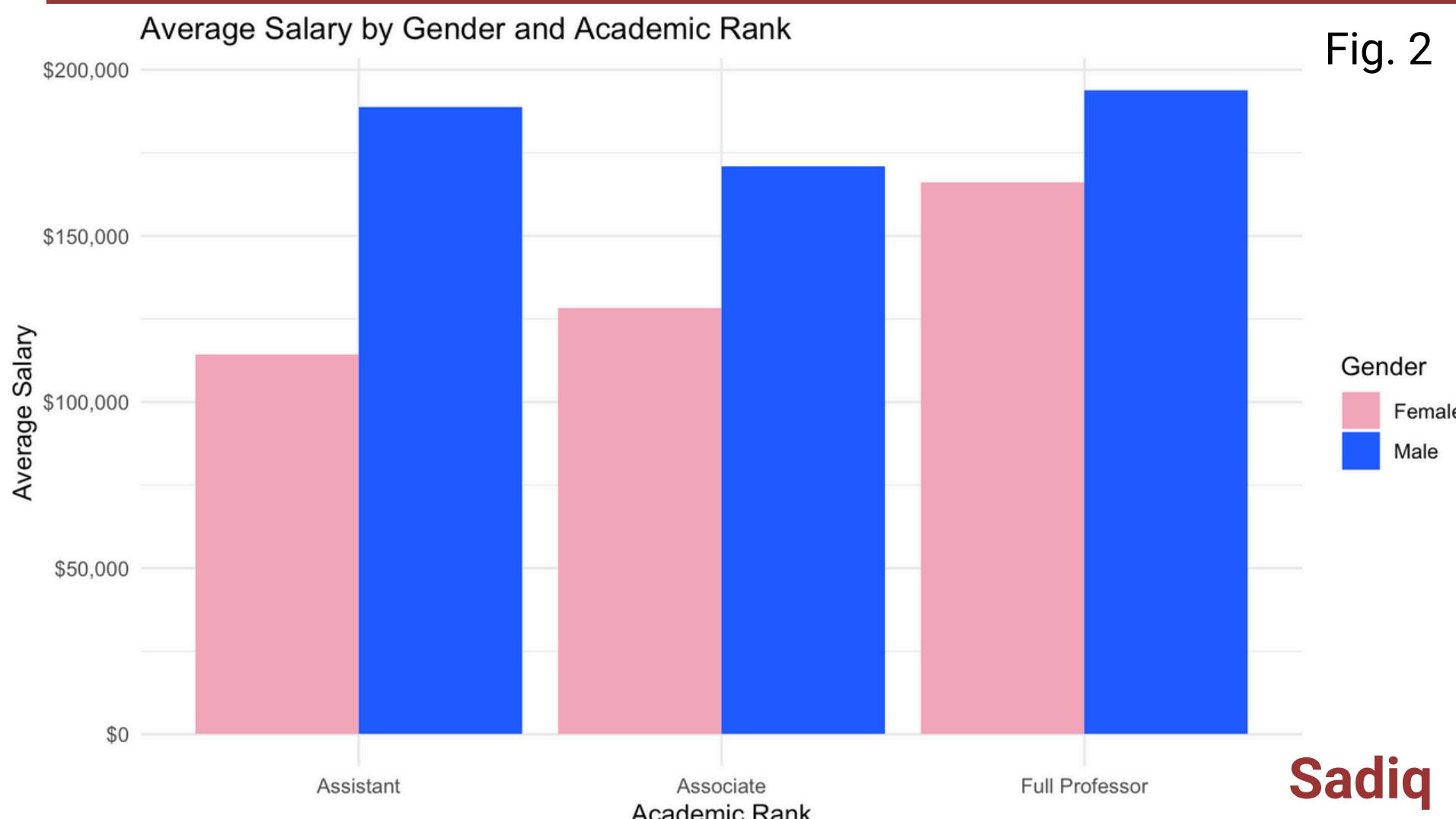
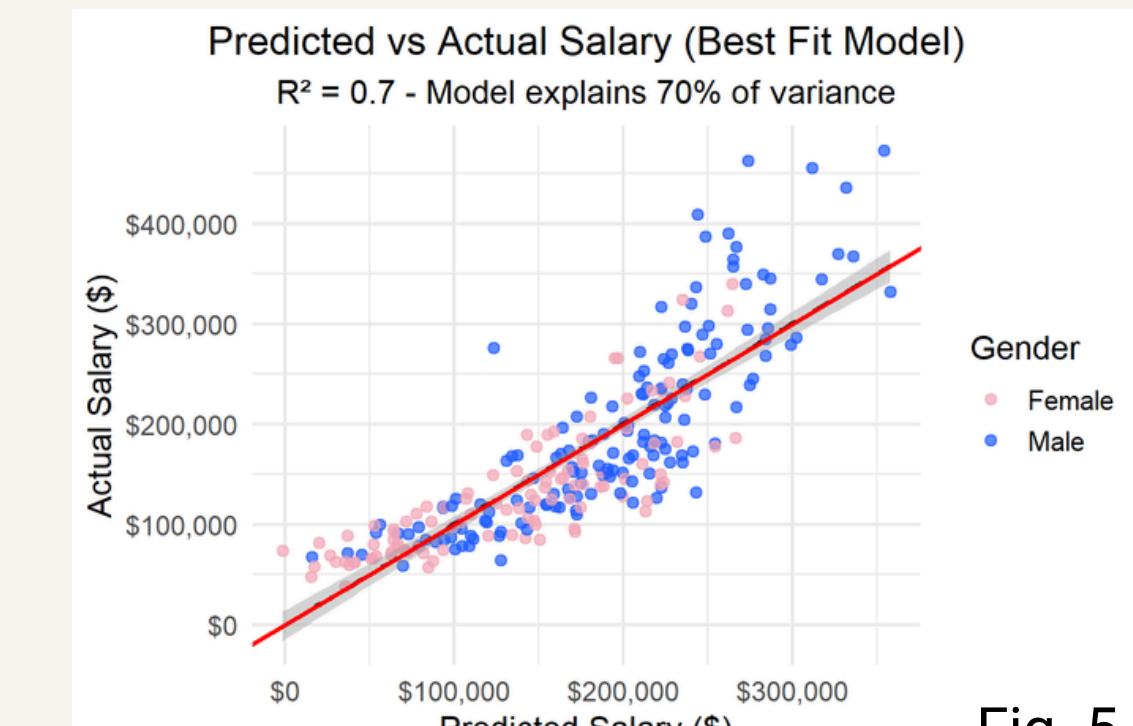
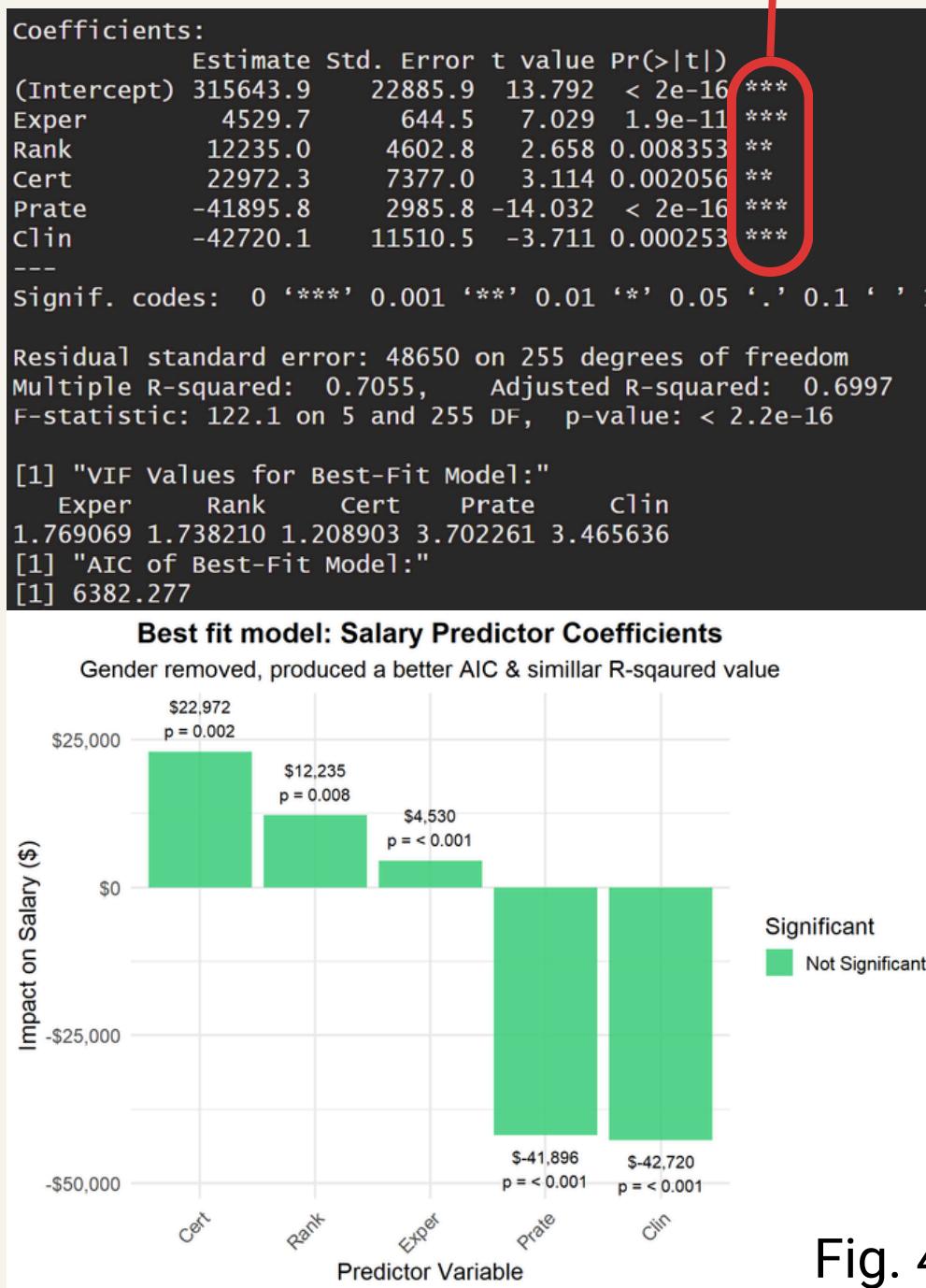
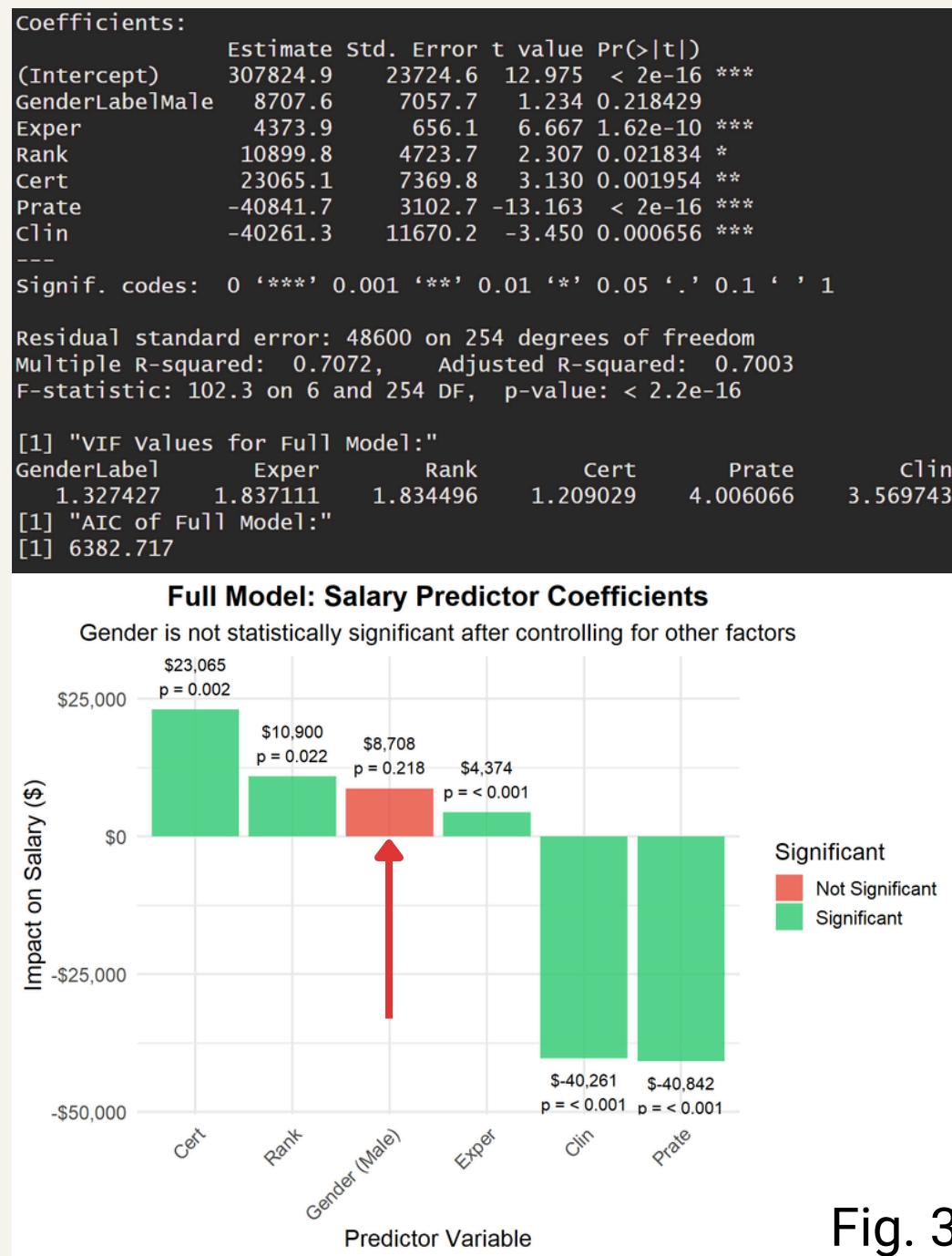


Fig. 2

# Linear Regression Analysis

- Gender was found to be **NOT SIGNIFICANT** in determining one's salary ( $p=0.218$ )
- Once removed to produce best-fit-model, regression became more **reliable**(better AIC & R<sup>2</sup>)
- All other factors are **much more significant** in an employee's salary ( $p < 0.01$ )



**Best model performance plot**

## Supporting Case Law

**Presseisen v. Swarthmore College (1977):**  
Defendants won case by presenting their own regression analysis in a sex discrimination case, showed that sex was not the significant factor, rank was.

# Experience vs Academic Rank

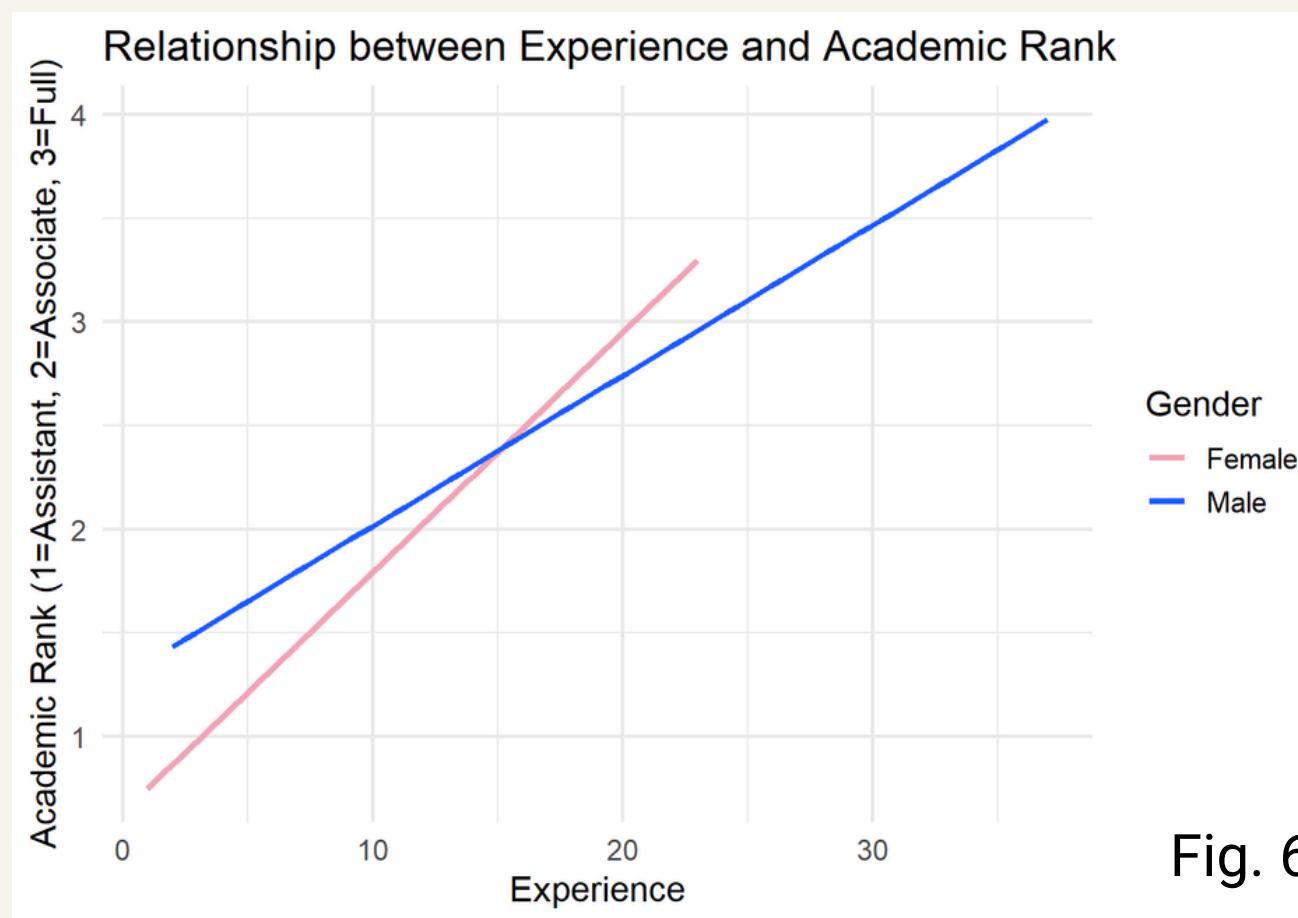


Fig. 6

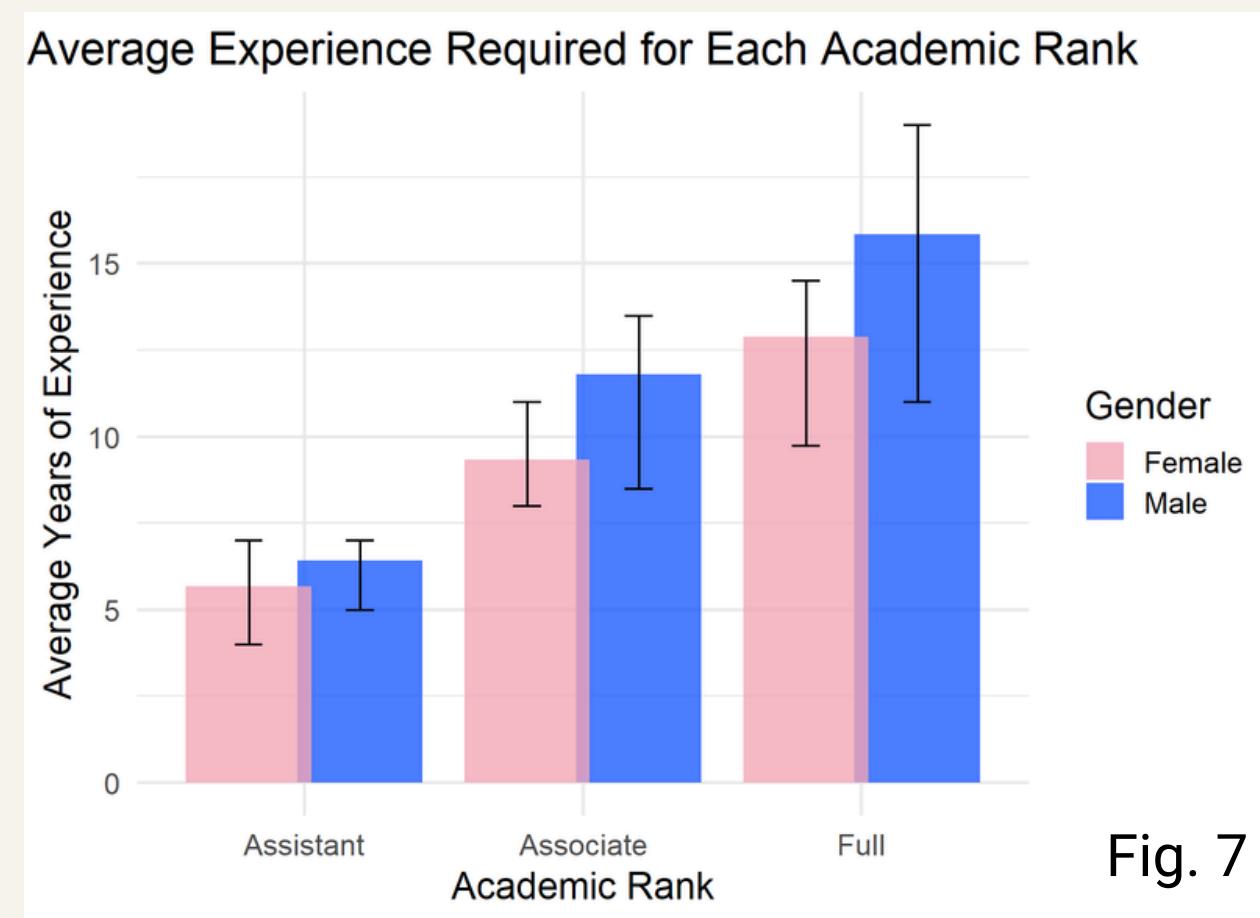


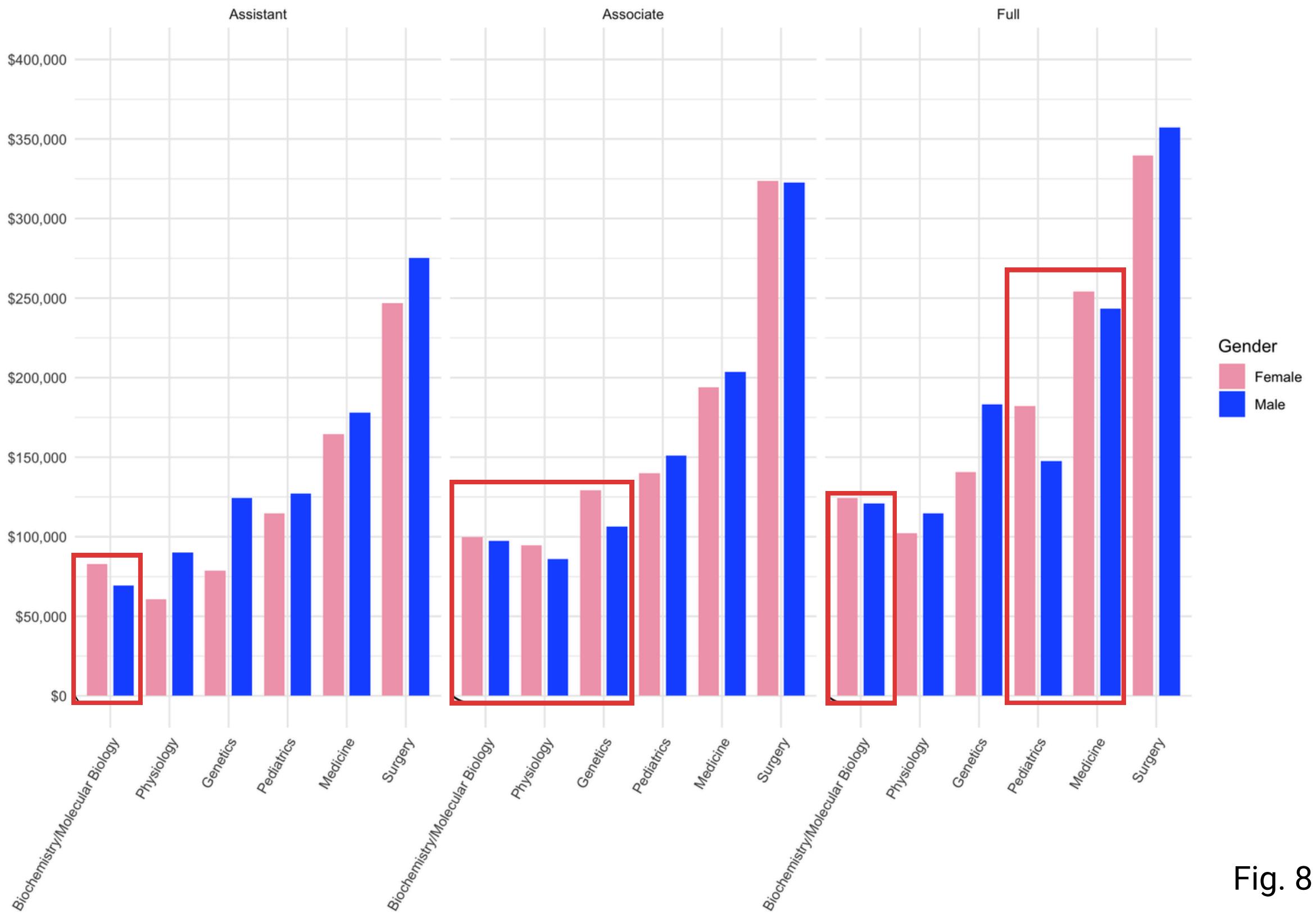
Fig. 7

```
[1] "Experience Requirements by Rank and Gender:"  
> print(rank_experience[order(RankLabel, GenderLabel)])  
  RankLabel GenderLabel MedianExp MeanExp   Q25   Q75 Count  
  <fctr>    <char>     <num>    <num> <num> <num> <int>  
1: Assistant Female      5.0  5.681159  4.00   7.0   69  
2: Assistant Male       6.0  6.418605  5.00   7.0   43  
3: Associate Female     9.0  9.333333  8.00  11.0   21  
4: Associate Male      10.0 11.790698  8.50  13.5   43  
5: Full Female      12.5 12.875000  9.75  14.5   16  
6: Full Male       15.0 15.840580 11.00  19.0   69
```

- Based on the bar chart & stats, female professors generally have **less experience whilst being the same rank** as their male counterparts
- Thus on average, female professors have shown to actually rank up **FASTER** than the average male professor
- This proves **no discrimination** in terms of career progression, even being biased towards female

# Gender Salary Disparities Across Ranks and Departments

Average Salary by 1995



Overall

Average Salary in 1995 between gender across all ranks remains largely similar

Assistant

Female in the Biochemistry and Molecular Biology are earning more than male

Associate

Female in the Biochemistry and Molecular Biology, Physiology and Genetics are earning more than male

Full Professor

Female in the Biochemistry and Molecular Biology, Pediatrics and Medicine are earning more than male

Insights

Gender salary gaps appear minimal overall but certain departments show female faculty surpassing male counter parts, especially in Biochemistry and Molecular Biology across all ranks.

This shows that there are no inequality. Infact there are efforts made to reduce inequality

# Closing of Gender Pay Gap

## Highlights:

- Average salary for both genders increased from 1994 to 1995
- Female salaries rose at a slightly faster rate than male salaries
- The overall pay gap between male and female faculty narrowed significantly within this period

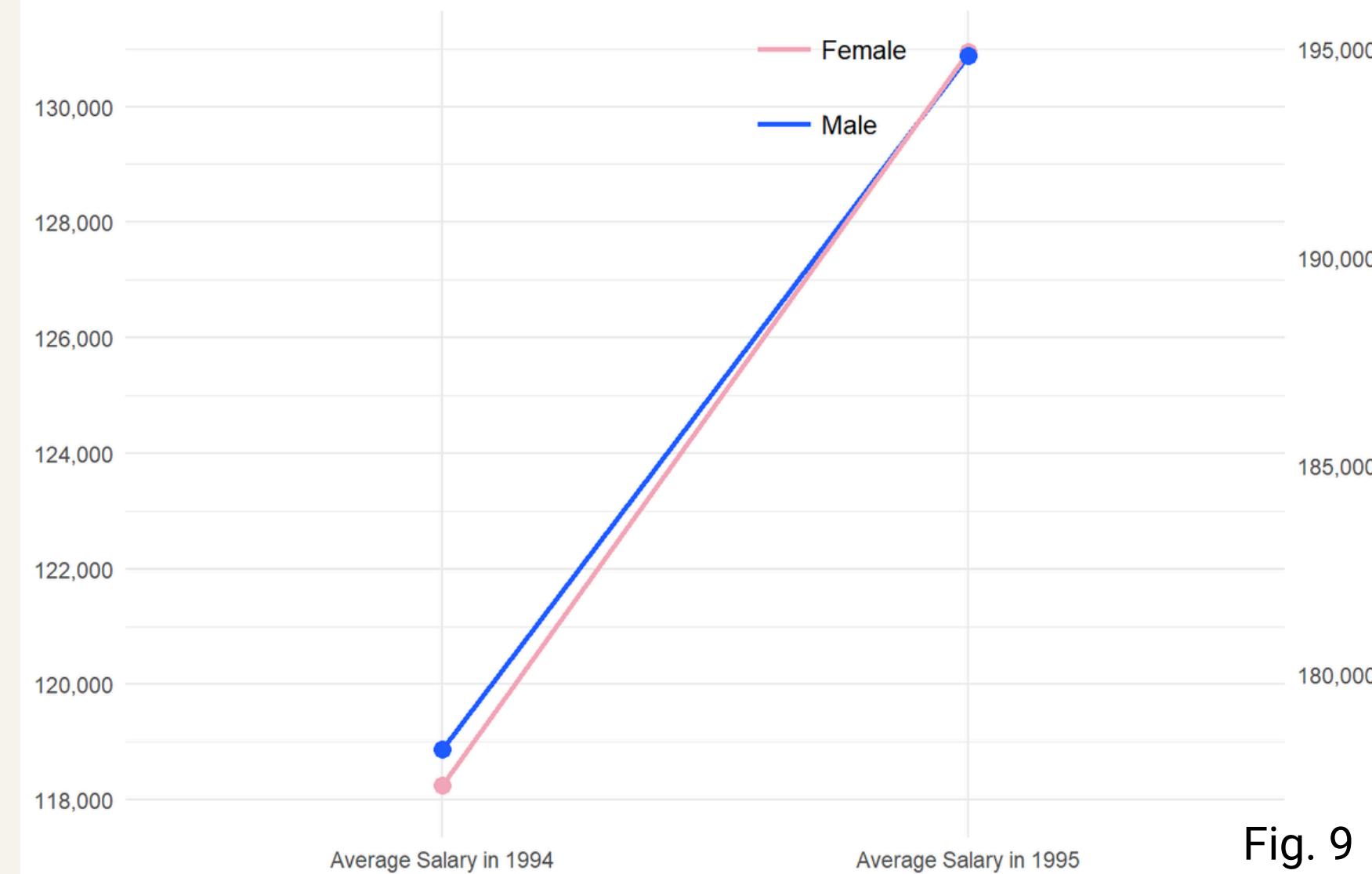


Fig. 9

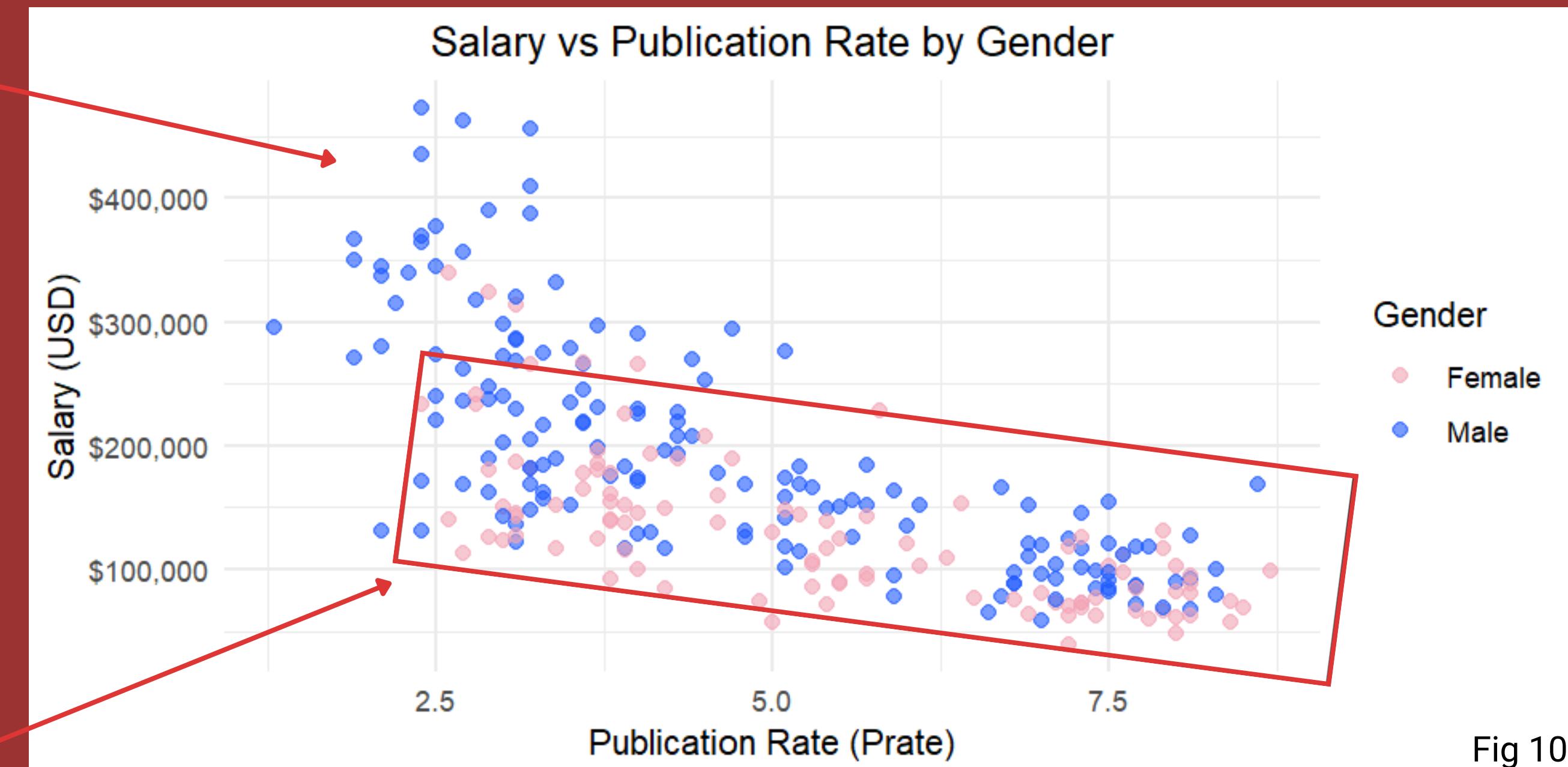
## Insights

- Salary progression shows movement toward gender pay parity
- Significant effort made to close promote equity despite of gender

# Salary vs Publication Rate

What about here?

\*In academia, fields with low publication rates often involve complex skills, rare talent, and high industry demand, leading to higher salaries.



Here, Male and Female tend to get equal salary when their Publication Rates are the same

# Distribution of Experience

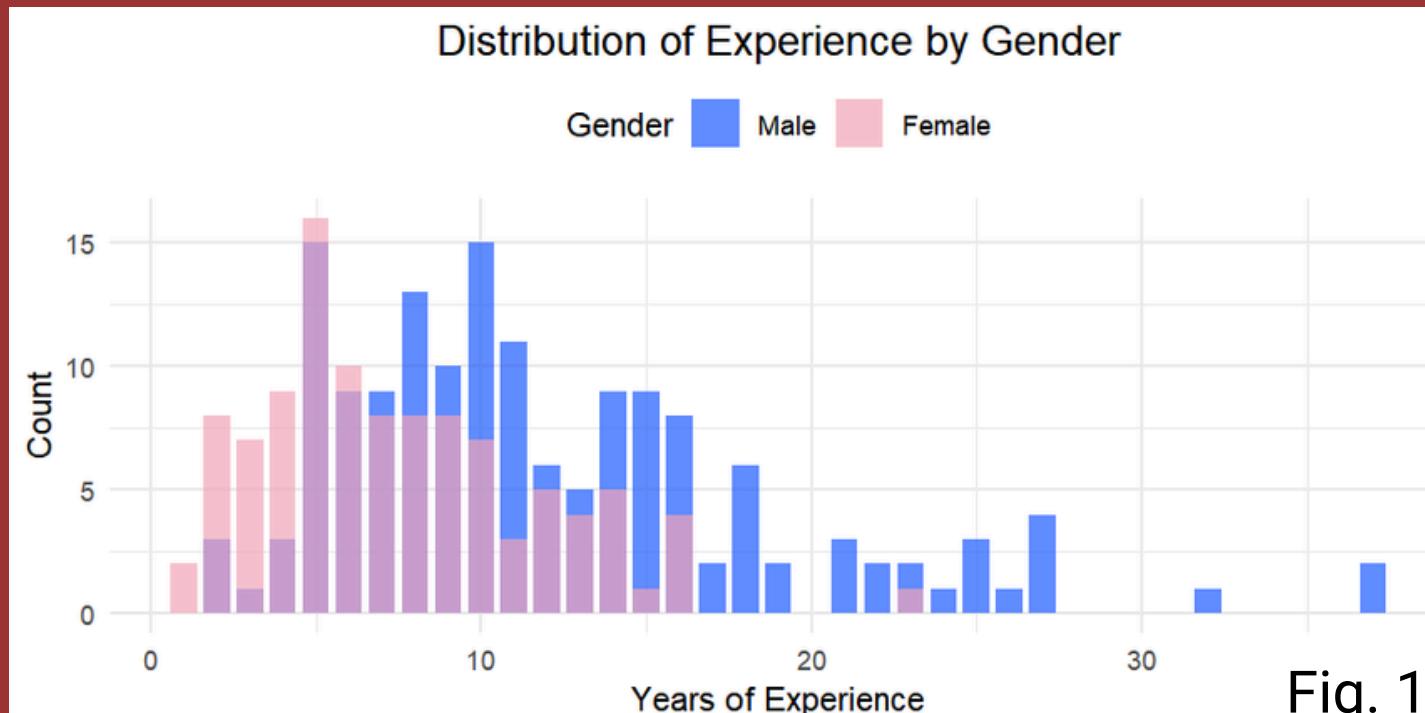


Fig. 11

# Certification Rate

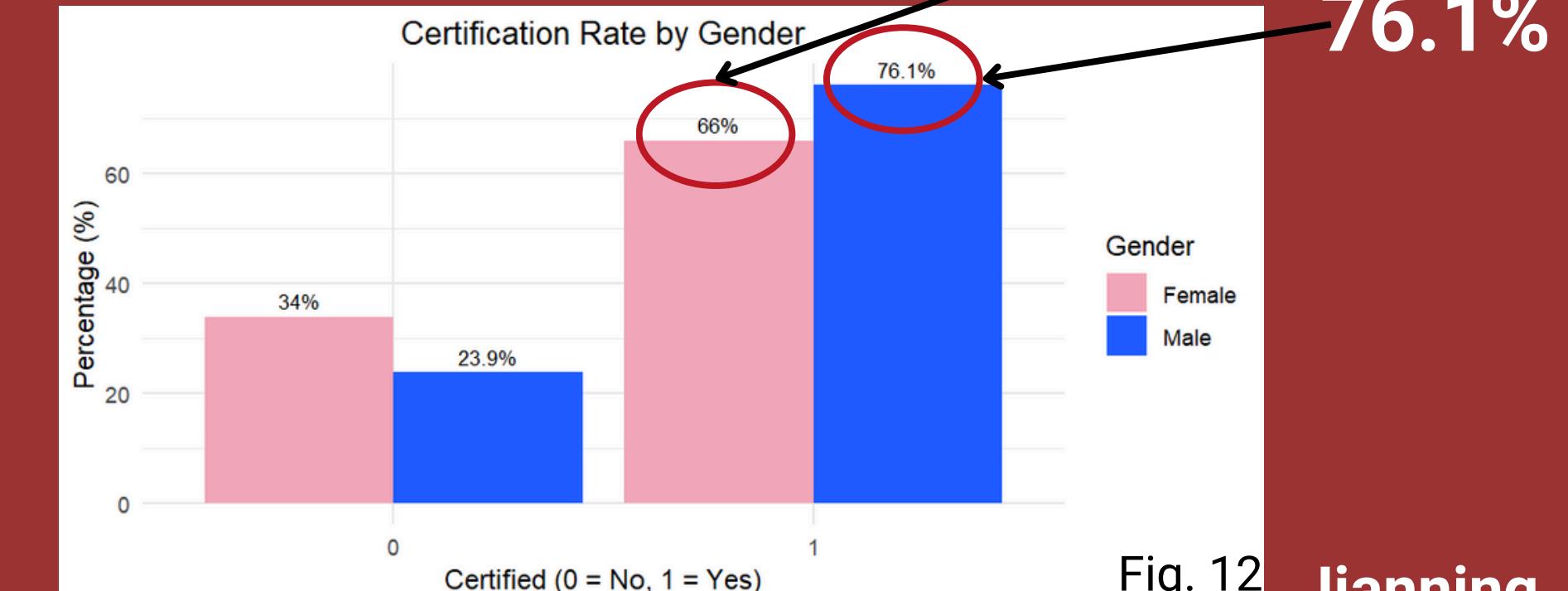


Fig. 12 **Jianning**

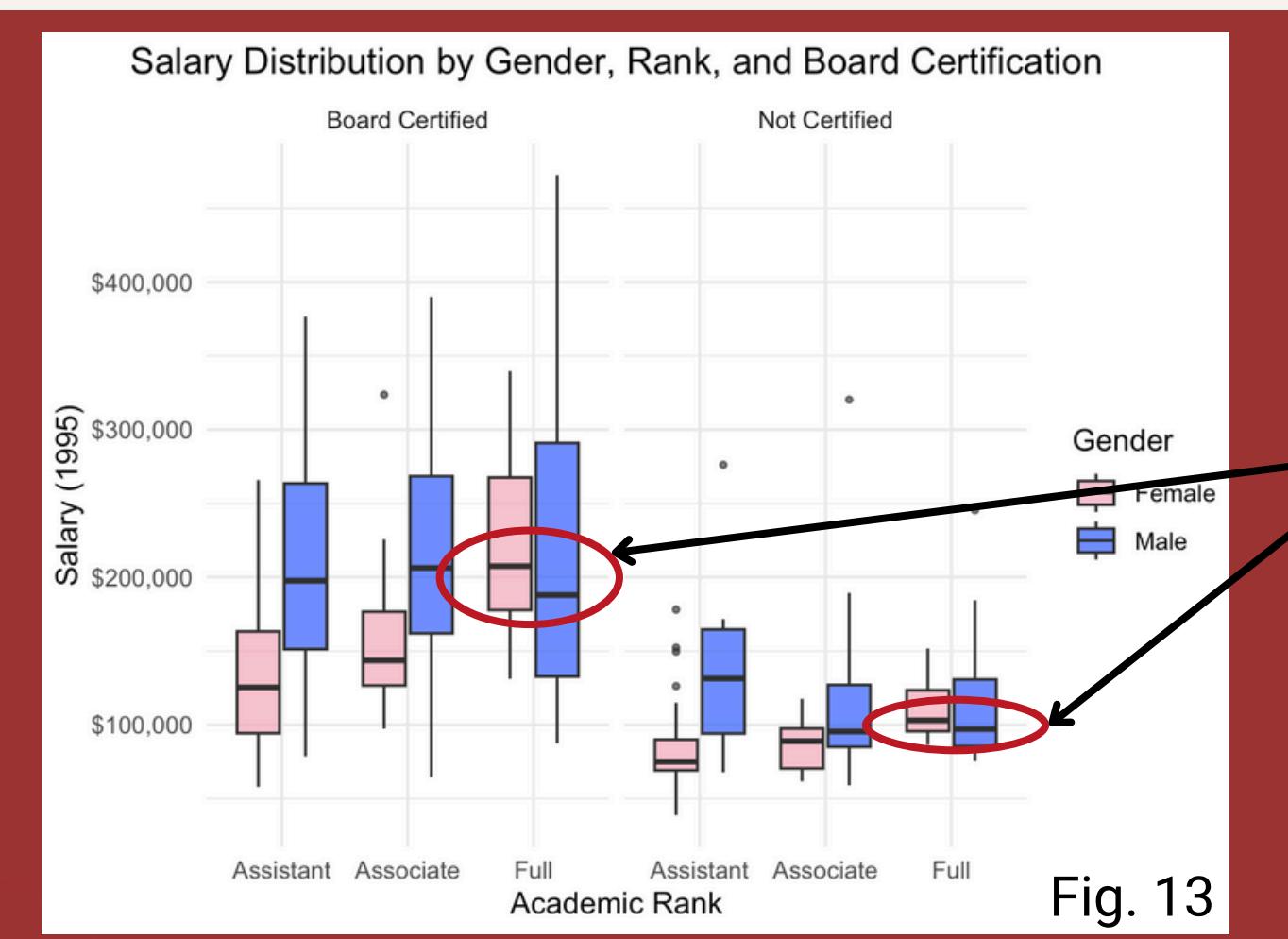


Fig. 13

## Insights

- Certifications are the **drives pay** rather than **gender**
  - **Board-Certified** faculty earns significantly **more** across all ranks (Assistant, Associate, Full professors)
- Despite **median** for **women** Assistant and Associate professors are **lower**, the **median** for **women who are Full professors** are **higher** regardless of Certification.
- Women's **salary** also **jump** significantly with **certification**
- **Overlaps** = **women are not denied of high salaries**

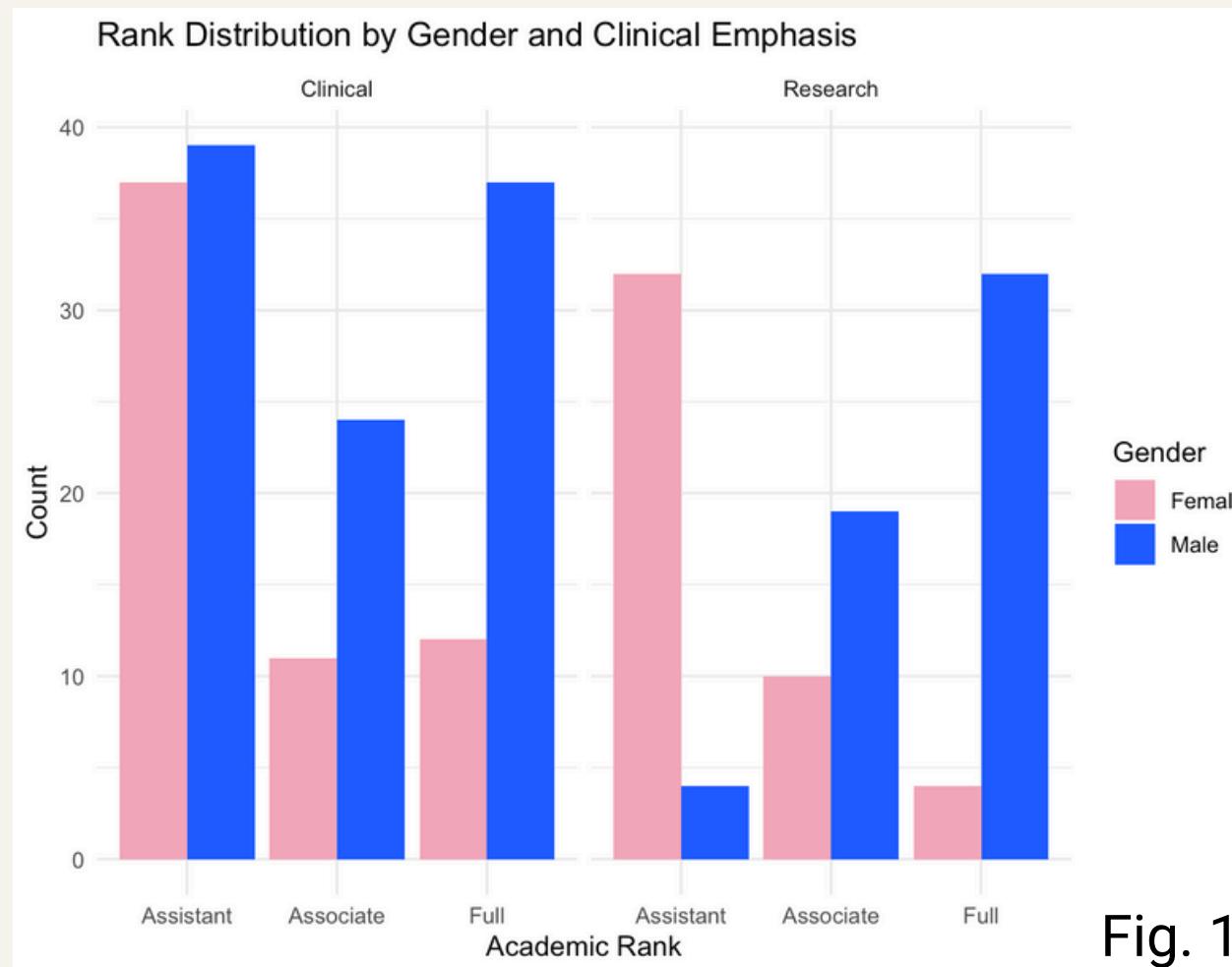


Fig. 14

## Clinical pays more for everyone

In Fig. 15, **Clinical** pays higher at each rank, compared to **Research**

## Different career path

More men in **Clinical**; more women in **Research**

## Promotion timelines different for everyone

Research promotions depend on **years of publications** → more women assistants in research as they likely **entered later (Pipeline Effect)**

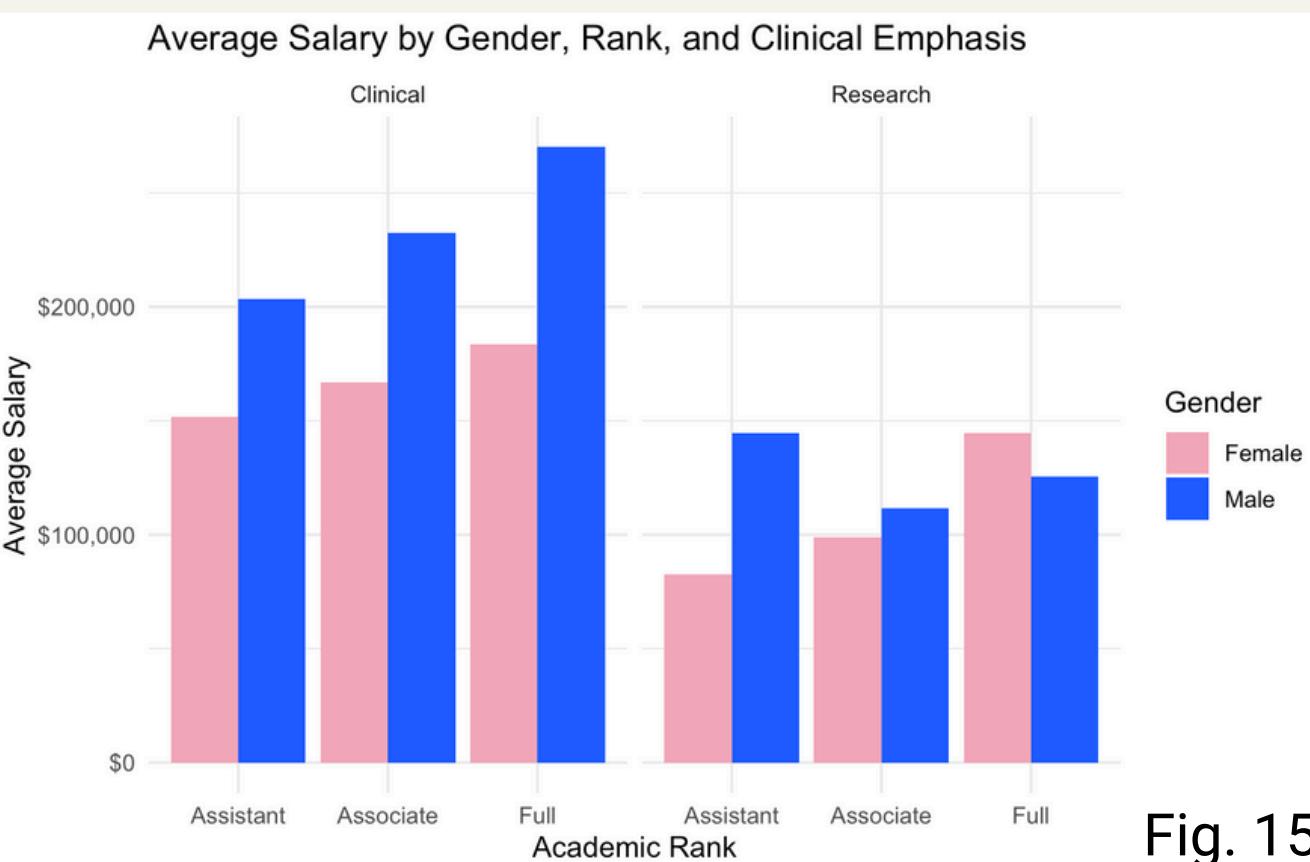


Fig. 15

## Men dominate senior Clinical roles

Clinical specialties (surgery, cardiology) are male-heavy and pay more, explaining the difference in pay

## Insights

### Differences are structural, not bias

- Differences in pay is driven by career path and time in system, not gender

# Summary

## 1. Gender is not a factor

- From **Figures 3-5**, our regression analysis found gender to **NOT be statistically significant** ( $p = 0.218$ ) in predicting salary
- Rank, certification, and experience were the main drivers

## 2. Promotions are fair

- **From Figures 6 & 7**, female professors often had less experience while holding the same rank as men
- Women advance **faster up the academic ladder**

## 3. Women can earn more

- From **Figure 8**, In departments such as Biochemistry, Molecular Biology, Physiology, and Pediatrics, **female faculty earn the same or more than male counterparts**, even at senior levels

## 4. Pay gap is closing

- From **Figure 9**, average salaries rose for both genders, but females' rose at a slightly faster rate, narrowing the overall gap

## 5. Differences are structural

- From **Figures 14 & 15**, **Clinical tracks pay more for both genders**
  - **Men** are more concentrated in **Clinical specialties**, while **women** are more in **Research**.
- **Research promotions** also take longer due to **publication timelines (Pipeline Effect)**, reducing women's average salary

**Verdict:** The data shows fairness, salaries and promotions are based on qualifications, not gender