The Relationship Between Gender Identities and Regrades among Undergraduate Students, 2010-2016*

A replication of Li and Zahar;

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Academia is a complex ecosystem that feeds off a network of social, cultural and innovative influences which often, stem beyond societal norms. This paper replicates the gender implications regarding results in college students and explores potential fluctuations in request patterns over a semester by specifically analyzing the number of classes taken by students and their willingness to submit a grade request throughout the semester. Our results show that there is a trend for female students to submit regrade requests while taking fewer courses compared to a higher course load. Female students experienced grade increases (3%) compared to their male counterparts. We call for further investigation around this topic to understand gender disparities within the world of academia.

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1 Introduction

It's a heteronormative norm that we consider men to be assertive and leaderly, while women are nurturing and supportive. Often, women who choose to break out of these stereotypes and speak out against misogyny are labelled 'emotional' or 'aggressive', hindering their professional mobility (Edwards 2023). Even in academic settings, women tend to be penalized when achieving better grades. A study conducted by Natasha Quadlin, suggests that due to traditional, gendered stereotypes, women's academic achievements are often disregarded compared to their male counterparts when both enter the labour market. Men of 'high-achieving' academic backgrounds tend to get favourable callbacks for interviews compared to their female counterparts within the same field (Quadlin 2018).

This begs the question of whether these unequal tendencies exist in higher education for women, attempting to have their academic achievements recognized and improved by regrade requests. Many reasons can account for this gendered inequality. First, being subjected to societal norms, women tend to be more non-confrontational, resulting in them accepting their academic results as they are (Edwards 2023). Second, with differing confidence levels and personalities, women tend to second-guess their abilities, hence preventing them from requesting aid from their institutions as they see the entire process as 'tedious'. Lastly, fear of rejection, women tend to harbour higher levels of stress and embarrassment when considering regrade requests as they assume that the result will often be a rejection (Quadlin 2018). A paper published by the American Journal of Political Science by Li and Zahar delves into the differences that arise between genders when requesting grade changes among college students from Colorado State University from 2010 to 2018. According to their findings, male students are more likely to request grade changes than their female counterparts, accounting for a whopping 18.6% higher of receiving a favourable grade change. Regardless of the class number, males are more likely to ask for grade changes throughout the semester (Valbrun 2020). Overall there is a gender disparity among college students regarding regrade requests. Hence, by examining biases inherent within higher education, the paper contributes to understanding the power dynamics between two gender demographics.

Our paper will reproduce, 'Ask and You Shall Receive? Gender differences in Regrades in College' by Li and Zafar. Accordingly, we ascertain that upon a regrade request, males are more likely to receive a favourable grade change. Our study attempts to pose and answer these questions, 'Does gender bias influence regrade requests in college settings? Are there

fluctuations in regrade request patterns among male and female students regarding their class number?' Structurally, our paper starts with a brief dissection of the original paper's findings and our own interpretation of the data. Subsequently, we analyze the results garnered from the data with suitable tables, and double stacked bar charts. Finally, to conclude, we will discuss our findings, entailed by an analysis of the data's loopholes, ethical biases and future research implications.

Our replication package was sourced from the openICPSR Portal under the library `readstata13` package (Garbuszus and Jeworutzki 2023). We retrieved two datasets–'instsurvey.dta' and 'stdsurvey.dta'– and one code file–'1_FiguresTables.do'–from the data package 'DataCode' to examine gender identities of undergraduate students from Colorado State University from 2010 to 2018 and their correlation to regrade requests [@]. Data was generated, extracted and cleaned using the open-source statistical programming language R (R Core Team 2022), leveraging functions from `tidyverse` (Wickham et al. 2019), `ggplot2` (Wickham 2016), `dplyr` (Wickham et al. 2022), `readr` (Wickham, Hester, and Bryan 2022), `tibble` (Müller and Wickham 2022), `janitor` (Firke 2021), `kableExtra` (Zhu 2021), and `knitr` (Xie 2014).

2 Data

Published by the 'American Economic Journal: Economic Policy', this paper reproduced the paper 'Ask and You Shall Receive? Gender Differences in Regrades in College' and its replication package published on `openICPSR` [cite]. This data package conveys information related to survey data from instructors and students on the pervasiveness of regrade requests based on gender identities from 2010 to 2018. Particularly, 'instsurvey.dta' contains all 190 observations of actual regrade requests in 2018, along with 61 variables concerning the nature of each regrade request and whether or not each instance initiated grade changes. On the other hand, 'stdsurvey.dta' conveys all 3885 observations of student surveyees who have contemplated requesting regrades, with 52 variables detailing instances where they didn't initiate such requests. With these two datasets representing two perspectives on regrade requests, there is much power dynamic to unpack, helping this paper assess the gendered nature of regrade requests in the undergraduate setting.

2.1 Instructor Survey Data

Most prominent to our reproduction lies in the tactile grade changes of regrade requests based on each student's gender identity. As such, we first simplified 'instsurvey.dta', which featured 190 observations. We cleaned the data by selecting relevant variables such as "maleup_fn", "malesame_fn", "maledown_fn", "femaleup_fn", "femalesame_fn", "femaledown_fn", "maleup_mt", "malesame_mt", "maledown_mt", "femaleup_mt", "femalesame_mt", and "femaledown_mt". The respective variables provide data on the number of male and female

students whose grades increased, stayed the same or decreased both during and at the end of the semester. We further modified the data by calculating the mean of each variable using the mean() function. The mean is needed to determine the percentage of male or female students who received a grade increase, decrease, or no change. A new data frame is then created per focus area. In total four graphs were created to show the percentage of male and female students who received a grade increase, decrease, or no change after requesting for a regrade both during and at the end of the semester.

2.2 Student Survey Data

```
# A tibble: 12 x 5
# Groups:   Gender, Consider Regrade [2]
   `Number of Classes` Gender `Consider Regrade` Count Percentage
   <chr>               <chr>  <chr>              <int>      <dbl>
 1 0 class             Female Yes                  716       41.2
 2 0 class             Male   Yes                  336       39.3
 3 1 class             Female Yes                  528       30.4
 4 1 class             Male   Yes                  194       22.7
 5 2 classes           Female Yes                  298       17.2
 6 2 classes           Male   Yes                  176       20.6
 7 3 classes           Female Yes                  124        7.1
 8 3 classes           Male   Yes                   76        8.9
 9 4 classes           Female Yes                   34        2
10 4 classes           Male   Yes                   28        3.3
11 5 classes           Female Yes                   36        2.1
12 5 classes           Male   Yes                   44        5.2
```

Table 1: Cleaned Table of Number of Classes Students Considered for Regrade Requests by Students' Gender

Number of Classes	Gender	Consider Regrade	Count	Percentage
0 class	Female	Yes	716	41.2
0 class	Male	Yes	336	39.3
1 class	Female	No	264	51.8
1 class	Female	Yes	528	30.4
1 class	Male	No	97	37.5
1 class	Male	Yes	194	22.7
2 classes	Female	No	149	29.2
2 classes	Female	Yes	298	17.2
2 classes	Male	No	88	34.0
2 classes	Male	Yes	176	20.6

Conversely, the 'stdsurvey.dta' dataset featured 3885 observations of all potential regrade requests, which provided us with insights into gender identity and student psychology when approaching regrades. To simplify the data, we first clean its names and select relevant variables, including 'std_male', 'consider_regrade', 'num_class' and 'participantcode' which respectively convey data on students' gender, whether or not they have considered regrading, the number of classes they have considered regrades and identification. For 'std_male', a '1' signifies a male student while a '0' signifies a female student; in which, to clean the dataset, we've renamed the column to 'gender' and modified '1' to be 'Male' while '0' to be 'Female'. To garner data on students who considered regrading, we used `filter` to get rid of observations with 'No' for their 'consider_regrade' column. `mutate` was also leveraged to generate a column on 'percentage' of students who considered regrading (Table 1). Proceedingly, we used the cleaned data to generate a double-stacked bar chart of the percentage of female and male students who considered regrading for each of the categories of the number of classes.
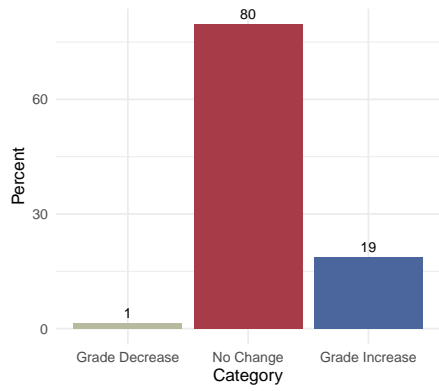
3 Results

Figure 1 explores the percentage of both male and female students who have had their grades unchanged, increased or decreased after requesting a regrade during and at the end of the semester. Figure 1a shows that 80% of male students have received no change in their grades at the end of the semester. Only 18% received a grade increase while 1% of male students received a grade decrease.

Figure 1b shows that 79% of female students received no change in their grades at the end of the semester. However, 20% did receive a grade increase, which is a slight increase compared to male students. 1% of female students received a grade decrease.

Both Figure 1a and Figure 1b show that most students (male and female) received no change after requesting a regrade at the end of the semester. However, the data shows that female students had a higher percentage by 2% in receiving a grade increase compared to male students. Both male and female students had approximately 1% of regrade requests, resulting in a grade decrease.

Figure 1c and Figure 1d show the change in grades of male and female students who ask for regrades during the semester. In Figure 1c the graph shows that 62% of male students received no change in their grade while 37% received a grade increase and approximately 1% received a grade decrease. Figure 1d shows that 59% of female students received no change in their grade while 40% had a grade increase and approximately 1% had a grade decrease when asking for a regrade during the semester. When comparing the results, 62% of male students received no change after requesting a regrade during the semester – 3% higher than female students. In addition, 40% of female students received an increase in their grade after requesting a regrade – 3% higher than male students. Both male and female students had approximately 1% of regrade requests, resulting in a grade decrease.
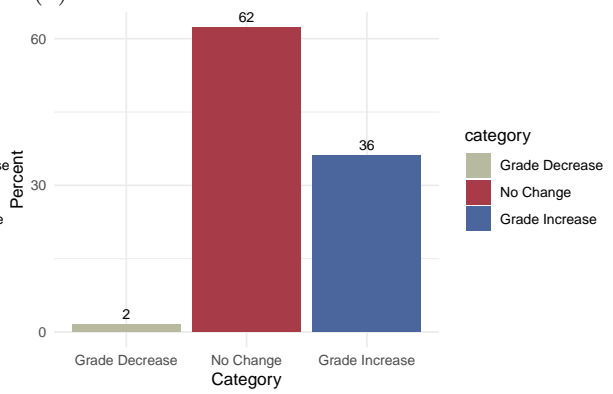
(a) Panel A. End of semester male students
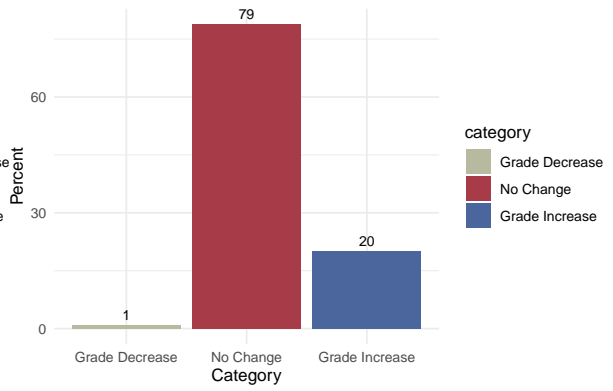
(b) Panel B. End of semester female students
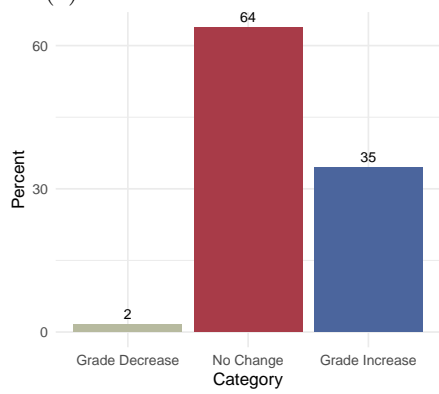
(c) Panel C. During semester male students

(d) Panel D. During semester female students

Figure 1: Instructor Survey Regrade Results by Timing and Students' Gender

Suceedingly, Figure 2 shows the averaged distribution of the number of classes in which students are considered for regrades by gender. Observable in the graph, there is only data available on students who considered regrades in '0 class' to '5 classes or more' (CITE). Therefore, with the number of classes limited to 5, it's more than likely that surveys understate the regraded data (CITE). Observably, with no or 0 classes, the majority of students didn't consider regrade requests, with females upholding 41.2 % while males upholding 39.3%, making it a 1.9% difference. This trend of females considering for regrades is higher than males when the class number is lower, where at 1 class, a whopping 30.4% of females are considered for regrades in contrast to a meagre 22.7% of males. This translates to a huge margin of 7.7% between the two genders. However, as the number of classes extended above 1, or from 2 to 5 or more classes, more males considered asking for a regrade. For instance, at 3 classes, 8.9% of males considered for regrades as opposed to 7.1% of females; at 4 classes, 3.3% of males considered for regrades compared to 2% of females and finally, at 5 classes or more, a great 5.2% of males considered for regrades compared to a small 2.1% females. Statistically then, while the difference is negligible in some categories of class number, males are more likely to consider and ask for regrades compared to females (except for those with 1 class).
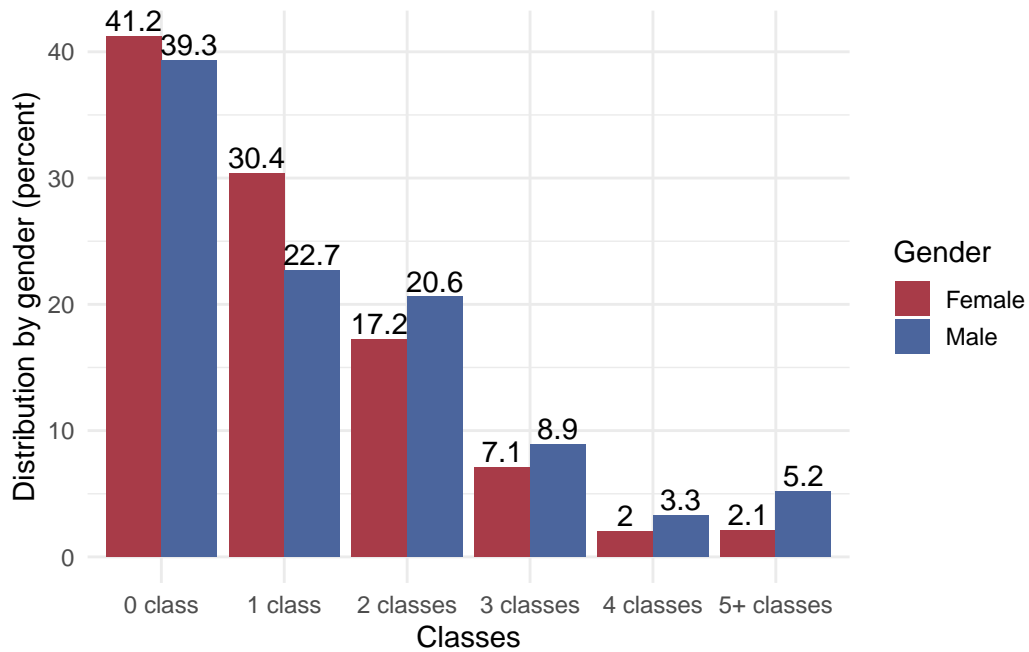

Figure 2: Student Survey Number of Classes Students Considered for Regrade Requests by Students' Gender

4 Discussion

The original paper looked to analyze the gender difference in a college setting upon regrade requests. The main questions Li and Zahar analyzed were whether male students are more frequent in their regrade requests compared to their female counterparts. The authors also look to analyze whether these requests result in favorable outcomes for either gender. By replicating this paper we look to understand the gender differences in favourable regrade requests with factors of course load and request frequencies throughout the semester.

4.1 Male and Female Regrade Outcomes

One key point to consider is the disparity in outcomes between male and female students when requesting a regrade. The data shows that a higher percentage of male students (62%) received no change in their grade after requesting a regrade during the semester compared to female students (59%). This explains the notion that males typically send out higher requests of regrades compared to their female counterparts. This could be attributed to the social implications placed on each gender, confirming the concept that men are more assertive hence their inclination to ask for regrades. Women are more accepting hence they refrain from attempting to submit a request. When looking at the percentage of students who did receive an increase in their grade after requesting a regrade, it turns out that a higher proportion of female students (40%) experienced this outcome compared to male students (37%). This suggests that, although male students were less successful overall in achieving grade changes when changes did occur, they were slightly more likely to increase for female students. Statistically, this 3% difference in outcomes, does not explain a great deal regarding the skewed gender implications but further research is required to understand the broader implications.

4.2 Trends Among Female Students and Course Load

Another trend suggests that regrade consideration between male and female students is attributed to the number of courses they are taking. Female students are more inclined to submit regrade requests when taking fewer courses as 30.4% consider a regrade request when taking one course, while male students consideration is around 22.7%. However, when the course load is higher the trend is reversed. More male students submit or consider regrade requests compared to their female counterparts. At three classes, 8.9% of males consider regrades compared to 7.1% of females, and at five classes or more, 5.2% of males consider regrades compared to only 2.1% of females.

This trend suggests that males are more likely to consider and ask for regrades compared to females in all categories of classes, except for those with 1 class. This translates to the fact that, speculatively, males are more likely to consider for regrades regardless of and in more circumstances than females. This is a factor for consideration, especially taking into account

gender expectations regarding assertiveness and social boundaries when it comes to asking for more, and in this context, asking for more grades. Vice versa, females on average are only likely to ask for regrade in one class even if they have more than one class that necessitates regrade consideration. This trend could be attributed to the notion that with 1 course, more investment is required hence the motivation to work harder. Compared to a higher course load which requires time management and balance.

Further analysis could explore potential reasons behind these disparities, such as differences in the types of courses taken by male and female students, variations in grading criteria, or individual attitudes toward requesting grade changes.

4.3 Ethics and Biases

To note, there are further pain points regarding the gendered nature of the dataset, making the analysis reductive. Previous research has remarked on the discrimination against people of sexual minority background in educational settings (LGBTQI+), which poses considerable alarm on how they would be unfavourable when it comes to regrade requests in a college setting as well (O'Neill et al. 2022). However, the study only assesses regrade requests from a binary, gendered perspective since the participants identified as either males or females. This thus limits the study's assessment of those who identify as non-binary, two-spirited or gender-fluid. Accordingly, we recognize that simplifying the gender spectrum to a mere binary of males and females can disregard the struggles non-binary people have against college discrimination (or re-grading in this paper's context). Contextually, the original study simulates a classroom setting within a closed laboratory to survey the implications of regrade requests. The study thus requires participants to perform their student identity and imitate their regrade request scenarios, which could have posited the students to have a 'formal", heteronormative identity to fit in with the study's nature. This method thus could have influenced student behaviours. It drives students away from a typical scenario of regrade requests, where there is a big power difference between a student and an actual professor. This, in many ways, denaturalized the nature of regrade requests and affected the study's results.

4.4 Limitations

Since this paper was a replication, our analysis was limited to results and interpretations made by Li and Zahar from the original paper. We decided to focus on one aspect of the paper rather than having the time to explore the other possible relationships with the data. If we had additional time and resources we would have liked to see the other findings within Li and Zahar's paper regarding payments and regarding requests in the lab and how those data sets relate to ours. If we had additional time and resources, we would have expanded our investigation to include other findings from Li and Zahar's paper, particularly those related to the positive social costs of regrade requests and lab requirements. These additional insights could provide a more comprehensive understanding of the dynamics surrounding grade regrade

requests among college students. By incorporating these findings, we could further elucidate the factors influencing students' behaviours and outcomes in academic settings, contributing to a richer and more nuanced analysis of gender disparities within academia.

As mentioned previously, the exclusion of non-binary people could have affected the data collected and impacted the validity. Given their status as an underrepresented group, their perspectives are overlooked, leading to a potential bias in the results. This oversight not only limits the results but the generalization towards a population is skewed. Another limitation was during the replication process the replicated graphs did not produce the identical results as the graphs from the original paper. Instead, the results in the replicated graphs are different from 1-2%. We are not sure why the results are different as the same dataset from the original graph was used to replicate. We assume the cause for this distortion can be attributed to the different logic used in R rather than Stata.

5 Future

Future studies should aim to investigate the broader implications of gender inequalities in academic settings and how those trends translate into the labour market. Particularly looking at the females and their ability to secure jobs in the same field as their male counterparts. Understanding these gender biases in the labour force and academics provides valuable insight into how these gender disparities continue to persist. Moreover, studies regarding the long-term consequences of these trends should be conducted to understand the psychological implications. Observing how gender biases affect students' confidence, motivation and overall well-being can help contribute to the understanding of the challenges faced by marginalized groups. Additionally, exploring the intersectionality between factors such as race, ethnicity, socioeconomic status and sexual orientation can provide a holistic understanding of systemic biases and inequity in academia.

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