

GPA: Measure of Performance or Bargaining Tool?

A Micro-level analysis of National Grade Inflation at UCSD

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Why GPA?

“Grades will almost always rise in an academic environment where professors sense that there are incentives to please students” - Stuart Rojstaczer & Christopher Healy (Researchers on Grade Inflation)

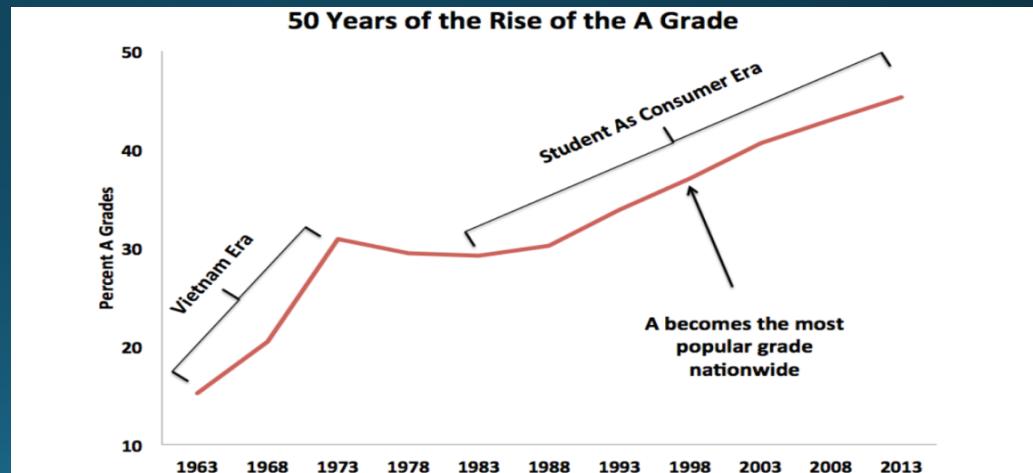
BUSINESS INSIDER EDUCATION

Many College Professors Started Using Grade Inflation To Protect Bad Students From Being Drafted Into The Vietnam War

Peter Jacobs · 8 ·
Dec. 7, 2013, 12:31 PM · 10,735

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College grade inflation is in the

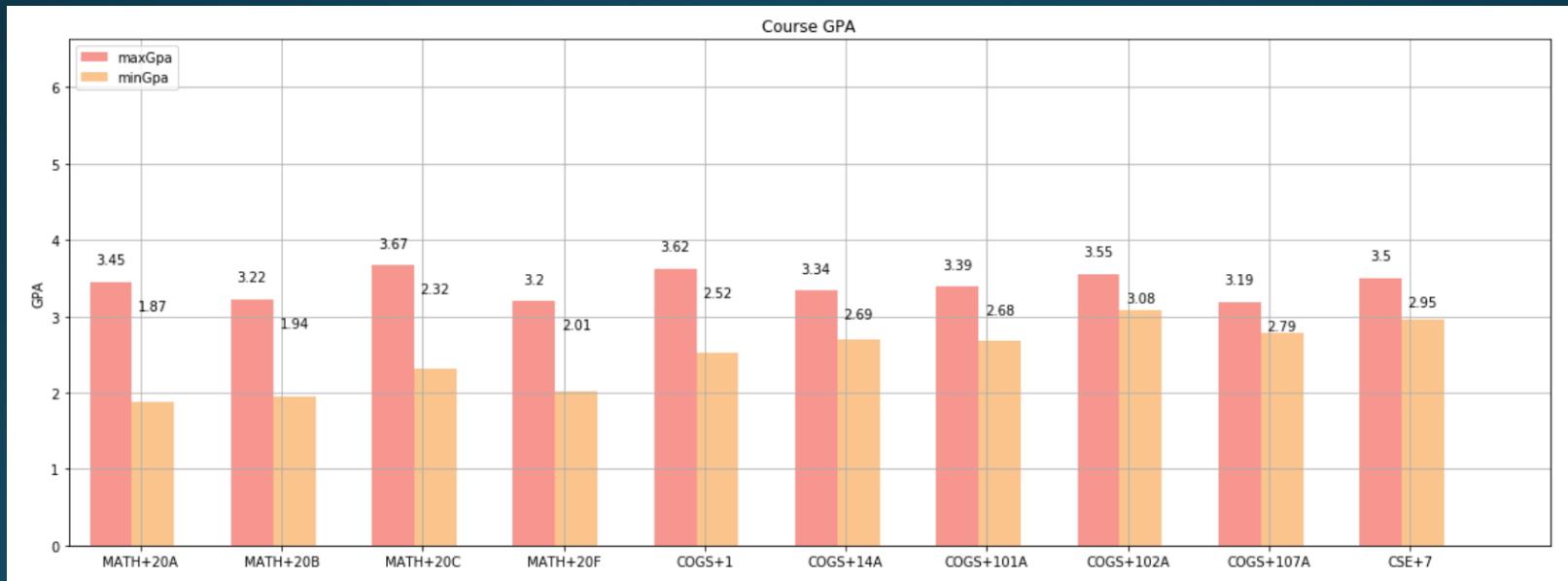


What does this mean ?

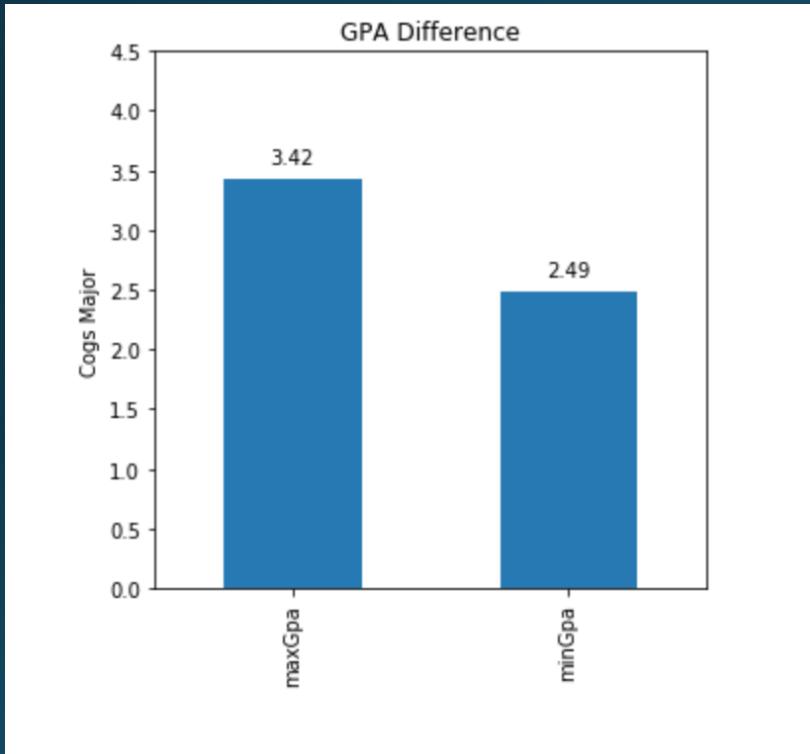
- GPA can highlight student accomplishments to recruiters
- GPA can reflect students' performance in academic environment
- Is this(GPA inflation) **unfair** for some students/professors ?
- Can this affect student-professor relationship ? Is it going to be **genuine** anymore ?

What is the difference?

- Scraped data from UCSD CAPE(Course And Professor Evaluations)
- Classes like MATH20A have professors that grade significantly harsher than others
- The highest GPA average is **3.45** (A- is 3.7, B+ is 3.3)
- The lowest GPA average is **1.87**(C is 2.0)



What is the difference?



- Students that took every class with highest average GPA vs Students that took every class with lowest average GPA
- Both students did **average** in their respective classes
- There is a nearly **1.0 GPA** difference in a 4.0 scale. This is a **whole letter grade** different.

So, what is happening...?

- Is it possible that classes with lower average GPA just have students that do not study as hard ?
- What are some possible factors that cause such a huge difference in GPA distribution?
 - Is it instructors ?
 - Is it the class material itself ?

Methods

- **Hypothesis testing** : 2 sample t-test (average GPA of classes with poor professor rating vs average GPA of classes with high professor rating)
- **Scatter Plot** (show here): Serves as micro analysis
 - GPA vs Inst. Rate: Do students that get higher grades recommend professors?
 - Hrs vs. Inst Rate: Do students that have to study more rate professors poorly?
 - Hrs vs GPA: Amount of hrs studied as an indicator of difficulty? What's that telling us?
 - Avg grade expect vs inst rate: Do students that expect higher grades recommend professors higher?
- **Linear regression** to figure out relationship between different grading categories

So, what is happening...?

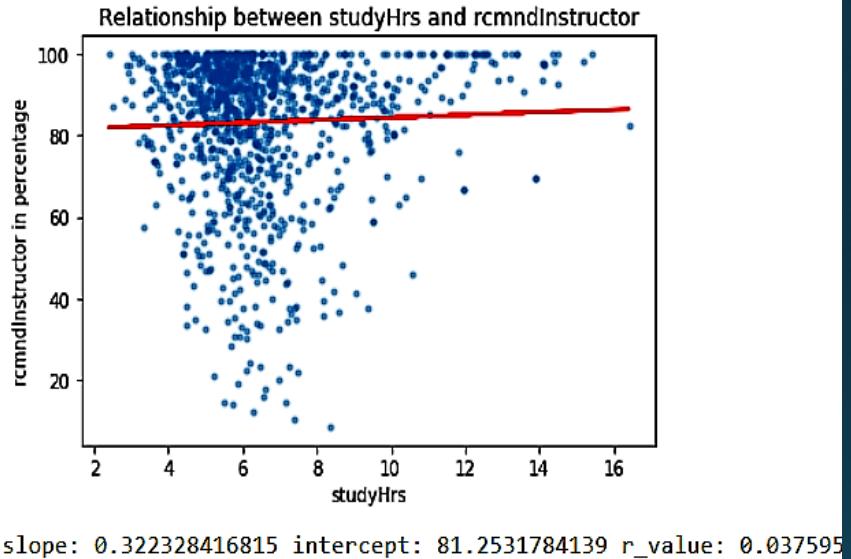
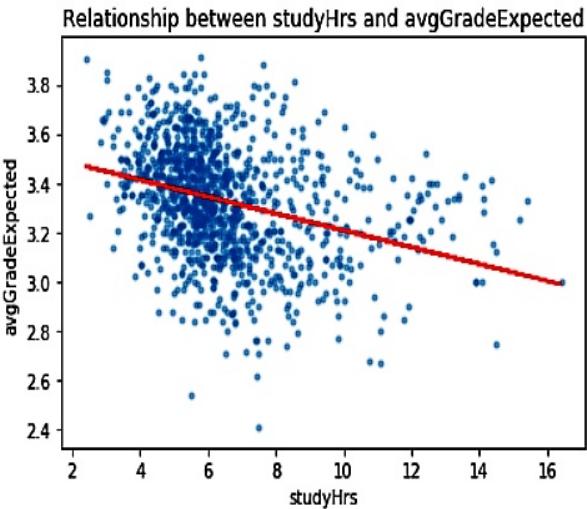
Performed a 2 sample t-test (average GPA of classes with poor professor rating vs average GPA of classes with high professor rating)

- Our null hypothesis is that the mean GPA in poorer rating professors' classes should be the same of the mean GPA in better rating professor's classes
- Our alternative hypothesis is that mean GPA in better rating professor's classes is higher(larger) than the mean GPA in poorer rating professors' classes

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ttest_ind:          t = -25.0828  p = 6.18035e-121
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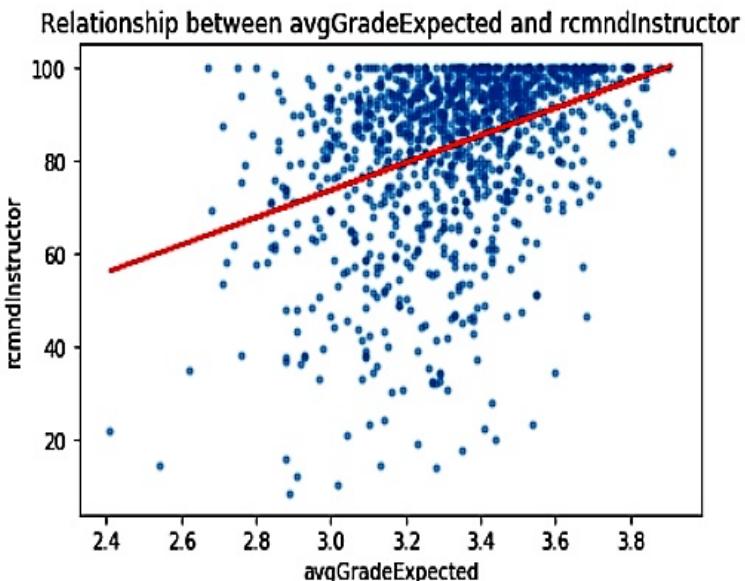
Assuming that the significance value α is 0.05. From the t-test result above, we know the p-value is smaller than α . That is, we can reject our null hypothesis and conclude that **better rating professors tend to have higher GPA in the class.**

So, what is happening...?



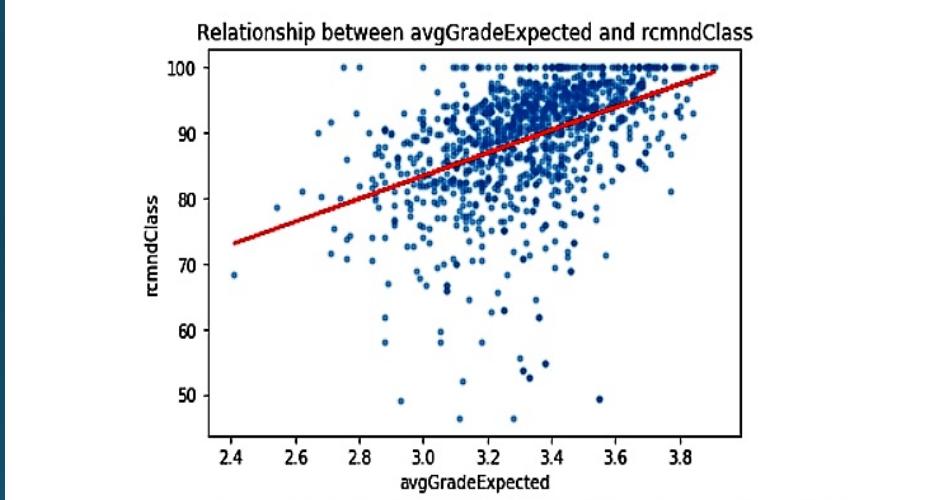
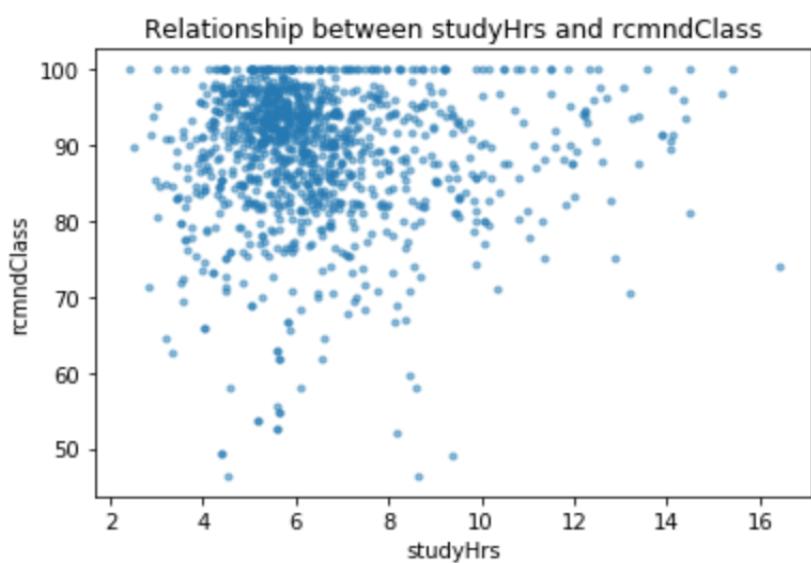
Hmmm, do study hours not matter ?

So, what is happening...?



- It appears that students expected to get higher grade tend to give out higher recommended instructor rate.
- Potential **confounding variables**
 - Extra Credit
 - Participation
 - Lowest Homework get dropped
 - Students not taking evaluations seriously

So, what is happening...?



slope: 17.4931442577 intercept: 30.8997396595 r_value: 0.44268

- It appears that students expected to get higher grade tend to give out higher recommended class rate.

So, what is happening...?

- Seems like we are getting into **this feedback loop** that that students expected to get higher grade tend to give out higher recommended instructor/recommended class rate.
- Instructors then have the incentive to please students to give better feedback
 - They do so by offering participation points, extra credit and similar stuff
- So, **WHAT CAN WE DO ?**

Conclusion/Discussion

- GPA is still the **easiest** and **most popular** way to evaluate a student
- Call to action:
 - grading policy that is **same** across courses
- Consequences:
 - May result in lower GPAs
 - Could provide actual relevant feedback for learning
 - Eliminate incentive of student picking professor just on grade distribution
 - Eliminate incentive of professors inflating grade just to get better rating from students
 - Create a more **genuine and fair** environment among students and faculty