Grade Inflation at the University of California

An Analysis of a Decade of UC Grades, High School Grades, Test Scores, and UC Discipline Distribution

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Overview

- **Grade inflation everywhere**
- **Grade inflation at UC Causes:**
  - **Rise in Grades as debasing of currency**
  - **Improvement in Students – better work**
  - **Changes in Distribution of Majors**
- **So Is There a Problem?**

Questions

First: Is there Grade Inflation at UC? There seems to be plenty around the country. Harvard and Princeton think it is enough of a problem to publicly do something about it.

Second: If there is a rise in UC grades over time is it because of "inflation", which we will define as higher grades given for similar quality work, or is there a reason other than that?

Other possible reasons:

- Students got "better" and are doing better work.
- The distribution of majors changed, and different majors have different grading distributions.

Third: If there is an explanation, do we think it warrants the rise in grades?

Two Snapshots: 1989 and 1999

The University of California has student level electronic data starting in 1989. 1999 is the last entering cohort for which there is uniform graduation data at the end of four years of school (graduation as of 2002).

Due to data limitations from the 1989-1991 cohorts, both high school GPA and UC GPA are only available for those students graduating after four years.

This limitation does have the advantage of looking a group of students who mostly took a full load of classes and graduated in four years.

There will be some effect from AP units but this should have limited systematic effects (see The Effect of Advanced Placement Credit on Time to Degree at the University of California, 2003)

Summary Data 1989 vs 1999

at Graduation four years after entry, entering freshmen

1989 Entering Cohort	N	Mean	StDev
UC Final GPA	7,626	3.21	0.41
High School GPA	7,576	3.77	0.39
SAT Combined Recentered	7,506	1211	148.99
Academic Index	7,467	4982	468.6

1999 Entering Cohort	N	Mean	StDev
UC Final GPA	10,698	3.31	0.37
High School GPA	10,157	3.89	0.39
SAT Combined Recentered	10,522	1242	151.6
Academic Index	10,005	5137	464.5

Difference	N	Mean	StDev
UC Final GPA	3,072	0.10	(0.04)
High School GPA	2,581	0.12	-
SAT Combined Recentered	3,016	31.00	2.61
Academic Index	2,538	155.0	(4.10)

Findings – Are the Students Better?

- UC Average Grades rose by .10 over a decade.
- High School Grades of entering Freshmen rose by .12 over the same time period.
- SAT I scores rose by 31 points

Percentage Change over the Decade

Difference	N	Mean	StDev
UC Final GPA	40%	3.0%	-9.1%
High School GPA	34%	3.2%	0.0%
SAT Combined Recentered	40%	2.6%	1.8%
Academic Index	34%	3.1%	-0.9%

One Explanation – Students Got Better (as measured by both High School Grades and SAT I scores). The data is consistent with the idea that UC students are getting objectively better and therefore may be doing higher quality work overall.

There is no way to measure this directly, but to the extent that the SAT I measures objective student quality over time, (scores were adjusted for the Recentering of the Exam) both the High School grades and the SAT I scores seem to indicate an improvement in student quality at about the same rate as students final UC GPA.

So it seems plausible that there is not grade inflation in the sense that students are getting higher grades for the same work, but in fact as students get better and are, as a group, more highly motivated (as measured by high school grades and checked by improved SAT I scores) they are perhaps, writing better papers and getting more questions correct on exams because they are working harder (or better).

There is no directly provable relationship here, but the correlation is suggestive.

Another possible explanation is that the mix of majors has changed, and the stylized fact is that different majors have different grading patterns, and perhaps students are majoring in fields that have higher average grades.

First, is it true that different majors have different grading patterns?

Comparison of GPA by Major 1999 Entering Cohort

Discipline	Mean GPA	Difference from Mean	N
Ag & Natural Resources	3.25	-0.06	230
Architecture	3.23	-0.08	75
Area Studies	3.29	-0.02	72
Biological Sciences	**3.30**	**-0.01**	**1,565**
Business	**3.25**	**-0.06**	**712**
Computer & Info Sci	3.31	0.00	306
Engineering	**3.30**	**-0.01**	**977**
Fine Arts	**3.41**	**0.10**	**467**
Foreign Languages	3.37	0.06	107
General	**3.40**	**0.09**	**992**
Home Econ	3.09	-0.22	35
Interdisciplinary Studies	**3.30**	**-0.01**	**574**
Law	3.17	-0.14	42
Letters	**3.39**	**0.08**	**681**
Maths	3.35	0.04	152
Physical Education	3.06	-0.25	9
Physical Sciences	3.33	0.02	196
Psychology	**3.28**	**-0.03**	**1,140**
Social Sciences	**3.28**	**-0.03**	**2,337**
Social Work	3.35	0.04	29

Dr. Paul Eykamp

Change in Student Distribution Among Majors 1989 to 1999 Entering Cohorts

Discipline	% of Majors 1989	% of Majors 1999	Difference	GPA Difference
blank	0.1%	0.0%	-0.1%	-3.31
Ag & Natural Resources	1.5%	2.1%	0.6%	-0.06
Architecture	0.8%	0.7%	-0.1%	-0.08
Area Studies	0.4%	0.7%	0.3%	-0.02
Biological Sciences	15.7%	14.6%	-1.1%	-0.01
Business	6.2%	6.7%	0.5%	-0.06
Computer & Info Sci	1.2%	2.9%	1.6%	0
Education	0.0%	0.0%	0.0%	-3.31
Engineering	6.9%	9.1%	2.2%	-0.01
Fine Arts	4.0%	4.4%	0.4%	0.1
Foreign Languages	1.9%	1.0%	-0.9%	0.06
General	5.2%	9.3%	4.1%	0.09
Home Econ	0.4%	0.3%	-0.1%	-0.22
Interdisciplinary Studies	4.8%	5.4%	0.5%	-0.01
Law	0.2%	0.4%	0.2%	-0.14
Letters	8.5%	6.4%	-2.1%	0.08
Maths	1.8%	1.4%	-0.3%	0.04
Nursing	0.1%	0.0%	-0.1%	-3.31
Optometry	0.1%	0.0%	-0.1%	-3.31
Physical Education	0.2%	0.1%	-0.1%	-0.25
Physical Sciences	2.3%	1.8%	-0.5%	0.02
Psychology	9.5%	10.7%	1.1%	-0.03
Social Sciences	28.0%	21.8%	-6.1%	-0.03
Social Work	0.2%	0.3%	0.0%	0.04

Findings – Discipline Distribution

The change in the distribution of disciplines seem to be about a wash, there is less variation among the disciplines than the stylized facts would suggest, and while there were significant increases in some disciplines with higher average GPAs, there were also reductions in other disciplines with higher GPA and some growth in lower GPA disciplines.

A finer degree of analysis is required and due to very significant difficulties in getting the data together prevented further analysis.

Future work will focus on cluster analysis to better determine if Discipline Distribution or other factors such as sex distribution or campus attended are a major factors but it does not appear to clearly be a factor from casual observation.

Other Things Learned

The academic index explains about 22% of the variance in the UC GPA at graduation which is consistent with the amount explanatory power that the index has on freshmen grades.

(note at UC the academic index range is highly restricted, so most of the explanatory power of the index has already been used by removing the bottom 87.5% of the sample).

Conclusion

Over the last decade there has been a .10 increase in UC GPA at graduation.

There has been a corresponding increase in the High School GPA and SAT I scores of entering freshmen which supports, but does not prove, the idea that part of the explanation in rising UC grades is that the students are "better" and more motivated and therefore are doing "better" work.

Piled Higher and Deeper

DECIPHERING ACADEMESE

YES, ACADEMIC LANGUAGE CAN BE OBTUSE, ABSTRUSE AND DOWNRIGHT DAEDAL. FOR YOUR CONVENIENCE, WE PRESENT A SHORT THESAURUS OF COMMON ACADEMIC PHRASES

"To the best of the author's knowledge..."	=	"WE WERE TOO LAZY TO DO A REAL LITERATURE SEARCH."
"Results were found through direct experimentation."	=	"WE PLAYED AROUND WITH IT UNTIL IT WORKED."
"The data agreed quite well with the predicted model."	=	"IF YOU TURN THE PAGE UPSIDE DOWN AND SQUINT, IT DOESN'T LOOK TOO DIFFERENT."
"It should be noted that..."	=	"OK, SO MY EXPERIMENTS WEREN'T PERFECT. ARE YOU HAPPY NOW??"
"These results suggest that..."	=	"IF WE TAKE A HUGE LEAP IN REASONING, WE CAN GET MORE MILEAGE OUT OF OUR DATA..."
"Future work will focus on..."	=	"YES, WE KNOW THERE IS A BIG FLAW, BUT WE PROMISE WE'LL GET TO IT SOMEDAY."
"...remains an open question."	=	"WE HAVE NO CLUE EITHER."

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Grades Don't Matter, Sources Say

Palo Alto, CA (AP) - Documents obtained by the Associated Press indicate that grades achieved in post-graduate classes have no effect on future prospects for students enrolled in academic institutions.

According to interviews with several current and past graduate students, "grades don't count," said former grad student and now billionaire Jerry Yang, co-founder of Yahoo! Inc. "I got mostly B's in grad school, which at Stanford was really really bad."

A poll conducted by the Los Angeles Times showed that over 85% of first year grads believe getting high marks "is worth the effort" and "a valuable way to spend my time". Fewer than 10% of fifth year students felt the same way.

In reality, neither employers nor your parents appear to care if you get an A or a B in your advanced Nonlinear Optimization class. "I'm just glad I don't have to pay for tuition any more," said a mother who wished to remain anonymous.

Reaction among graduate TA's was mixed, with some expressing shock that their late hours grading amount to nothing, while others showed visible relief that losing a student's final exam will not really ruin their life.

Sources close to academic faculty reveal that this fact is well known among professors. "Of course grades don't matter," said Prof. Smith, "we only care about the lab work." Grades only serve to "feed the ego of the smart students, and break the spirit of the mediocre ones."

NOW you tell me?? A grad student expresses frustration over the revelation

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Final Paper at www.paul.eykamp.net