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Trends in grades: UP School of Economics

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Trends in Grades, UP School of Economics

by

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ABSTRACT

Trends in Grades

By GR Tecson

Grades are used to evaluate students as well as to compare their scholastic achievements. They are used by graduate schools as well as business firms to discriminate between students. But when grades are inflated, they cease to be an objective measure. We therefore wish to examine the trend in grades in the UP School of Economics. In particular, we would like to find out if the explosion in Latin honors (cum laudes and magna cum laudes) in recent years is due to the Revitalized General Education Program (RGEP). Through regression analysis, we found that GWA is determined by the RGEP (as well as the EWA). Except for a few subjects, there is no grade inflation in RGEP courses.

Trends in Grades, UP School of Economics

G. R. Tecson[1]

Grades are used to evaluate students as well as to compare their scholastic achievements. They are used by graduate schools as well as business firms to discriminate between students. But when grades are inflated, they cease to be an objective measure.

There have been many studies in the United States since the sixties regarding grade inflation[2], the causes are many: The Vietnam War, in which professors were prone to give the students higher grades in order not to draft them into military service; the student's self esteem, in which teachers award students higher grades to shield them from failure or avoid lawsuits from angry parents; student evaluations, in which teachers give inflated grades, hence less knowledge, in response to students' higher evaluations for tenure, promotion, or retention [Wallace and Wallace 1998; Seligman 2002]; adjunct professors, in which adjunct professors give students higher grades in reciprocity for better evaluations of adjunct professors seeking to be retained; the effect of tax legislation, in which students take a scholarship tax credit and the burden redounds on the student to prove that he is enrolled as a sophomore student with at least a B-average [Cronin 1997]. There have been allegations of "students as consumers" or making the students happy [Snare 1997] or a watering down of the materials which the students are supposed to master [Basinger 1997] or the effects of universities to accommodate their students' desire for higher grades, such as allowing them to retake or drop their lowest scores or allowing them to curve scores for below-average classes [Edwards 2000]. Even Ivy-league universities (such as Harvard) are not impervious to the problem.

To be sure, Adelman [1990, 1995, 2004] does not believe in grade inflation, along with Kohn [2002] and Brighouse [2008]. His findings indicate that traditional-age cohorts during the period 1972-2000 do not show evidence of acceleration in their GPAs. Armed with this finding he believed that since students cannot be compared with their predecessors in the past, there is no way to tell whether the grades are inflationary or not.

Working Hypothesis

We therefore wish to examine the trend in grades, starting with the School of Economics[3]. In particular, we would like to find out if the explosion in Latin honors (cum laudes and magna cum laudes) in recent years (starting 2005) is due to the

[1] The author thanks Ms. M. Capistrano for her able assistance and Mr. L. Abueg for his statistical computations.

[2] "Grade inflation" has been defined as "an upward shift in the grade point average (GPA) of students over an extended period of time without a corresponding increase in student achievement" [Rosovsky and Hartley 2002].

[3] Ten, out of eighteen subjects in UP-Los Baños Economics department, were tested for grade inflation [Bello and Valientes 2008].

Revitalized General Education Program (RGEP). RGEP subjects make up 45 out of 135 units that an Economics major must take, or about 33.33% of total units taken, whereas economics units make up 36 units or roughly 27% of all units taken.

Objectives of the Study

We would like to examine the grades that students receive. We would like to know:

a. The general weighted average (GWA[4]) through 1969-2009;
b. The GWA compared to the economic weighted average (EWA[5]);
c. The grades as they have been affected by RGEP;
d. The grades as they have been affected by other factors.

Outline of the Study

The next section will deal with the Review of Related Literature which discusses the main theoretical and empirical strands of the question of grade inflation, as well as an exposition of the RGEP. This is followed by another section on the simple methodology employed in the paper. The presentation and analysis of data follows as well as the tentative conclusions.

Section II: Review of Related Literature

I. Theoretical Literature

A. Conceptual Issues on Grade Inflation

The phrase "grade inflation" has had many definitions. Its precise meaning has been contested by a number of theorists and researchers through the years. "Grade inflation" is a metaphor approached and interpreted in different ways that academics have never really come to a full consensus on its existence and nature. But in general, the term has been attached to phenomena such as a rise in grade point averages (GPA's), increase in the percentage of A's, or a growth in the proportion of students graduating with honors. Several grade inflation definitions include:

> "When a grade is viewed as less rigorous than it ought to be." [Milton, Pollio, and Eison, 1986]
>
> "…the lowering in value of A's and B's because of their more frequent use." [Millman, Slovacek, Kulick, and Mitchell 1983]
>
> "…an upward shift in the grade point average (GPA) over an extended period of time without a corresponding increase in student achievement."[Rosovsky and Hartley 2002]

[4] The general weighted average (GWA) is computed by multiplying the average of a course by the number of units and summing the multiplicands divided by the number of units of courses.

[5] The economic weighted average (EWA) is computed just like the GWA but this time using only economic courses.

> "…inflation can be viewed as a process in which a *defined level* of academic achievement results in a higher grade than awarded to that level of academic achievement in the past." [Birnbaum, 1977]
> "[grade] inflation is … the state of being expanded to an abnormal or unjustifiable level" [Olsen 1997]

Adelman in particular employs the term "grade inflation" in a way that adheres very faithfully to its metaphorical meaning—analogous to economic inflation. Grade inflation involves teachers paying a higher and higher price for the same commodity—an artifact of student production—a paper, a test, a project, a laboratory report, a performance—or a 'basket' of such outputs within a course. The "price" is the grade that the faculty member is inclined to "pay" (designate) for the specific output, performance, or collection of student products.

With respect to Adelman's stance, since what students achieve today cannot be compared with what their predecessors did in the past, there is really no way to verify whether upward shifts in grade levels are inflationary. Hence, Adelman, along with Kohn [2002] and Brighouse [2008], is skeptical about the existence of grade inflation. On the other hand, Richard Kamber [2008] accepts grade inflation as fact by neutralizing the metaphor and giving it an abstract, non-intuitive meaning. Kamber defines grade inflation as "[a] reduction in the capacity of grades to provide reliable and useful information about student performance as a result of upward shifts of grading." [Kamber 2008] For Kamber, an upswing in grades is inflationary if it reduces the system's ability to differentiate between levels of achievement. Grade inflation is problematic because it is effectively an instance of grade conflation—for example, when student outputs of supposedly different caliber are assigned the same grade. Kamber notes, "When an A is awarded for what was previously B-level work, the system loses its capacity to recognize the superiority of what had been A-level work." Grades, unlike prices, comprise a structure that is sealed at both ends, so universal upward or downward swings bring about compression at one end of the scale. Informational content of grades becomes muddied. Kamber maintains that the damages grade inflation inflicts are cumulative and can be countered only by restoring meaningful distribution of grades.

On the contrary, Brighouse [2008] contends that students are not misinformed by inflated grades because, "in the event that they find themselves in a class with inflated grades, they 'discount' them accordingly." Moreover, Brighouse asserts that that the conflation of the top levels of achievement into one grade affects only the small number of exceptionally bright students who he considers less concerned about grades.

B. Economic Perspectives on Grades and Grading Practices

Grades are viewed by economists as rewards for academic performance, with academic performance considered to be a function of student ability, academic effort, family background and institutional factors like selectivity, performance expectations, and grading policies [Coleman, Hoffer, & Kilgore 1982; Hanushek 1979; Pascarella & Terenzini 1991]. In general, students obtain high grades by simply putting

more effort into studying [Becker 1965; Hanushek 1979]. Students allot effort to academic tasks in response to apparent incentives in the form of grades [Becker 1965; Farkas & Hotchkiss 1989]. McKenzie and Staaf [1974] theorize that raising grade distributions lower the price of time that students must spend to obtain high marks, freeing the pupil for more leisure—the student's primary market objective. They claim that average students are usually attracted to courses where there is a considerable chance of making a better grade for less effort. Bright students however, do not exhibit such behavior. Likewise, academic departments and faculty members can attain high enrollment volumes by lowering the price students pay through their time and academic exertion—raising the grade distribution with respect to student effort [Sabot and Wakeman-Linn 1991; Stone 1995], or, as what Freeman [1999] established, granting higher grades to students whose expected earnings after graduation from the issuing academic department are much lower. In addition, Chan, Hao, and Suen [2005] provide a non-temporal economic model of grade inflation based on the assumption that an institution will confer higher grades to make its average students more competitive in the labor market.

C. Determinants of Upward Grade Shifts

Theorists have various hypotheses on causal factors that bring about rising average grades. Upward grading shifts due to teachers doing their jobs more effectively and students being more prepared for college are generally not considered inflationary. Also, institutional grading policies that give students fewer requirements to take courses outside of their areas of strength, or grant them options to withdraw from courses where they are doing poorly can artificially cause grades to go up. On the other hand, teacher ideology plays a key role in grading. Assigning higher grades and allowing students to do extra-credit work are ways for teachers to show solidarity to students. Such practices, other things being equal, tend to raise the average grade.

As a matter of public accountability, pressure to increase graduation rates of universities is thought to influence rising average grades. To bump up graduation rates to more than 50 percent, the average student has to effectively be above average. Achieving this entails weakening intellectual rigor and grading standards. Hence some amount of "grade inflation" is necessary to maintain publicly acceptable graduation rates. A consumer orientation in higher education, on the part of students and their families, is also believed to induce rising grades. With students paying more for a college education every year, they increasingly expect to get the reward of a good grade for their purchase. As a result of this consumer culture, students have become more conscious about the proportions of various grades instructors have awarded students in their courses over the years, amount of required reading and assignments, class attendance policies, and the like.

Some academics also argue that the introduction of student evaluation of teaching in the late 1960's exerted an upward pressure on grades. Teacher grading standards are considered to bias student evaluation. With the expanded use of student evaluations for hiring, tenure, promotion, and salary decisions, instructors are inclined to give higher grades. Also, time constraints on professors due to an increased demand that they produce scholarly and research work make it convenient for them to grade easy. Lax

grading consumes less time than rigorous grading because there is less likelihood of students contesting grades and teachers justifying them.

Fajardo (2004) has listed the causes of grade inflation. Aside from student evaluations, many studies cite the Vietnam War as the start of grade inflation in the 1960s. Teachers were reluctant to give their male students the grade they deserve no matter how low for fear of being drafted to military service [Rosovsky and Hartley 2002]. Then, there is grade inflation due to adjunct professors. Sonner [2002] conducted a study of 7,610 average grades in a small university where adjuncts were used more than full-time faculty (63% were adjunct instructors). He found out that adjunct professors gave the students A and B grades, -- the adjunct professors gave the students 2.8 while the full-time professors gave it 2.6 – noting that the difference was significant, even after controlling class sizes, subject discipline, and course levels. He explained this by student evaluations that give higher grades to adjunct professors who are on a part-time basis and who want to be retained. Then there is the explanation related to tax legislations. Cronin [1997] made a case for Hope Scholarship tax credits where tax incentive provides a non-refundable credit against federal income tax up to $1,500 per year, provided that the student is enrolled at least half-time in the first two academic years of a degree certificate program. In order to claim the credit in the second year, the student must get a grade of at least B- in the course taken before that year. Hence the student might take the easy course for the first year in order to get the required grade on the second year to be eligible to the tax incentive. Then there is the motive of self esteem. Kline [2001] said that students who are used to getting high grades feel that getting a grade lower than A is a failure. Hence faculty members who want their students to feel good, and who want to avoid law suits from angry parents, or who want suicidal students obsessed with A grades, give As to every student in class. Then there is the " student as consumer" model [Snare 1997] wherein universities want to make their students happy be granting them inflated grades.

II. Empirical Literature

Grades are generally measured in four ways: (1) estimation of absolute changes of grade point averages through time; (2) regression of university grade point averages against prior achievement in scholastic aptitude tests (SAT's) and other similar exams as proxy measures for college preparedness; (3) determination of differences in grading practices (i.e., grading on a curve versus a fixed standard) when accounting for changes in grade levels; and (4) the calculation of the ratio of a student's actual grade point average to his or her expected grade point average [Olsen 1997].

A. Long-Term Trends and Distributions of Grades in the USA

Overall, extensive data on grades do not indicate a continuous, single-direction trend since the early 1970's. However, there is reason to believe that grade levels are currently higher than they were initially, so that there is a net upward change in grade levels.

In studies published in 1976 and 1979 by Avro Juola, he discovered a pronounced and strikingly universal upswing in grades from 1968 to 1974, with a slight decrease in grades

after the peak year 1974. From a stratified sample of 485 institutions with usable returns from 134 (28%), Juola ascertained a rise of GPA from 2.4 in 1960 to 2.8 in 1973, with two-thirds of this increase happening from 1968 to 1973. Average GPA declined by .043 from 1974 to 1977, and then rose by .001 from 1977 to 1978. An average GPA of 2.72 was calculated for the sample colleges in 1978.

Large-scale transcript data were gathered for three national longitudinal studies conducted by the National Center for Education Statistics of the U.S. Department of Education [Adelman 1992, 1995, 1999]. The studies followed students of the high school graduating classes of 1972, 1982, and 1992 for a minimum of twelve years. Transcripts were collected for students who pursued postsecondary education at the end of each study period. A response rate of over 90 percent from over 2,500 institutions of all kinds (research universities, community colleges, trade schools) was achieved. It was found that data for traditional-age cohorts during the period 1972–2000 do not provide evidence of across-the-board linear acceleration of average GPA's.

Undergraduate GPA estimates for students who earned ten or more credits in postsecondary education are as follows:

- For 1972 high school graduates, transcripts for 12,600 students collected in 1984 showed an average GPA of 2.70. Those who obtained a bachelor's degree or higher had an average GPA of 2.94.
- For 1982 high school graduates, transcripts for 8,400 students collected in 1993 showed an average GPA of 2.66. Those who obtained a bachelor's degree or higher had an average GPA of 2.88.
- For 1992 high school graduates, transcripts for 8,900 students collected in 2000 showed an average GPA of 2.74. Those who obtained a bachelor's degree or higher had an average GPA of 3.04.

In terms of the distribution of letter grades (A,B,C,D,E, and F), the proportion of A's decreased slightly between the Class of 1972 and the Class of 1982 then increased between the Class of 1982 and the Class of 1992. An inverse to this pattern can be distinguished for the proportions of B's and D's. The period from 1970–2000 also reveal a notably rising proportion of letter grades removed from GPA calculation altogether: "P" (or "CR") in pass/fail courses, "W" (for non-penalty withdrawals, as distinct from drops), and "NCR" (the data sets' abbreviation for no-credit-repeats).

To Adelman, author of these longitudinal studies, the proliferation of these marks devalues grades rather than inflates them as students may withdraw from courses that threaten their GPA's and avoid evaluation of their performance. More importantly, it is an outright waste of public subsidies and general access to courses, he claims.

A set of studies by Levine and Cureton [1998] as well as by Kuh and Hu [1999] rely on of student self-reported grades and point to an upward shift in grades. Utilizing data from undergraduate surveys of 4,900 college students from all types of institutions in 1969, 1976, and 1993, Levine and Cureton found that from 1969 to 1993, the proportion of A's rose from 7 percent to 26 percent of all grades, while the proportion of C's decreased from 25 percent to 9 percent. Kuh and Hu [1999] compared GPAs of two equally large groups of students, one from the mid-1980s and another from the mid-1990s on a 5-

point scale. Their sample totaled 52,000 undergraduates from both time periods and found that the average had climbed from 3.07 in the mid-1980s to 3.34 in the mid-1990s.

However, Adelman and Kamber [2003] question the full reliability of such studies, noting that students' self-reported grades are usually overstated when contrasted with actual transcript grades. The former are 0.3 higher than the latter. Nevertheless, self-reported grades generally exhibit high positive correlation with actual transcript grades [Fetters et al. 1984; Sawyer et al. 1989].

The U.S. Department of Education's Profile of Undergraduates in U.S. Postsecondary Institutions: 1999–2000, based on information obtained from more than 900 institutions on approximately 50,000 undergraduates, reported an average GPA of 2.9 for the nation as a whole during the period 1999–2000. The National Survey of Student Engagement/Annual Report 2004, based on a survey of 163,000 randomly selected freshmen and seniors at 472 four-year colleges and universities, found: "About two-fifths of all students reported that they earned mostly A grades, another 41% reported grades of either B or B+, and only 3% of students reported earning mostly Cs or lower.

Richard Kamber's website, www.gradeinflation.com, using data 70 colleges and universities that "have either published their data or sent their data to the author on GPA trends over the last 11 years," finds grade inflation remained relatively flat from the mid-1970s to the mid-1980s but has been climbing at a steady rate ever since.
Rojstaczer [2009] reports an average GPA of 3.09 for the period 2001–200

An Explanation of the Revitalized General Education Program (R.G.E.P.)

The RGEP of the University of the Philippines subsumes the old General Education Program, but with more avenues for learning because of the freedom of choice and no prerequisites. It is the fruit of consultations and workshops during which the old GE program was subjected to critique, with the end in view of providing students with a liberal education with a distinctive mark that is altogether UP ("Tatak UP"). It is designed to make the student "a holistic person, more independent, creative and critical thinker, a morally sound and intellectual individual of high integrity and well able to adopt to the fast changing pace of today's living" [www.up.edu.ph. Accessed 26 January 2011]. Its objectives are: (1) to broaden the student's intellectual and cultural horizons; (2) to foster a commitment to nationalism balanced by a sense of internationalization; (3) to cultivate a capacity for independent, critical and creative thinking; (4) to infuse a passion for learning with a high sense of moral and intellectual integrity. Specifically, the RGEP aims to (1) To acquire basic skills and competencies in mathematics, reasoning and communication; (2) to develop an awareness, understanding and appreciation of the various disciplines of the natural sciences, social sciences, humanities and philosophy; and, (3) to develop the ability to integrate and/or adapt the knowledge and skills acquired from the various disciplines [www.up.edu.ph. Accessed 26 January 2011]

After 15 years, the GE Council conducted consultative meetings and the RGEP was approved by the University Council and the Board of Regents in 2001 and had to be implemented in AY 2002-2003.

In the RGEP, the UP student must take 15 units of each discipline or "domain" (Arts and Humanities, Social Sciences and Philosophy, Mathematics, Science, and Technology) or a total of forty-five (45) units, six (6) of which are Philippine Studies courses taken from any of the domains. There must be no prerequisites (except if taken as part of a cluster). so that courses are usually low-numbered.

Section III Methodology

The first part is a straight distribution of grades for all courses of the GWA and EWA for all the graduates of the UP School of Economics through 1965 – 2009 (the EWA is only through 1974 – 2009, because of the lack of computation of the EWA in the years 1965-1973). The GWA and EWA has the time trends through 1965-2009 (the EWA for 1974-2009).

The second part is on the RGEP. The methodology used is simply:

$$GWA = a + b1(RGEP) + b2(EWA) + e$$

where GWA: General Weighted Average of each student, 2005-2009 (four years after the RGEP was implemented, being 2002)
RGEP: Average of courses under RGEP by each student
EWA : Weighted Average of Economics courses by each student, 2005-2009
e : Error term

To compare, the GWA is also regressed against the RGEP and non-economics courses taken by each student.

We also want to know whether EWA is due to their skills in learning macroeconomics (Econ 101) and microeconomics (Econ 102) or due to their mathematical abiity (in learning Mathematical Economics, E106, and Econometrics, E131). We also regress EWA with E101, E102, E106, and E131.

So we regress the following equation:

$$EWA = a + b1(E101) + b2(E102) + e$$
$$EWA = a + b1(E106) + b2(E131) + e$$

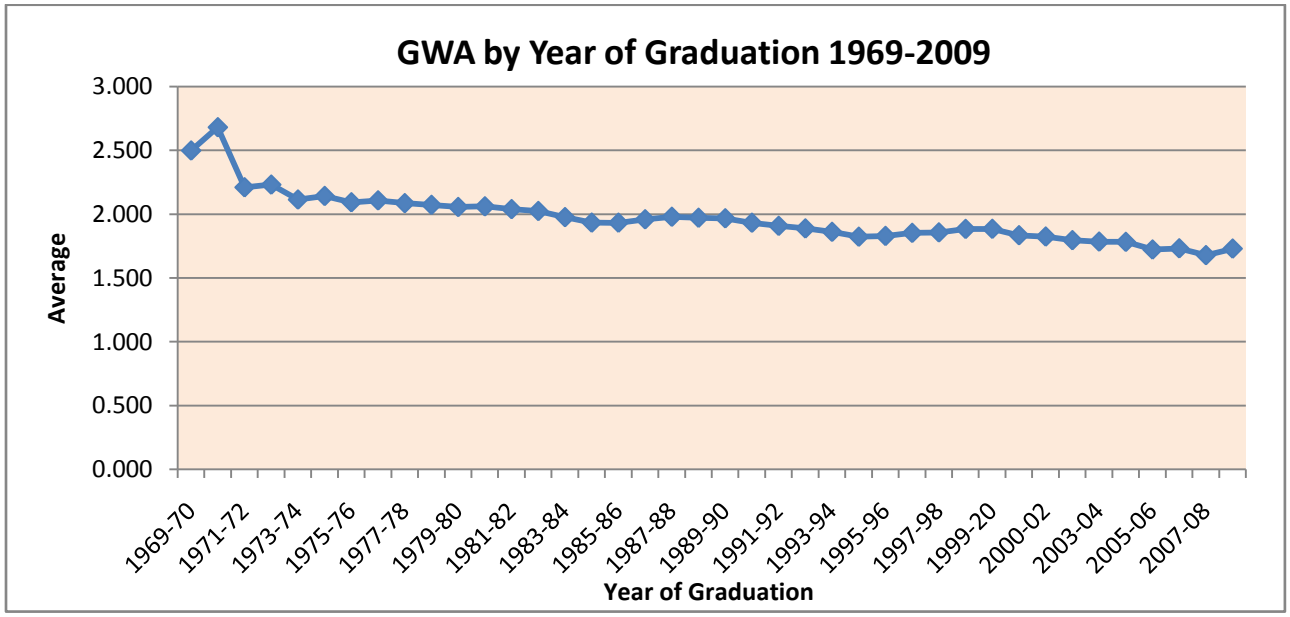
and then again,

$$EWA = a + b1(E101) = b2(E102) + b3(E106) + b4(E131) + e$$

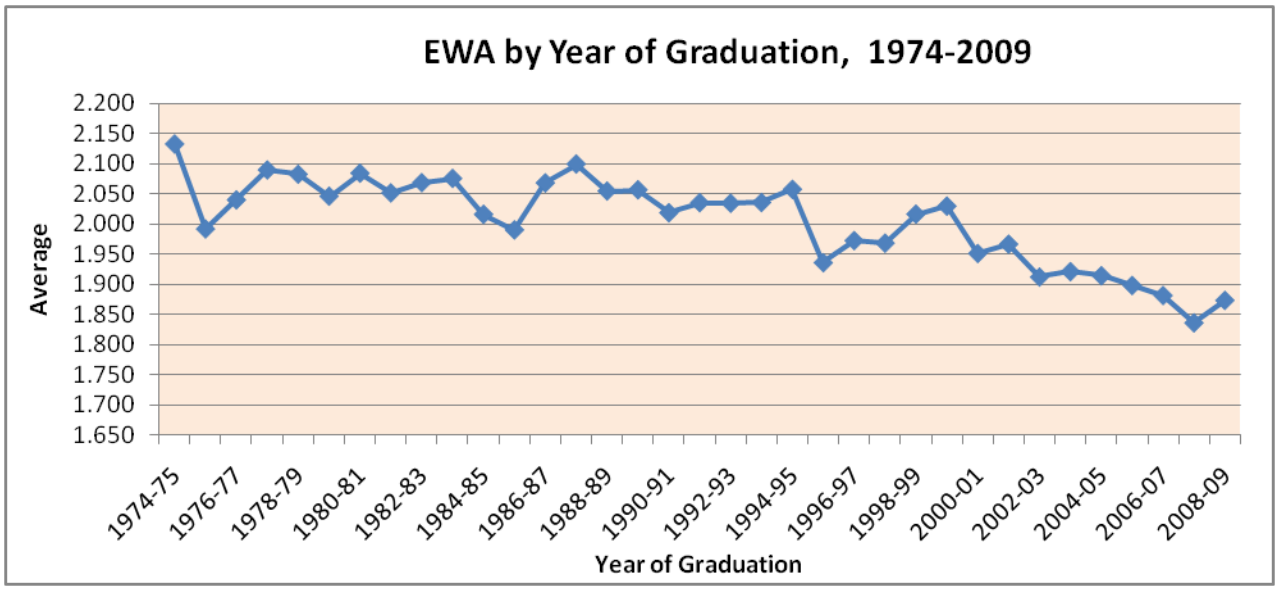
Section IV: Analysis of Data

Trends in Grades at the School of Economics

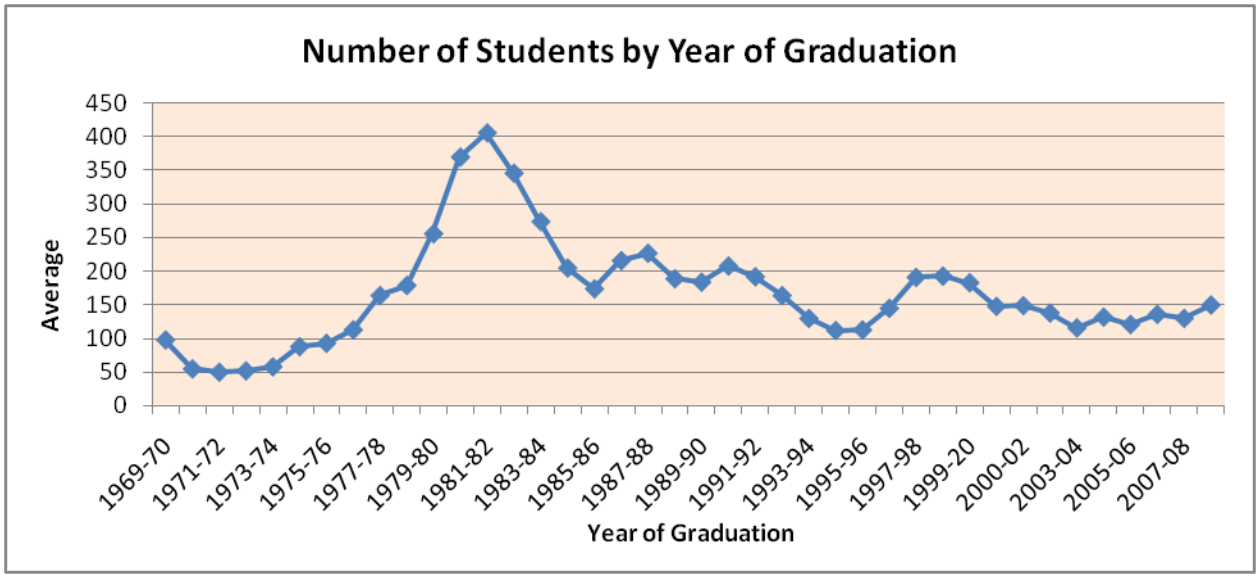
It can be observed that the GWA (AY 1969-2009) in the School of Economics is downtrend, meaning that the GWA is increasing over time. It started as 2.50 in AY 1969-70 and ended in 2009 as 1.71. The time trend is significant at the 1% level at -0.011644.



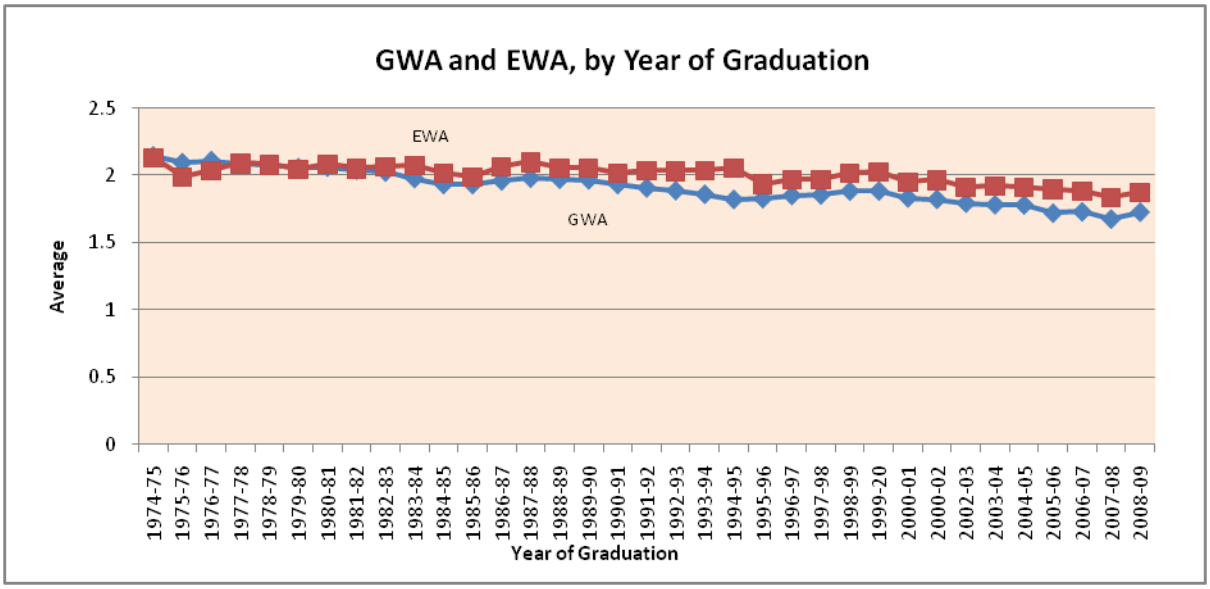
The same is true for the economic weighted average or EWA. It started as 2.13 in AY 1974-75 (the year when they started computing the EWA for evaluation purposes) and ended in 2009 as 1.87. The time trend is significant at the1% level at -0.005923.



Note that the trend in graduating classes very from year to year depending on the intake of students by the undergraduate committee. The trend is as follows:



The GWA is below that of EWA. The grades are higher for the GWA than for the EWA, except for the earlier years, because the courses are more difficult for Economics than for GWA which make up the general courses, including the RGEP. Around AY 1983-84 the difference started and narrowed down.



EWA is related to GWA at the 1% level of significance (and so is the constant.) Taking GWA=a + b(EWA) + e, we have the coefficient of EWA at 1.418660 and the t-statistic at 9.222068, although the adjusted R^2 is only 0.711978.

'Latin Honor' Graduates

The students graduate with "latin honors' – cum laude, magna cum laude, summa cum laude. Below are the honor role of graduates.

YEAR	cum Laude	Magna	Summa	Students
1969-70	3	1		97
1970-71	3			54
1971-72	1	1		49
1972-73	4			51
1973-74	5	1		57
1974-75	8	1		87
1975-76	9	2		92
1976-77	6	1		112
1977-78	19	3		163
1978-79	19	6		178
1979-80	28	6		255
1980-81	34	7		369
1981-82	45	9		405
1982-83	56	6		345
1983-84	52	16	1	273
1984-85	46	9		204
1985-86	39	8		173
1986-87	41	6		215
1987-88	38	9		226
1988-89	24	4		188
1989-90	25	6		183
1990-91	37	7	1	207
1991-92	41	4	1	191
1992-93	81	11		163
1993-94	22	11	1	129
1994-95	33	6		111
1995-96	26	10		112
1996-97	39	6		144
1997-98	44	10		190
1998-99	37	6	1	192
1999-00	46	5	1	182
2000-01	38	7		147
2001-02	30	8	2	148
2002-03	50	7	1	137
2003-04	40	5	1	115
2004-05	42	12	1	131
2005-06	49	13	1	120
2006-07	59	13		135
2007-08	47	18	2	129

2008-09 68 12 1 149

It can be seen that the number of cum laudes and magna cum laudes has gone up over the years, in particular, AY 2005-2006, four years after the start of the RGEP (2.31 for every student in 2005-2006, 1.88 per student in 2006-2007, 1.98 in 2007-2008, and 1.86 in 2008-2009 whereas it was 2.48 per student in 2004-2005 and 2.40 per student in 2002-2003).

As mentioned earlier, the RGEP takes up 33.33% of the 135 units[6] an Economics major must take.

We thus regress RGEP and EWA against GWA. The coefficients are as follows:

Variables	Coefficients
Constant	0.177771 (7.337163)
RGEP	0.466631 (26.07664)
EWA	0.417471 (33.65955)

It is normal that EWA correlates well with GWA because the economics subjects can be expected to determine their general average. But the RGEP courses correlate well with GWA and is significant at the 1% level.

We also tried to regress RGEP and non-economic courses and the results are similar (significant at the 1% level; only the constant is not, at 10% level) but higher, like so:

Variables	Coefficients
Constant	-0.00036 (-0.020482)
RGEP	0.465536 (35.60541)
Non-econ	0.564956 (48.69154)

The time trends of the RGEP courses have been taken, just to see if there is a grade inflation in the RGEP. The RGEP courses that have a dashed line have their coefficients of time trends not taken, because the courses are not popular with Economics students: they have few students or they have few semesters. The time trends follow (the constant is omitted) :

[6] Actually, since Math 17, aside from Math 2, is part – for the School of Economics only – of the RGEP, a total of 47 units out of a total of 135 units or 34.81% is in order.

Variable	Coefficient (of Time)
Arts & Humanities	
Kapampangan 10	---
Aral Pil 12	-0.019398***
	(-3.259823)
Art Studies 1	0.002000
	(0.309049)
Art Studies 2	-0.001596
	(-0.004671)
BC 10	-0.015417
	(-0.4499300)
Comm 3	-0.009331**
	(-2.556736)
CW 10	0.009973
	(1.409889)
Eng 1	-0.012656
	(-1.162118)
Eng 10	---
Eng 11	0.075429
	(1.830426)
Eng 12	-0.001590
	(-0.228051
Eng 30	---
EL 50	---
FA 28	0.057098***
	(4.918828)
FA 30	-0.026503
	(-0.692003)
Fil 25	-0.003131
	-0.751658
Fil 40	--0.006736
	-1.2535866
Film 10	-0.047833
	-1.594099
Film 12	-0.019636
Humad 1	(-0.774192)
J 18	---

Kom 1	---
Kom 2	1.165E-05
	(0.001073)

MPs 10	00.010357
	(0.357274)
MuD 1	-0.004789
MuL 9	(-0.527344)

MuL 13	

Pan Pil 12	0.019176
	(0.975250)
Pan Pil 17	0.001455
	(0.025621)
Pan Pil 19	0.007454
	(1.126442)
Pan Pil 40	-0.005178
Pan Pil 50	(-0.810863)
SEA 30	-0.041455**
	(-2.283988)
Theatre 10	---
Theatre 11	---
Theatre 12	---
Math, Science & Technology	
Bio 1	0.029974***
	(4.911167)
Chem 1	-0.003815
	-0.592615
EEE 10	-0.055667***
	(-3.734989)
Env Sci 1	0.020094**
	(2.5655747)
ES 10	0.075429
	(1.830426)
GE 1	0.055714*
	(2.387507)
Geol 1	-0.004081
	(-0.512530)
Math 2	-1.60E-05
	(-0.002692)
Math 17	0.020094
	(2.565747)
MBB 1	0.008909
	(0.398443)
MS 1	0.004500
	(0.232153)
Nat Sci 1	-0.019295***
	(-3.2048821)

Nat Sci 2	-0.001453
	(-0.328427)
Physics 10	0.018424**
	(2.218663)
STS	-0.02645***
	(-3.979692)
Social science & philosophy	
L Arch 1	0.017000
	(0.10438)
Anthro 10	0.005602
	(0.718253)
Archaeo 2	---
Arkiyoloji 1	0.026099**
	(2.434629)
Econ 11	-0.014885**
	(-2.282432)
Econ 31	---
Geog 1	0.005997*
	(1.836442)
Kas 1	0.017157*
	(1.914641)
Kas 2	0.010578
	(1.141182)
Linng 1	0.003671
	(0.232109)
Philo 1	0.000755
	(0.198938)
Philo 10	-0.009256
	-1.004464
Philo 11	-0.012455
	(-1.294619)
Soc Sci 1	-0.007562
	(-0.780486)
Soc Sci 2	---
Soc Sci 3	-0.070794*
	(-2.187515)
Socio 10	-0.002147
	(-0.246861)

There doesn't seem to be evidence of grade inflation based on the time trends of grades in RGEP courses, except for a few courses like Aral Pil 12, STS, EEE 10, and Nat Sci 1(negatively significant at the 1% level; Bio 1 and FA 28 are positively significant) or SEA 30, Econ 11, and Com 3 (negatively significant at the 5% level; Env Sci I, Physics 10 and Arkilohiya 1 is positively significant at the 5% level) or GE 1, Geog 1, and Kas 1

(positively significant at the 10% level; only Soc Sci 3 is negatively significant at the 10% level). Grades in RGEP courses that are negatively significant have a tendency to rise. This means that these courses have grade inflation, and the teachers in those courses should guard against this. In courses where they are positively significant, grades have a tendency to deteriorate.

We also wanted to know whether EWA depends on grades in Econ 101 (Macroeconomics) and Econ 102 (Microeconomics) and whether it depends on their mathematical ability, that is, their grades in Econ 106 (Mathematical Economics) and Econ 131 (Econometrics). The results follow:

Variable	Equation 1	Equation 2	Equation 3
	Coefficient	Coefficient	Coefficient
Constant	0.821382*** (20.85140)	0.833212*** (20.17370)	0.423493*** (13.83497)
Econ 101	0.240271*** (12.79080)		0.182444*** (13.83407)
Econ 102	0.321109*** (16.76461)		0.218551*** (15.65471)
Econ 106		0.223428*** (12.52520)	0.130986*** (10.49769)
Econ 131		0.255672*** (15.6351)	0.192137*** (17.14844)
n	512	512	512
R^2	0.591011	0.564693	0.806786
Adjusted R^2	0.590307	0.562983	0.805261
F-statisic	369.1383	330.1450	528.2567
Prob (F stat.)	0.00000	0.00000	0.000000

All the grades are significant at the 1% level.

Section 5 Concluding Remarks

We have found that GWA (General Weighted Average) and the EWA (Economics Weighted Average) are increasing over time, but that the grades that comprise the GWA are higher than the grades that make up the EWA. Through regression analysis. we found that GWA is determined by the RGEP (as well as the EWA). Except for a few subjects, there is no grade inflation, based on the time trends, in RGEP courses.

It would be fine if the grades are on-line. Right now the grades are only inputted starting 1999; they should be inputted as far back as possible. Without these, we cannot advance in research studies of grades.

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