Request that you should not refuse

- PLEASE SWITCH OFF AND PUT AWAY YOUR CELL PHONES
- LAPTOPS OK IF WORK IS ACADEMIC
- REMOVE BAGS AND OTHER MATERIALS THAT CAN CAUSE DISTRACTION
- STOP HAVING SIDE CONVERSATIONS
- PARTICIPATE IN CLASS

Class 20

Previous Class: Touched on Poverty & Sports Economics

This class: Grade Inflation

Please submit final project on time

- **Read for Wednesday's Class (Class 20)**

Work on Final project

Read Grade Inflation Paper (Love and Kotchen)

Grade Inflation: General Concerns

- Students get more than they deserve
- Signals a higher quality of students to employers rather than the true quality
- Lenient teachers do not teach well, students get easy As
- Students getting easy As mean students do not work hard and therefore learn the material well enough

Grade Inflation (Love and Kotchen)

- Lenient grading offers a low-cost means of boosting course evaluations without sacrificing time for research
- To demonstrate how the interaction between students and professors can lead to a divergence between an institution's academic goals and the actual behaviors that its incentives induce: How much emphasis to put on teaching and research for promotion?

Major Findings

- First, we find that as institutions seek to improve teaching quality by placing more weight on course evaluations, professors respond by relaxing grading standards and possibly even teaching effort.
- Second, students react to the changes in grading policy and teaching effort by adjusting the time they spend studying & grade inflation can accompany higher student effort: stringent grading discourages students who do not gain from higher grades.
- Third, increased emphasis on research also contributes to grade inflation, as it induces professors to allocate time away from teaching and to offset the resulting decline in course evaluations by raising grades.

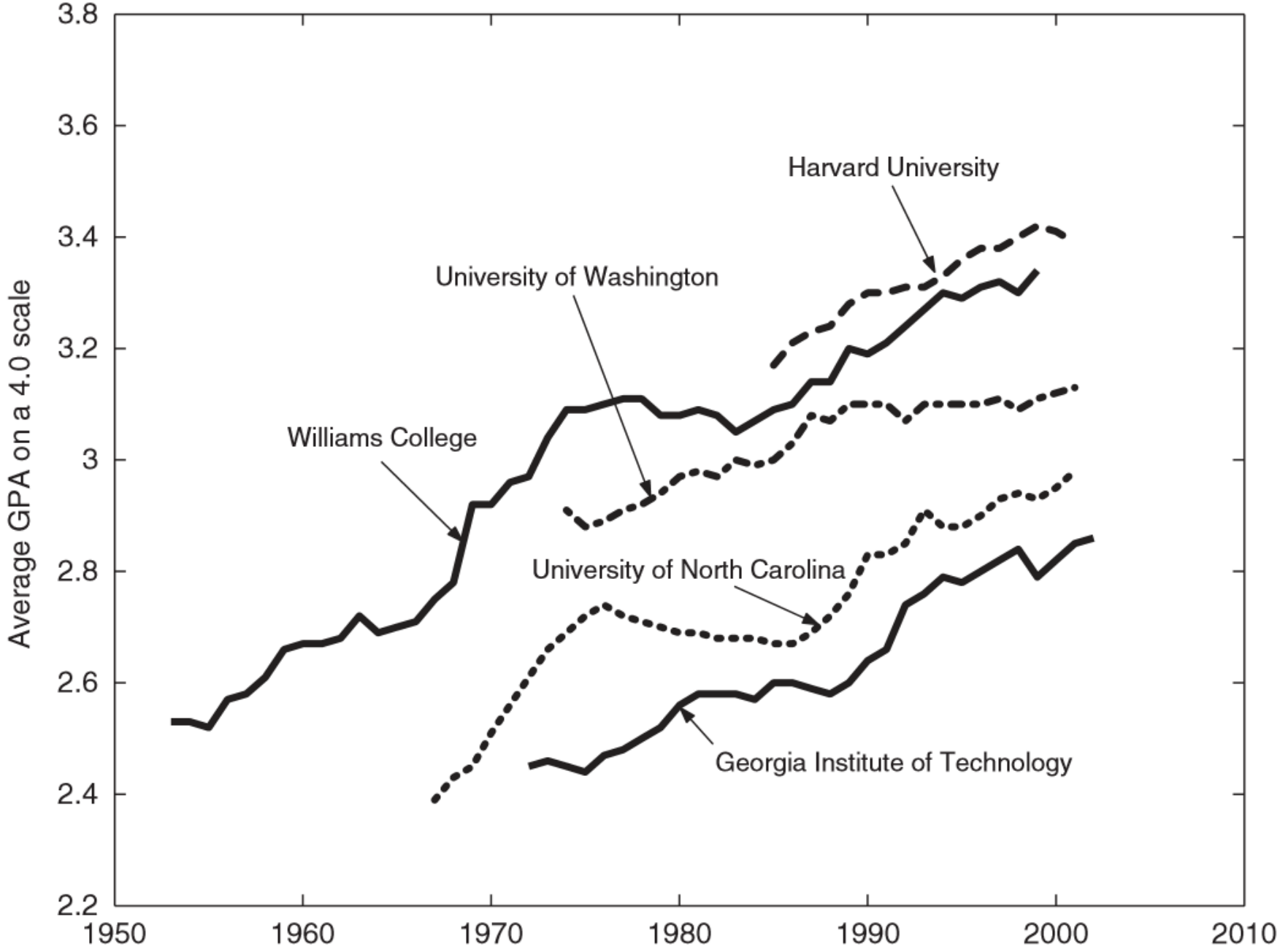

Figure 1. Grade inflation trends for selected schools. Data taken from Rojstaczer (2005).

Motivations of the student

$$preptime = t$$

$$profgradepolicy = \bar{g} \ni [0,1]$$

$$futurewage = w(g)$$

$$grade: g = g(\bar{g}, t).....(1)$$

$$leisure: l$$

$$timeconstraint: 1 = t + l$$

$$educationquality: profeffort: e$$

$$Utility: u^S = u^S(w, l, e).....(2)$$

$$\underset{\{0 \le t \le 1\}}{Max}\, u^S = u^S(w(g(\bar{g}, t)), 1 - t, e).....(3)$$

$$u_w{}^S w_g g_t = u_t{}^S .....(4)$$

$$RF^S: t^* = t(\bar{g}).....(5)$$

(6) $$t^*_{\bar{g}} = -g_{\bar{g}} g_t (u^s_{ww} w_g^2 + u^s_w w_{gg})\Theta$$

where $\Theta < 0$ is the inverse of the second-order condition.

$$(6): RF^S: Slope$$

$$Student\ \ Evaluation\ \ of\ \ \ professor : v = v(\bar{g}, e).....(7)$$

$$researchtime : r$$

$$timeconstra\,\text{int} : 1 = r + e$$

$$RF^{S} : t^{*} = t(\bar{g}).....(5)$$

$$univteaching\,\exp ectation : \alpha$$

$$univresearch\,\exp ectation : \beta$$

$$Utility : u^{P} = u^{P}(v, r, t; \alpha, \beta).....(8)$$

$$\underset{\{0 \le \bar{g}, e \le 1\}}{Max}\ u^{P} = u^{P}(v((\bar{g}, e)), 1 - e, t(\bar{g}); \alpha, \beta).....(9)$$

Letting μ and φ denote the multipliers associated with the Lagrangian L, the Kuhn–Tucker first-order conditions can be written as

$$
\begin{aligned}
&\frac{\partial L}{\partial \bar{g}} = u_v^p v_{\bar{g}} + u_t^p t_{\bar{g}}^* - \mu \leqslant 0, \quad \bar{g} \geqslant 0, \qquad \bar{g}\frac{\partial L}{\partial \bar{g}} = 0 \\
&\frac{\partial L}{\partial e} = u_v^p v_e - u_r^p - \varphi \leqslant 0, \qquad e \geqslant 0, \qquad e\frac{\partial L}{\partial e} = 0 \\
&\qquad 1 - \bar{g} \geqslant 0, \qquad \mu \geqslant 0, \quad \mu(1 - \bar{g}) = 0 \\
&\qquad 1 - e \geqslant 0, \qquad \varphi \geqslant 0, \quad \varphi(1 - e) = 0
\end{aligned} \tag{10}
$$

$$
\bar{g}^* = \bar{g}(\alpha, \beta) \quad \text{and} \quad e^* = e(\alpha, \beta) \tag{11}
$$

(12) $$\frac{\partial \bar{g}^*}{\partial \alpha} = u^p_{v\alpha} v_{\bar{g}} (u^p_v v_{ee} + u^p_{rr}) \Omega \geqslant 0$$

where $\Omega = -1/(\det H)$ and H is the Hessian matrix

(13) $$\frac{\partial e^*}{\partial \alpha} = u^p_{v\alpha} v_e (u^p_v v_{\bar{g}\bar{g}} + u^p_{tt} t^{*2}_{\bar{g}} + u^p_t t^*_{\bar{g}\bar{g}}) \Omega$$

(14) $$\frac{\partial \bar{g}^*}{\partial \beta} = u^p_{r\beta} u^p_{vv} v_e v_{\bar{g}} \Omega \geqslant 0$$

and

(15) $$\frac{\partial e^*}{\partial \beta} = -u^p_{r\beta} (u^p_{vv} v^2_{\bar{g}} + u^p_v v_{\bar{g}\bar{g}} + u^p_{tt} t^{*2}_{\bar{g}} + u^p_t t^*_{\bar{g}\bar{g}}) \Omega \leqslant 0$$

(16) $$t^* = t(\bar{g}^*(\alpha, \beta))$$

(17) $$\frac{\partial t^*}{\partial \alpha} = t^*_{\bar{g}*} \frac{\partial \bar{g}^*}{\partial \alpha}$$

(18) $$\frac{\partial t^*}{\partial \beta} = t^*_{\bar{g}^*} \frac{\partial \bar{g}^*}{\partial \beta}$$

Table 1 Institutional effects on professor and student behavior

Institutional policy	*Professor*		*Student*
	Grade variable ($\bar{g}^*$)	*Teaching effort* (e^*)	*Study time* (t^*)
Teaching emphasis (α)	+	+ or −	+ or −
Research emphasis (β)	+	−	+ or −