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Who Still Goes to Lectures? (And Does It Matter?)

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Introduction



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- Issue of lecture attendance and academic performance has been of interest (for economists at least!) since at least Romer (1993).
 - Why is attendance so relatively low, when the opportunity cost of missing lectures would appear to be so high?
- This issue even more important today (though for a different reason) because of technology:
 - E.g. if lectures are recorded in audio/visual, why go in the first place?

Motivation



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The questions we ask in this paper are:

1. What are some of the characteristics of people attending lectures in person, versus watching these lectures online?
2. After taking into consideration these characteristics, is there an advantage (disadvantage) in attending lectures in person?

Why is this important?

1. The rise of the *MOOC*
2. Increasing focus on different 'learning strategies'
3. Best use of scarce university funding?
4. Best use of scarce researchers' time?

Background and related literature



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- Bassili, J.N. (2008) , Media richness and social norms in the choice to attend lectures or to watch them online , *Journal of Educational Multimedia and Hypermedia* 17(4), 453-475.
 - Students are more inclined to attend live lectures if they expect **the learning content to be difficult**, otherwise they choose the alternatives
- Birch, E. Williams, A. & Hancock, P. (2012) , The impact of online lecture recordings on student performance , *Australasian Journal of Education Technology* , 28 (2) , 199-213.
 - Looked at the issue of whether online recordings and lecture attendance are **substitutes, or complements**
- Kinlaw. C, Dunlap .L, D'Angelo. J, (2012), Relation between faculty use of online academic resources and student class attendance, *Computers and Education*, (59), 167 -172.
 - Examined the **different reasons** why students would use online lecture recordings
- Figlio, D., Rush, M. and Yin, L. (2010). Is it live or is it internet? Experimental estimates of the effects of online instruction on student learning. *National Bureau of Economic Research Working Paper 16089*, National Bureau of Economic Research, Cambridge, United States.
 - found a modest, though **significant, positive effect on grades for those students in their experiment who attended the 'live' lectures**, as opposed to those who were only allowed access to the lecture recordings

Data used in this paper:

- existing **student records data**
- **web-related usage** (e.g. online practice quizzes attempted)
- **Survey** of students in 1st year Microeconomics course at UWA for information (among other things) on:
 - lecture attendance
 - use of lecture recordings
 - Travel time to university, and
 - Approach to learning

Methodology



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Want to break down these characteristics into different categories:

1. Personal characteristics:

- Age
- Gender
- English as a first language

2. Academic characteristics:

- Full-time or part-time student
- Prior academic performance (university entrance exam result)
- Type of high school attended
- Prior knowledge of economics

3. Attitudes to learning:

- Effort (number of voluntary online quizzes attempted);
- Learning style ('deep' versus 'surface' learning approaches, using the Biggs (1987) [Revised Study Process Questionnaire](#));

Regression analysis



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Initial problem - Sample selection bias?

- need to establish whether those filling out survey are a representative sample (for example, those failing the unit were under-represented in survey)
 - ran Heckman 2-step procedure - results indicated no significant selection bias. Hence we ran 2SLS.
- Potential problem: lecture attendance is likely to be endogenous with final grade (for example, there could be additional third factor that leads to students attending more lectures, but which also lead to higher final grades);
- Need appropriate instruments (correlated with lecture attendance, but not correlated with final grade):
 - Travel distance to uni
 - Whether student uses a car to get to uni
 - Whether they missed lectures due to a timetable clash
 - Whether they missed lectures due to work commitment

FIRST STAGE [Dept var = Lecture attend. (%)]		
	Coef.	Std. Err.
Personal characteristics:		
Age of student (start of semester)	-2.631	1.140**
Female	5.405	1.960***
English spoken at home	2.114	2.728
Academic characteristics:		
Part-time enrolment	-1.833	6.335
University entrance score	0.033	0.158
Prior economics dummy (1 = yes)	0.683	2.103
Government school dummy (1=yes)	0.606	2.181
Viewed online lectures:		
Online-only lectures	14.260	3.907***
1-24%	9.188	3.186***
25-49%	0.707	3.665
50-74%	-13.577	3.940***
75-100%	-15.112	4.593***
Attitudes to learning:		
Practice quizzes attempted	0.495	0.542
Deep approach	0.538	0.172***
Surface approach	-0.366	0.172**

Instruments:

Travel time to university:

10-20 minutes	0.893	4.028
20-30 minutes	-1.961	4.392
30-45 minutes	3.371	3.498
45-60 minutes	1.413	3.429
more than 60 minutes	0.327	3.931
Travel to Uni by car	-5.601	2.580**
Timetable clash with lecture	-11.400	5.287**
Work commitments	-11.414	4.039***
Intercept	100.054	28.275***
Observations	464	
R-Squared	0.27	
Overidentification p-value	0.26	
Test of endogeneity p-value	0.002	

- younger students go to more face-to-face lectures;
- Female students go to more lectures than their male counterparts.

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•Reinforces the idea that face-to-face lectures and the online recordings are viewed as **substitutes**, not **complements**, by students

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• Those who report having a 'deeper' learning strategy go to more lectures. Those who have a surface approach actually go to fewer lectures.

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- Instruments chosen appear to be reasonable (particularly the dummy for those who travel by car, those who don't attend lectures due to timetable clashes and those not attending lectures due to work commitments)

SECOND STAGE

[Dept var = Final mark (%)]

	Coef.	Std. Err.
Lecture attendance (%)	0.344	0.116***
Personal characteristics:		
Age of student (start of semester)	2.193	0.800***
Female	-3.563	1.220***
English spoken at home	-2.408	1.584
Academic characteristics:		
Part-time enrolment	0.535	3.858
University entrance score	1.181	0.118***
Prior economics dummy (1 = yes)	1.875	1.083*
Government school dummy (1=yes)	2.007	1.227
Attitudes to learning:		
Practice quizzes attempted	1.055	0.271***
Deep approach	0.090	0.131
Surface approach	-0.161	0.104
Online-only lectures	-4.033	2.297*
1-24%	-1.395	1.768
25-49%	-1.079	1.901
50-74%	5.502	2.954*
75-100%	8.256	2.859***
Intercept	-104.24	23.52***
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- Importantly, says that, even after controlling for all these other variables with respect to lecture attendance, it is a significant determinant of overall academic performance in this unit.

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Std.
Err.

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Intercept

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•Note that the 'deep' and 'surface' variables are not a significant determinant of final grade, once lectures are taken into account (i.e. they seem to work largely through the channel of lecture attendance)

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- Note: coefficients are relative to the omitted variable (which is 'did not use lecture recordings at all');
- Eg: says that those viewing 75-100% of the online lectures have a final mark that is 8 percentage points above that of someone who did not view any online lectures;
- Therefore, online recordings also seem to be important to final grades;
- Further research would look at substitute vs complement (eg Williams et al 2012).

Discussion



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Where to from here?

- Most obvious potential problem here is whether this is specific to this unit (this lecturer?!).
 - An extension to other classes (and particularly years) is needed
- If lectures are important, then this still does not answer WHY
 - Content? Unlikely, given the exact same content is replicated in the online lectures
 - Attitude of lecturer?
 - Interaction with fellow students?



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THANK YOU!