ECONOMICS TEACHING IN AUSTRALIAN UNIVERSITIES: THE REAL AND THE IDEAL

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ABSTRACT

This paper presents evidence from two surveys to help explain the poor ratings consistently given to the teaching of economics at Australian universities. The evidence suggests that the poor ratings of economics teaching can be attributed to two related factors: inappropriate pedagogical practices including course content, teaching methods and assessment; and lack of incentives for academic economists to allocate time to teaching. With respect to the first factor – pedagogical practices – the survey data consist of 205 usable responses from graduates from two Queensland universities. The time elapsed since graduation ranges from one year to ten years. This differs from CEQ survey data which relates only to the previous year's graduates. With respect to the second factor - incentives driving time allocation – the survey data consists of 290 usable responses from academic economists across a wide range of Australian universities.

1. INTRODUCTION

The teaching of university economics in Australia is consistently rated poorly by new graduates in the annual Course Experience Questionnaire (CEQ). Table 1 gives the Good Teaching Score (GTS) and the Overall Satisfaction Index (OSI) in the CEQs for the graduates of 1999, 1998 and 1997. The scores relate to pass and honours degree graduates only and are compared with the mean for all fields of study (FOS). Figures 1 and 2 plot the GTS and OSI, respectively, in ascending order for 1999. The GTS for economics for all three years is in the lowest 25% of scores for all FOS, whereas the OSI scores are not significantly below the mean for all FOS. This suggests that the problem is more with the teaching than with other factors influencing satisfaction with the course. The purpose of this paper is to investigate two possible and related causes of these low GTS for economics. One is poor pedagogical practices in economics and the other is a lack of incentives for academic economists to allocate time to teaching relative to research.

A shortcoming of relying on CEQ results is that they do not pick up the reasons why students have not enrolled in economics courses in the first place. Enrolments in the Bachelor of Economics degree in Australian universities declined in the 1990's (Alauddin and Tisdell, 2000, p.2). A possible reason for this, apart from any concerns about teaching quality or the curriculum, is a perception that more rigorous academic standards are maintained in

economics than in some related business courses, and hence that the latter will yield higher assessment results for a given effort. We do not investigate this possibility here.

***TABLE 1*: CEQ Results for Pass and Honours Degree Graduates National Averages for Specific Fields of Study (FOS)**

	1999		1998		1997	
	Econ	All FOS	Econ	All FOS	Econ	All FOS
GTS						
mean	4.6	14.7	3.6	14.9	-2.0	12.4
st. dev.		14.8		13.2		14.7
OSI						
mean	34.5	37.8	33.9	37.8	30.5	36.1
st. dev.		17.4		12.0		13.7

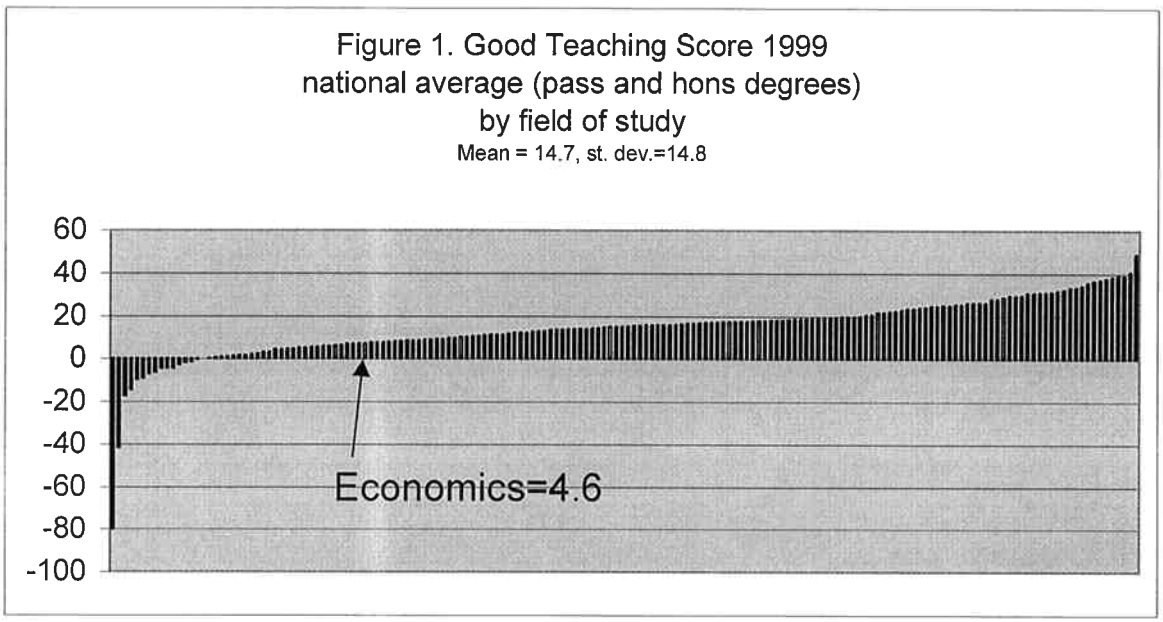
Notes: The mean and st. dev. For FOS refers to the distribution of scores for all fields of study where those scores are themselves unweighted averages across all institutions. The mean for Econ is the national average score across all institutions.

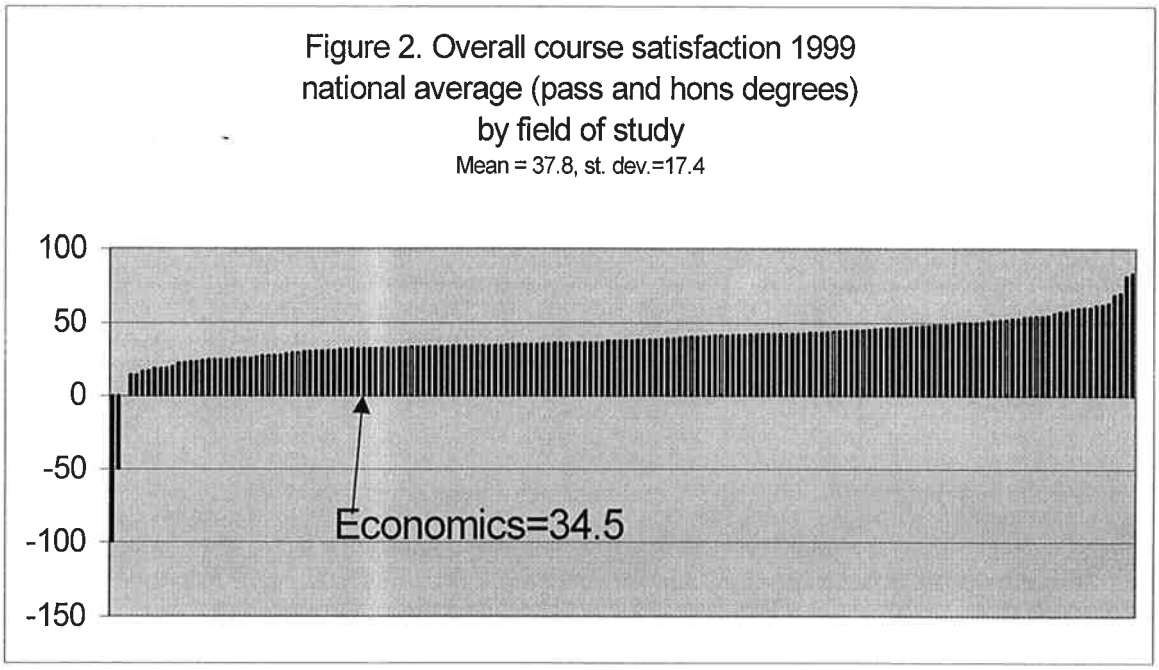
The two factors that we consider - poor pedagogical practices and a lack of incentives to improve teaching – are related. Poor pedagogical practices may to some extent be attributed to a lack of incentive to allocate time away from research toward improving pedagogical practices. There is evidence, for the U.S. (Massy and Zemsky, 1994), that students, parents and some university employers see teaching as deserving of more importance than it is accorded by academics, compared with the importance given to research. To them, less effort spent on teaching relative to research is therefore a reduction in productivity.[1] This suggests there is a distortion in rewards for teaching relative to research leading to a socially suboptimal teaching effort and greater than socially optimal level of research effort. If such a distortion applies to all university disciplines in Australia it would represent a significant misallocation of resources, given an annual output of the Australian university teaching industry of over $5 billion in 1999.[2]

[1] Whereas, in Australia at least, public university administrations sometimes claim that higher student-staff ratios are a productivity improvement (University of Queensland, 1999).

[2] Based on data supplied to the authors by DETYA for 1999: 544,146 EFTSU at a unit cost of $9,700.

The paper is organised as follows. Section II identifies some shortcomings in pedagogical practices in economics that can be supported by our survey evidence. These shortcomings are in terms of course content, assessment and teaching or delivery methods. Section III reports results of our survey of time allocation by Australian academic economists. The point here is that the inappropriate pedagogical practices described in Section II can be explained to some degree by the lack of incentives for improving pedagogy. Section IV concludes the paper.





2. PEDAGOGY IN ECONOMICS

There is a growing body of U.S. evidence that students are justifiably dissatisfied with pedagogy in economics. As far back as 1978 the *American Economic Review* (Hartman) addressed the question of "What do economics majors learn?" and decided that the answer was "not much". In a study of American Ivy League institutions, Colander and Klamer (1987) concluded that graduate students were sceptical of what they had learned in their economics courses. Walstad and Allgood (1999, p354) concluded that college majors appear to learn little more than a control group not studying economics. Their results showed that many college seniors who have taken an economics course still show a lack of understanding of basic concepts. Becker and Watts (1999, p345) note "at least some evidence" that American students are much less satisfied with the average level of instruction in economics than they are in most other subjects. Becker (1997, p1369) similarly noted that "Economics is one of the disciplines that is consistently at the bottom of both course and instructor effectiveness scales".

There are a number of pedagogical issues commonly raised in the context of the tertiary teaching of economics; and these issues apply internationally. First-year courses in particular are often criticised for being "too encyclopedic" and over concerned with formalism at the expense of application (Siegfried, 1991; Heyne, 1995; Colander, 2000). The common format of low cost, large scale lectures coupled with low cost multiple-choice assessment is overdone at the expense of teaching students "to think like economists" - which is indeed what worried both Harberger and the US Kreuger Commission on graduate economics education (Duhs, 1994, p7). As staff developers stress, the approaches students take to learning are related to the approaches staff take to teaching (Prosser and Trigwell, 1999, p159). "Deep learning" is more likely to be achieved when staff stress motivation and real world applicability of theoretical tools, perhaps by working backwards from contemporary examples to find what theory is necessary to analyse the issue.

In this study we set out to investigate some of these concerns in the Australian context by conducting a survey of economics graduates from the last 10 years from two Queensland universities: University of Queensland and Griffith University. 1999 was the most recent year of graduation. From a mailout of 950 questionnaires we received 205 usable responses. The breakdown of responses by years since graduation is given in Table 2. Surveying graduates

from the last 10 years provides additional information to that provided by the annual CEQ surveys which apply only to the most recent cohort of graduates. It is possible that graduates' perceptions about their course and the teaching of the course change in light of their employment/professional experience and life experience in general. Indeed graduates are better able to judge the usefulness of specific economic concepts and the effectiveness of the way they were taught when they have had more time to see how they can be applied in their professional and personal lives. In addition our survey asked for the graduate's overall level of academic achievement which allows us to identify any relationship between academic achievement and range of opinions about pedagogy in economics.

The survey consisted of questions divided into three areas: course content, assessment and determinants of effective teaching. Graduates were asked to respond on either Likert (5-point) or type-type (other than 5-point) scales. Hence most of the data is ordinal and so non-parametric statistics were used where appropriate. In the remainder of this section we discuss the results of our survey. In reporting the results, implications are drawn for how to improve pedagogy in economics – that is, how to bridge the gap between the real and the ideal in the teaching of economics.

***TABLE 2*: Number of Usable Responses in Graduate Survey by Years Since Graduation**

Years Since Graduation	No. of Responses
1	44
2	28
3	29
4	27
5	26
6	22
7	10
8	7
9	6
10	6
total	205

2.1 Course Content

The first question asked students to rate on a 3-point likert-type scale whether the topics covered were "too few and in too much depth", "about right" or "too many topics and in too little depth". Graduates found that there were too many topics and in too little depth (significant at 5%). In the subsequent question graduates reported on a similar scale that there was "too much theory and too little application" (significant at 1%). The implication for pedagogy in economics is that "less is more" when it comes to the coverage of subject matter. A more problem-based approach that emphasises closer engagement with the subject matter by students would be more effective. These results were not dependent on either the graduate's level of achievement or the length of time since graduation.[3]

There was, however, a significant negative correlation between the elapsed time since graduation and the perceived usefulness of some concepts: opportunity cost, supply and demand, indifference curves and the Phillips curve. Spearman's rank correlation coefficients were -0.145, –0.148, –0.164 and –0.137 for supply and demand, opportunity cost, indifference curves and the Phillips curve, respectively (all significant at 5%). One interpretation of this finding is that these concepts were not learned in sufficient depth to be retained over a long period. This is of particular concern in the case of opportunity cost and supply and demand because these are fundamental concepts. The suggestion is that pedagogical approaches in these topic areas produce surface learning rather than deep learning. The reason may be because, as indicated above, too many topics are taught and in too little depth, and there is too much theory and not enough application.

Graduates were asked to grade a number of microeconomic and macroeconomic concepts in terms of their subjective degree of usefulness. For microeconomics, the following ranking emerged, from more to less useful, where the difference in degree of usefulness is significant at 5% (Wilcoxon test[4]): opportunity cost and supply and demand were most useful, followed by market structures, marginal cost and marginal benefit, cost and revenue curves, while indifference curves were the least useful of the six topics. This supports the case for emphasising the fundamental microeconomic concepts of opportunity cost and supply and demand, improving the perceived applicability of the analysis of the various cost and revenue

[3] Level of achievement was defined as a dichotomous variable: pass/credit or distinction/high distinction.

[4] The same results were obtained using the corresponding parametric test (t test in this case). Indeed in all of the results reported in this study the results using non-parameteric statistics were in concordance with those using the corresponding parametric statistics.

curves, and perhaps omitting indifference curves.[5] The ranking of four macroeconomic concepts from more to less useful, where the differences in the rankings were significant at 5%, were: exchange rate determination, money demand/supply, aggregate demand/supply, and lastly the Phillips curve. Given that the most useful two concepts relate to determination of prices in financial markets, this may support the case for directing more attention to teaching financial market economics. Graduates are likely to have more direct interaction with financial markets than with concepts like AD/AS and the Phillips curve. Alternatively, if the concepts in AD/AS analysis and the Phillips curve are regarded as too important to be de-emphasised, our results suggest that the pedagogy adopted in addressing these concepts needs review. To this end, the new approach to teaching these concepts in Taylor (2000) is worth considering.

With the exception of the concepts of marginal cost/benefit and aggregate demand/supply, there was no significant relationship between level of academic achievement and the subjective degree of usefulness of the 10 economic concepts (6 micro and 4 macro) mentioned in the survey. In the cases of marginal cost/benefit and aggregate demand/supply, higher achievers found them significantly more useful since graduation (significant at 5% on a chi-squared test). For the remaining 8 of the 10 concepts, the suggestion is that either the methods of assessment were ineffective in determining the degree to which students have learned the concepts; or that the concepts are in fact of little use to students' professional and personal lives no matter how well they have been learned. In the first case the problem is with the methods of assessment and in the latter case the problem is with the course content.

Surprisingly perhaps, there was no significant difference between the subjective degree of usefulness of economics to professional life of practicing economists and graduates working in other occupations. We found the same result in a comparison of graduates currently working in banking and finance compared with all others. Of our sample of 205 graduates, 21 (10.2%) listed "economist" as their occupation and a further 26 (12.7%) worked in banking and finance. One might have expected graduates in these occupations to have found their studies in economics more useful. On the other hand, it may be testimony to the wide applicability of fundamental economic concepts that all graduates found their economics studies "moderately useful" to "very useful" (a mean of 3.4 on the five point likert scale),

[5] The latter concepts will tend to be useful only to the very small proportion of economics students who go on to become economists. In our sample of economics graduates 10.2% were practicing economists.

with no significant difference between economists and bankers as a group and others. Similar results were found with respect to individual economic concepts. Of the six microeconomic and four macroeconomic concepts that we specifically asked graduates to rate in terms of usefulness, the Phillips curve was the only concept that one group, banking and finance workers, found significantly more useful than those in other occupations. Hence, practicing economists found none of the ten economic concepts or topics more (or less) useful than did other respondents. An alternative interpretation is that, while the economic concepts are potentially more useful to the practicing economist, they were not taught and learned at pass degree level in a way that enabled them to be applied effectively by economists.

2.2 Assessment

CEQ scores for the "appropriate assessment scale" for economics have fluctuated above and below the national average in recent years. The score was significantly below, equal to and above the national average in 1999, 1998 and 1997 respectively. So the CEQ results do not clearly indicate that assessment is viewed any less appropriately than for other fields of study. However, our survey has found more detailed evidence on types of assessment in economics. As indicators of understanding of economic concepts, assignments/take home assessment were deemed by the graduates to be significantly better than exams which in turn were significantly better than multiple choice tests (significance at 1% in each case using either a Wilcoxon test or a paired t-test). This suggests that if the objective is deep understanding of economic concepts, there is a need for a greater assignment component in assessment, and a smaller multiple choice component in exams. This of course has resource implications for economics departments.

Also, lower achievers were significantly less likely to prefer exams as indicators of economic understanding (at 5% on a chi-squared test). This probably reflects the predominance of exams in assessment – lower achievers perform less well and understandably are less happy with the type of assessment used. What this says about the effectiveness of exams in discriminating between the quality of students is unclear. It depends how good the lower achievers are at assessing their own level of economic understanding and therefore the effectiveness of exams in measuring that understanding. If they are good judges of their own level of economic understanding, our results suggest that exams really are inferior in assessing the degree of understanding of economic concepts; and to the extent that this is true it supports a shift toward more assignment based assessment suggested above.

2.3 Determinants of Teaching Effectiveness

The results of ranking eight factors in terms of their importance in determining effectiveness of economics teaching were, in order from high to low:

		mean rank
(i)	knowledge of subject matter	2.78
(ii)	oral communication	3.40
(iii)	enthusiasm	4.04
(iv)	emphasis on problem-based learning	4.37
(v)	organisational skills	5.30
(vi)	promoting interaction: student-student and student-teacher	5.33
(vii)	friendliness and approachability	5.33
(viii)	timely feedback	5.43

There are significant differences between the rankings of 1 and 2, 2 and 3, 4 and 5,6,7,8 (at 5% using a Wilcoxon signed ranks test). Hence, the above ranking reduces to (at the 5% level of significance):

(i) knowledge of subject matter
(ii) oral communication
(iii) enthusiasm and emphasis on problem-based learning
(iv) organisational skills, promoting interaction, friendliness and approachability and timely feedback

On the one hand the high ranking of oral communication suggests that further emphasis on off-campus delivery or web-based delivery of economics courses, which are delivered with minimal oral communication, is not desirable. On the other hand the rankings may reflect the predominance of traditional teaching modes, which emphasise passive learning through lectures. That is, the fact that interaction and problem-based learning are not ranked higher may be due to the fact that students have relatively little experience of these teaching modes.

There was a significant negative correlation between the time elapsed since graduation and the ranking of three of the above factors: promoting interaction, emphasis on problem-based learning, and timely feedback (Spearman rank correlation coefficients were -0.21,-0.16,-0.15, all significant at 5%). That is, the more recent graduates ranked these factors higher than did the less recent graduates. It is interesting that these are the three factors that characterise the more modern approach to effective teaching, in particular emphasis on problem-based learning. One interpretation is that these methods have been emphasised by teachers only in recent years and so figure more prominently in recent graduates' perceptions of determinants of effective teaching. If so, this is a sign of improved teaching effectiveness. A quite different interpretation is that graduates have realised through the passage of time since graduation that

they learned more effectively through the more traditional teaching methods, such as knowledge of subject matter, enthusiasm and oral communication skills. This would suggest that the learning outcomes generated by these traditional methods have more lasting value.

The implications of these results for the teaching of undergraduate economics can be summarised as follows. We should teach fewer topics in more depth and with more emphasis on real-world application. We should do this by concentrating on the more fundamental concepts like opportunity cost and supply and demand in microeconomics; and by giving greater emphasis to financial markets in macroeconomics. Our assessment methods should emphasise assignment work that focuses on problem-solving and de-emphasise multiple choice components of exams. The traditional determinants of teaching effectiveness – knowledge of subject matter, oral communication and enthusiasm – still appear to be most important. But they are perhaps becoming less so with the recent emphasis on student-centred learning which emphasises other factors such as problem-solving and student engagement with the subject matter, with other students and with the teacher.

3. DETERMINANTS OF TIME ALLOCATION

3.1 Related Survey Evidence

Fox and Milbourne (1999) present survey evidence for the view that teaching and research are in conflict for Australian academic economists. Their survey of 150 academic economists in Australia was designed to identify the factors that determine research output. They found that a 10% percent increase in the number of teaching hours reduces research output by 20 percent.[6] This suggests a strong conflict between teaching and research.[7] With regard to incentives for teaching relative to research, an earlier survey of academics across disciplines in Australia (Duhs and Duhs, 1994) found that some 70% of academics endorsed the view that rewards for teaching are presently insufficient to justify significantly increased teaching effort.

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[6] Where internationally refereed papers are taken as the measure of research output.

[7] The Fox and Milbourne survey data differs from ours in that it does not include data on discretionary allocation of hours spent per week on different activities, nor does it include as much detailed data on the individuals' employment characteristics, incentive schemes at the department level and individuals' attitudes to incentives for teaching and research. This is because their research question was about determinants of research output rather than time allocation between various activities. In addition, our survey is larger consisting of 290 usable responses.

The closest study to ours is that of Singell et al (1996) for U.S. academics. Their questionnaire was administered to 8000 instructional faculty at 480 U.S. institutions with the aim of identifying the determinants of academics' time allocation. One difference between their survey and ours is that they include leisure time, whereas we confine ourselves to the proportion of working time allocated among the relevant activities. They argue that the differences in time allocation can be explained by three broad factors: the personal and employment characteristics of the individual academic, the type of the institution and the incentives facing the academic in allocating time between the activities. Incentives can be in terms of the effect of time allocation on promotional prospects and tenure or likelihood of receiving direct pecuniary reward.

3.2 Research Method and Data

The aim of this empirical study is to determine the extent to which the time allocation by academics between research, teaching and other activities is explained by the three broad explanatory factors identified by Singell et al. The research instrument was a survey questionnaire mailed to all academic economists with teaching responsibilities working in Australian universities. A total of 620 questionnaires were mailed out and 290 usable responses were received, consisting of 210 from the initial mailout and 80 from the second mailout. For personal and employment characteristics of the academic, we asked questions about age, duration of teaching experience, academic level, tenure and gender. We categorised each academic's university as belonging to one of the five categories of universities in Marginson (1997): Sandstones, Unitechs, Redbricks, Gumtrees and New Uni's. Information about incentives can be inferred from the association between time allocation and both tenure status and academic level. Also, for data on direct pecuniary incentives that might influence academics' time allocation we asked: whether they received direct pecuniary reward for teaching and/or research and the amount of any such funds received during 1999; what degree of funding they currently receive for conference participation where they are giving a paper; and, as an indicator of their subjective responsiveness to incentives, we asked the degree to which their time allocation is influenced by extant pecuniary rewards for teaching relative to research.

Regression analysis was undertaken in order to identify the statistically significant determinants of the respondents' time allocation. Three regression equations were run with the same explanatory variables - the three dependent variables being the proportion of

discretionary time allocated to teaching, research and other (including service and graduate supervision). The estimated structural model was of the form:

$$S_i = a_{0i} + a_{1i}Sandred + a_{2i}Utechgum + a_{3i}Resfds + a_{4i}Tchfds + a_{5i}Nilconf + a_{6i}Motiv + a_{7i}Profaspr + a_{8i}Lecal + a_{8i}Yrs + a_{9i}Nonten + a_{10i}Fem + \mu_i \qquad \forall\ i = 1,..,3$$

where i =1, 2, 3 for the proportion of discretionary time[8] allocated to, respectively, teaching, research and other. The variables are defined below Table 4. Ordinary least squares estimation of the estimating equation automatically imposes the cross-equation constraints:[9]

$$\sum_{i=1}^{3} a_{ki} = 0 \qquad \forall\ k = 1,..,10$$

3.3 Results

Summary statistics are given in Table 3. In this section we report the significant findings from the regression results given in Table 4. The implications of these findings are discussed in the conclusion. The coefficients indicate the effect of the explanatory variable on the proportion of discretionary time spent on the particular activity after controlling for the other explanatory variables. The findings can be summarised as follows.

(a) The Role of Institutional Type

Respondents from the Sandstones and Redbricks combined, and the Unitechs and Gumtrees combined, respectively spend on average 10 and 9 percentage points less discretionary time on teaching and more on research by the about the same proportion, than respondents from the New Unis (significant at 1%). (See Table 3 for the actual proportion of time spent on each activity on average by respondents from each university category.)

(b) The Role of Academic's Personal and Employment Characteristics

Professors and Associate Professors spend on average 9 percentage points less discretionary

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[8] As described in Table 1 total discretionary time is the number of hours worked during the week after deducting the teaching load in hours (or classroom hours), since class teaching hours cannot be allocated to any alternative use. The proportion of discretionary time allocated to teaching is the number of hours spent on teaching, after deducting the teaching load, as a proportion of total discretionary time. This gives the proportion of the total time available for allocation that the respondent has chosen to allocate to non-class teaching activities (such as preparation, marking and consultation).

[9] Zellner (1962) shows that when the explanatory variables in each of the equations are the same in a set of "seemingly unrelated regressions", the estimation technique reduces to ordinary least squares.

time on teaching and 8 percentage points more discretionary time on non-teaching, non-research activity (e.g. service and graduate supervision) than Senior Lecturers (significant at 5%). Every additional year of service (holding academic level constant) decreases the average proportion of discretionary time spent on research by 1 percentage point (significant at 1%) and increases the time spent on teaching by 0.3 percentage points (significant at 5%). Non-tenured respondents spend on average 7 percentage points more discretionary time on research and 6 percentage points less on non-teaching, non-research activity, than tenured respondents (significant at 5%). There is a suggestion (the significance levels are low) that women allocate more discretionary time to teaching and less to research than do men.[10]

(c) The Role of Direct Departmental Pecuniary Incentives

Those who receive nil departmental funding for conferences where they are giving a paper spend on average 10 percentage points less discretionary time on research (significant at 1%) and this time is spread evenly between non-teaching, non-research activities (significant at 5%) and teaching activity (significant at 7%). There is some suggestion, though not strong, that those who say they are more motivated by departmental incentives for research and teaching spend more time on research relative to other activities (significant at 8%). This is consistent with the mean response on that question which was that such pecuniary rewards had a "slight influence" on their time allocations.[11] The regression results provide no evidence that the dollar amounts of departmental funding for teaching performance and research performance have a significant effect on time allocation. The reason may be that these dollar amounts tend to be quite low (averaging $1434 for research and $421 for teaching) compared with the value of perceived career incentives.

[10] The results show that women spend on average 3.5% points more discretionary time on teaching (at 19% significance) and 5% points less discretionary time on research (at 15% significance). We take the view that these significance levels are too low to provide any evidence one way or another.

[11] This response, in light of the strong influence of tenure on time allocations, may reflect a narrow interpretation of pecuniary rewards in that respondents did not consider the long term career benefits as pecuniary rewards. (In hindsight, this is a shortcoming of the survey question.)

TABLE 3: Descriptive Statistics from Survey Questionnaire

	Sandstones	Unitechs	Redbricks	Gumtrees	New Unis	TOTAL
Number of respondents	81	23	51	94	41	290
Proportion of respondents	0.279	0.079	0.176	0.324	0.141	
- at each type of institution by academic level						
professor	0.148	0.087	0.098	0.106	0.028	0.100
assoc prof	0.222	0.174	0.235	0.223	0.111	0.197
senior lecturer	0.235	0.174	0.294	0.287	0.167	0.303
lecturer	0.247	0.478	0.255	0.266	0.667	0.293
assoc lecturer	0.148	0.087	0.118	0.117	0.028	0.107
Total	1.000	1.000	1.000	1.000	1.000	1.000
females	0.185	0.130	0.196	0.170	0.167	0.162
tenured/tenurable	0.778	0.957	0.784	0.894	0.833	0.728
some pecuniary reward for						
- teaching performance	0.148	0.652	0.275	0.032	0.073	0.162
- research performance	0.519	0.826	0.549	0.608	0.317	0.459
Average $ reward during 1999 for						
- teaching performance	296	826	882	223	317	421
- research performance	1802	2174	2922	447	707	1434
Proportion who received						
- Nil conference funding	0.074	0.000	0.392	0.170	0.049	0.152
- Full (100%) conference funding	0.519	0.826	0.294	0.277	0.488	0.421
Proportion who, if they "significantly improved their teaching" would						
- be promoted to a higher grade	0.074	0.304	0.137	0.074	0.017	0.110
- receive no reward at all	0.309	0.130	0.196	0.330	0.024	0.262
Ave. years of teaching experience	13.5	12.7	14.4	16.9	13.1	14.7
Ave. teaching load for a lecturer(hrs p.w)***	6.7	8.6	5.4	7.2	9.5	8.3
Ave. proportion of discretionary time* over year on						
- teaching**	0.231	0.295	0.254	0.273	0.377	0.274
- research	0.530	0.480	0.489	0.468	0.403	0.480
- service	0.150	0.124	0.177	0.161	0.147	0.156
- graduate supervision	0.083	0.079	0.070	0.093	0.073	0.082

* Discretionary time = total hours worked minus contact teaching hours

* Discretionary time on teaching = (total time on teaching minus teaching load) divided by total discretionary time.

* These are approximate because respondents were asked to record their teaching load in two hourly banks. We take the mid-point of these bands as the number of contact teaching hours.

TABLE 4: Regression Results

	S (teaching)	S (research)	S (other)
Const	0.34	0.46	0.23
	(8.04)	(8.99)	(5.60)
Sandred	-0.10	0.10	-0.01
	(3.47)	(2.68)	(0.22)
Utechgum	-0.09	0.08	0.01
	(2.97)	(2.34)	(0.31)
Profaspr	-0.09	0.01	0.08
	(3.34)	(0.43)	(3.03)
Lecal	0.06	-0.05	-0.03
	(2.32)	(1.64)	(0.96)
Nonten	-0.03	0.07	-0.06
	(1.25)	(2.01)	(2.30)
Yrs	0.003	-0.01	-0.00
	(2.07)	(3.18)	(1.00)
Fem	0.03	-0.05	0.01
	(1.32)	(1.47)	(0.50)
Resfds	-0.00	0.00	-0.00
	(1.28)	(1.46)	(0.34)
Tchfds	-0.00	0.00	-0.00
	(0.75)	(0.42)	(0.03)
Nilconf	0.05	-0.10	0.05
	(1.83)	(3.02)	(1.98)
Motiv	-0.01	0.02	-0.01
	(1.16)	(1.77)	(1.30)
R^2(adj.)	0.25	0.18	0.14
sample size=290	t statistics are in parentheses		

Description of variables in Table 4

Institutional characteristics:

- Sandred = 1 if the university is either a Sandstone or a Redgum; 0 otherwise.
- Utechgum = 1 if the university is either a Unitech or a Gumtree; 0 otherwise. (Both of the institution type variables are 0 if the uni is a New uni).

The academic's personal and employment characteristics:

- Profaspr = 1 if the respondent is a professor or associate professor; 0 otherwise.
- Lecal = 1 if the respondent is a lecturer of associate lecturer; 0 otherwise. (Both of the academic level variables are 0 if the respondent is a senior lecturer.)
- Nonten = 1 if the respondent is tenured or tenurable; 0 otherwise.
- Yrs = the number of years for which the respondent has been employed as an academic economist with teaching responsibilities.
- Fem = 1 if the respondent is female; 0 otherwise.

Direct Pecuniary Incentives:

- Resfds and Tchfds = the dollar amount of funds received by respondent for research performance and teaching performance, respectively, during 1999.
- Nilconf = 1 if the respondent receives zero conference funding from their department or school in the case where they are giving a paper at the conference; 0 otherwise.
- Motiv =1, 2,..,5 indicating the subjective degree of responsiveness to extant pecuniary rewards for teaching relative to research in determining time allocation.

4. CONCLUSIONS

This is a two-pronged study of the possible reasons for the consistently low ratings given to the teaching of economics at Australian universities. In conclusion, we review our results and suggest ways of bringing the "real" closer to the ideal in teaching economics in Australian universities.

Our survey of 205 economics graduates from two Australian universities identified some shortcomings of pedagogy in economics and we have identified some implied remedies. Insofar as economics courses in the two universities surveyed are pedagogically similar to economics courses across the country – which seems likely – the conclusions can be imputed to the national case. Since some of the shortcomings that we found have also been reported in the U.S. literature it is in fact likely that the problems with pedagogy in economics apply not only across the country but internationally. In essence, the implications from our results are that: (i) we should teach fewer topics in more depth and with more emphasis on real-world application; (ii) we should concentrate on the more fundamental concepts in microeconomics, like opportunity cost and supply and demand; give greater emphasis to financial markets in macroeconomics (iii) our assessment methods should emphasise assignment work that focuses on problem-solving and de-emphasise multiple choice components of exams; (iv) we should not neglect the traditional determinants of teaching effectiveness – knowledge of subject matter, oral communication and enthusiasm – in our efforts to showcase technological innovations and focus more on student-centred learning.

Our survey of time allocation by academic economists in Australia suggests that shortcomings in pedagogy are due to some degree to a bias in incentives toward allocation of time to research relative to teaching. We found that senior academics prefer to sacrifice teaching rather than research in accommodating their higher administrative loads; and young academics prefer to build up their human capital through research effort since this will enhance their future research output. Also, non-tenured academics choose to work longer on research relative to both teaching and other activities. This suggests that research performance is perceived to be the most successful path to tenure. There is a suggestion (not strong evidence) that academics are motivated by direct departmental pecuniary rewards in their time allocations, compounding the effect of incentives for allocating time to research for career promotion. For example, there is evidence that conference funding encourages research output relative to both teaching and other activities; but respondents said they are

only "slightly influenced" by direct departmental pecuniary rewards and this is supported by the regression results.

The lack of incentives to improve teaching is perhaps captured most starkly by the result that 26% of university economics teachers in our sample believe they would receive no reward at all if they significantly improved their teaching, while only 11% believe they might be promoted. In our view a good start to improving pedagogy in economics would be to correct the incentive bias in time allocation between research and teaching. We believe this requires, as a first step, a credible method of measuring teaching quality that compares with the blind refereeing system of measuring research quality. As Milgrom and Roberts (1992) emphasise, whenever one of two outputs produced by an employee is rewarded and the other is not, there is likely to be a fall in both the relative and absolute standards of the unrewarded line of output – in this context teaching. More credible measurement of teaching could be achieved by external audits of the teaching of each individual academic by representatives of both the teaching and learning units and economics departments of other universities. A complimentary measure (by no means a substitute) would be to reward academics who have undertaken professional teaching courses. This would improve the understanding of pedagogy by academic economists.

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