A NATIONAL SURVEY OF TEACHING METHODS IN ADVANCED PLACEMENT ECONOMICS COURSES: MORE CHALK AND TALK?

DENNIS L. PLACONE AND CLAIRE MELICAN *

ABSTRACT

Becker and Watts conducted national surveys in 1995 and 2000 of those teaching economics at post-secondary institutions to investigate teaching methods used in undergraduate courses. Surveys similar to Becker and Watts were sent to AP economics teachers. We compare the teaching methods used in college classes with those used by AP teachers. Compared to principles courses in economics offered at the colleges, the typical high school AP Economics class has a smaller number of students, the teachers are more likely to use classroom discussions and the high school teachers use lectures less often than do college instructors of economics.

INTRODUCTION

With the endorsement of the American Economic Association Committee on Education, Becker and Watts (1996, 1998, 2001,a,b) conducted national surveys in 1995 and 2000 of those teaching economics at post-secondary institutions to investigate teaching methods used in various kinds of undergraduate economics courses. Since the fall of 1988, through the Advanced Placement (AP) Program, high school teachers have been teaching what is intended to be the equivalent of the microeconomics and macroeconomics principles courses offered by many post-secondary institutions. In this paper, we compare the teaching methods used in the post-secondary principles classes with those used by the high school AP teachers. Compared to principles course in economics offered at post-secondary institutions, the typical high school AP Economics class has a smaller number of students, high school teachers are more likely to use classroom discussions as a teaching tool, and high school teachers use lectures less often than do post-secondary instructors of economics.

SAMPLING

To identify high school AP teachers, the Educational Testing Service (ETS) provided us with a mailing list of teachers and schools in which at least one student from the school had taken an AP economics exam in 1999. In instances where the number of students taking the test was small, it may have been the case that the student took the course via distance learning and not from a teacher at the school. We have no way to control for this, but we believe that the actual number of teachers of AP Economics is smaller than the 1,900 reported by ETS.

Surveys were sent to the 1,900 high school AP economics teachers identified by ETS, with 523 teachers returning completed surveys, for a return rate of 27.5%. This response rate compares favorably with the

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average 20% response rate in the two surveys by Becker and Watts. To increase our response rate, a follow-up reminder was posted on the AP Economics listserv about a month after the surveys were mailed. Although AP economics teachers do not have to be on this listserv, we believe the reminder encouraged some teachers to complete and return their surveys.

We have no way of knowing how representative our sample is of all AP teachers. Of the 523 respondents, 257 respondents (about 50%) taught both microeconomics and macroeconomics, while 180 or 34% taught macro only, and the remaining taught micro only. These percentages are somewhat different from the population distributions of students taking the 1999 AP economics exams: 36% of students took both exams, 42% took macro only, and 22% took micro only. This suggests that teachers teaching only one of the courses, but not both, were less likely to complete the survey than teachers who taught both courses.

Unlike the Becker and Watts surveys that covered four different types of courses and had many detailed questions on instructor’s research and service activities, our survey was only concerned with the microeconomics and macroeconomics principles courses and background information related to teaching credentials. Like the Becker and Watts surveys, our survey consisted of three sections: 1) teaching methods, 2) testing and grading methods, and 3) background information. In the first section teachers were asked to use a scale of 0-4 to indicate how often they used various teaching methods. A response of 0 indicated never, 1 signified rarely (or 1-10% of the time), 2 indicated occasionally (or 11-33% of the time), 3 frequently (or 34-65% of the time), and 4 usually or always (or 66-100% of the time). As with the Becker and Watts surveys, by giving a scaling in words and percentages we hoped that answers would have a consistent interpretation across teachers.

TEACHING METHODS

There was little difference between the way in which microeconomics and macroeconomics was taught in AP classes. Thus, for purposes of this report, we will give combined results for both courses unless specifically noted. (Table 1)

We expected that teachers at the high school level would use traditional lectures and “chalk and talk” less often than post-secondary teachers. This expectation was based on the speculation that high school teachers are more familiar with alternative teaching methods, less bound by discipline traditions, and subject to peer pressure that would encourage active student involvement in the learning process. But surprisingly, our findings on classroom presentation are similar to those reported by Becker and Watts (1996, 2001,b).

Like post-secondary teachers of economics, high school AP teachers frequently or usually used traditional lectures, the chalkboard, textbooks, and graphs. They almost never used guest lecturers. An overhead projector was occasionally used, but computer-generated displays were rarely used.

Unlike the college classrooms, discussions were more prevalent in the high school classroom. Discussions between groups of students were used occasionally, but discussions between the instructor and students were used frequently. The means for student-with-student discussions were 2.5 for macro and 2.4 for micro; the medians were 3 and 2, respectively. For instructor-and-student discussions, the means for macro and micro were 3.4 and 3.3, and the medians were 4 and 3. It may be that the content in macro courses, or greater student interest in macro than in micro, or both, leads to more classroom discussion in the macro courses. In any event, classroom discussion is more common in the high school AP class than in the college introductory class. This may be a function of differences in class sizes. The average class size for an AP Economics high school class was 22, but the average class size in the college course was 63.5 students, with a median of 40 — both well above that of the average high school classroom.

Given the relative importance of discussion in the high school classroom, one might expect to see more outside readings from the current press or scholarly works assigned in macro than in micro. However, we did not find this to be true. Assignments involving readings from the popular press were made only occasionally in both macro and micro, whether looking at the mean or median responses. Readings from scholarly journals were rarely assigned.

In the AP classroom, teachers occasionally used cooperative learning or small-group assignments. Becker and Watts found very little use of cooperative or active-learning methods in the college principles classes. But as in Becker and Watts, we found that all other forms of classroom activities were rarely or never used in the AP economics classes. References to gender, race, ethnic issues; and the use of examples from sports, literature, drama, or music were rare. References to sports were slightly more common than the others, however.
# TABLE 1

## 2000 TEACHING METHODS, EXAMPLES, AND ASSIGNMENTS

<table>
<thead>
<tr>
<th></th>
<th>Research</th>
<th>Doctorate Granting</th>
<th>Masters</th>
<th>Liberal Arts</th>
<th>Associate Institutions</th>
<th>AP Macro</th>
<th>AP Micro</th>
<th>Combined AP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introductory</strong></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Lecture time</td>
<td>83(68)%</td>
<td>83(74)%</td>
<td>83(69)%</td>
<td>83(65)%</td>
<td>83(64)%</td>
<td>49.5(52.9)%</td>
<td>49.5(51.9)%</td>
<td>49.5(52.4)%</td>
</tr>
<tr>
<td>Guest Lectures</td>
<td>0(5)%</td>
<td>0(2)%</td>
<td>0(2)%</td>
<td>0(4)%</td>
<td>0(5)%</td>
<td>5.5(3.6)%</td>
<td>5.5(3.6)%</td>
<td>5.5(3.6)%</td>
</tr>
<tr>
<td><strong>Class Time Use of</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chalkboard&lt;sup&gt;a&lt;/sup&gt;</td>
<td>50(47)%</td>
<td>83(68)%</td>
<td>83(68)%</td>
<td>83(69)%</td>
<td>83(69)%</td>
<td>49.5(54.3)%</td>
<td>49.5(55.3)%</td>
<td>49.5(54.7)%</td>
</tr>
<tr>
<td>Overhead&lt;sup&gt;b&lt;/sup&gt;</td>
<td>22(36)%</td>
<td>14(26)%</td>
<td>6(19)%</td>
<td>6(20)%</td>
<td>22(33)%</td>
<td>22.0(29.9)%</td>
<td>22.0(26.6)%</td>
<td>22.0(28.5)%</td>
</tr>
<tr>
<td>Computer labs</td>
<td>0(7)%</td>
<td>0(10)%</td>
<td>0(10)%</td>
<td>0(7)%</td>
<td>0(10)%</td>
<td>5.5(5.2)%</td>
<td>5.5(4.7)%</td>
<td>5.5(5.0)%</td>
</tr>
<tr>
<td>Coop learning</td>
<td>0(7)%</td>
<td>6(19)%</td>
<td>6(16)%</td>
<td>0(6)%</td>
<td>22(24)%</td>
<td>22.0(24.9)%</td>
<td>22.0(22.9)%</td>
<td>22.0(24.1)%</td>
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<tr>
<td><strong>Examples from</strong></td>
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</tr>
<tr>
<td>Literature</td>
<td>0(4)%</td>
<td>0(9)%</td>
<td>3(7)%</td>
<td>6(8)%</td>
<td>6(13)%</td>
<td>5.5(4.4)%</td>
<td>5.5(4.3)%</td>
<td>5.5(4.4)%</td>
</tr>
<tr>
<td>Sports</td>
<td>----</td>
<td>6(11)%</td>
<td>6(11)%</td>
<td>6(10)%</td>
<td>6(16)%</td>
<td>5.5(10.6)%</td>
<td>5.5(11.7)%</td>
<td>5.5(11.0)%</td>
</tr>
<tr>
<td><strong>Assigned Materials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Textbooks</td>
<td>83(76)%</td>
<td>83(79)%</td>
<td>83(78)%</td>
<td>83(73)%</td>
<td>83(70)%</td>
<td>83.0(63.0)%</td>
<td>83.0(62.8)%</td>
<td>82.9(62.9)%</td>
</tr>
<tr>
<td>Workbooks</td>
<td>22(35)%</td>
<td>6(26)%</td>
<td>22(33)%</td>
<td>6(21)%</td>
<td>22(27)%</td>
<td>49.5(41.1)%</td>
<td>49.5(42.5)%</td>
<td>49.5(41.6)%</td>
</tr>
<tr>
<td>Class notes&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6(30)%</td>
<td>6(26)%</td>
<td>22(32)%</td>
<td>6(24)%</td>
<td>22(38)%</td>
<td>49.5(46.4)%</td>
<td>49.5(43.2)%</td>
<td>49.5(45.0)%</td>
</tr>
<tr>
<td>Problem sets&lt;sup&gt;d&lt;/sup&gt;</td>
<td>50(44)%</td>
<td>50(51)%</td>
<td>22(39)%</td>
<td>50(45)%</td>
<td>50(43)%</td>
<td>22.0(26.4)%</td>
<td>22.0(23.8)%</td>
<td>22.0(25.3)%</td>
</tr>
<tr>
<td>Popular press</td>
<td>22(29)%</td>
<td>22(27)%</td>
<td>22(29)%</td>
<td>36(39)%</td>
<td>22(37)%</td>
<td>22.0(25.8)%</td>
<td>22.0(22.9)%</td>
<td>22.0(24.6)%</td>
</tr>
<tr>
<td>Academic pubs.</td>
<td>0(4)%</td>
<td>0(3)%</td>
<td>0(4)%</td>
<td>0(8)%</td>
<td>0(6)%</td>
<td>5.5(5.5)%</td>
<td>5.5(5.0)%</td>
<td>5.5(5.3)%</td>
</tr>
<tr>
<td><strong>Class Size</strong></td>
<td>158(185)</td>
<td>46(65)</td>
<td>40(45)</td>
<td>30(30)</td>
<td>30(43)</td>
<td>22.0(24.0)%</td>
<td>21.5(23.3)</td>
<td>21.8(23.7)</td>
</tr>
<tr>
<td><strong>Number</strong>&lt;sup&gt;d&lt;/sup&gt;</td>
<td>69</td>
<td>68</td>
<td>187</td>
<td>109</td>
<td>70</td>
<td>427</td>
<td>337</td>
<td>515</td>
</tr>
</tbody>
</table>

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<sup>a</sup> Written during class only  
<sup>b</sup> Prepared acetates only  
<sup>c</sup> Instructor prepared  
<sup>d</sup> Number providing class size information  
<sup>e</sup> Combined AP Micro and Macro

The textbook was cited as the tool assigned most often by teachers. Workbooks and instructor-developed class notes were used occasionally to frequently. Database searches were assigned infrequently. Internet searches were used more in the macroeconomics classes than in microeconomics, but even there the median response indicated only occasional use.

## TESTING AND GRADING

The second section of the survey asked about testing and grading methods, and in part of this section teachers were asked to provide actual percentages, rather than 1-4 ratings. Becker and Watts (2001b) found that in the post-secondary principles classes, multiple-choice questions accounted for about 45% of the student’s grade. In the high school course, we found that multiple-choice questions account for just over a third of the student’s final grade, with short and long free-response questions each accounting for less than 15% of the student’s grade. On the AP macroeconomics and microeconomics examinations, two thirds of the student’s score is based on multiple-choice questions, one sixth on a long free-response question, and one sixth on two short free-response questions.

Homework/problem sets counted for a higher percentage of a student’s grade than did any other form of writing assignments, with the median being 15%. About 10% of the students’ course grade was based on
group work. Graphs were viewed as extremely important in the courses, but calculus was rated not at all important. Free-response questions on the AP examinations often require students to draw a graph, or use a graph provided in the question. Many of the AP multiple-choice questions are also based on graphs, or using graphs to determine correct answers. That may partly explain the strong emphasis on graphs.

INSTRUCTOR BACKGROUND

The third part of the survey dealt with background information on the teacher and school. Approximately three-quarters are males (for post-secondary institutions it is slightly over 80%), and more than 90% are Caucasian (for post-secondary it is about 89%). Hispanics and African Americans account for less than 4% of the teachers. Thirty-five of the teachers or about 7% have earned a doctorate degree of some kind, 66% indicate a Master’s degree is their highest-earned degree, and 26% indicate a Bachelor’s degree is their highest earned degree. The average teacher has been teaching for 17 years and earned his/her highest degree in 1985. The average school is located in a suburban area with about 1,450 students enrolled. When we look at the percentage of students who live in rural or urban areas, the reported median is 0. The median number of students in a high school who go on to college is 80%, but for AP Economics classes, it is 100%.

What may be most interesting is the number of economics courses these teachers have had at both the undergraduate and graduate level. Twenty-seven teachers (5%) indicated that they had no undergraduate economics course and 190 (37%) indicated they had no graduate level courses in economics. Thirty-seven percent of the teachers have had fewer than four graduate economics courses and 67% have had fewer than four undergraduate economics courses. The median number of undergraduate courses taken by a teacher is 4 (mean is 5.83) and the median number of graduate courses is 2 (mean is 3.31).

The lack of education in economics among high school teachers of the AP courses stands in sharp contrast to the academic background of those teaching in post-secondary institutions where the typical (modal) economics instructor has a Ph.D. in economics.

It is not surprising to find that high school teachers have less formal education in economics than do their post-secondary counterparts, but how little training many of them have may signal a need to find ways to increase the economics coursework for more university students interested in teaching careers. The difference is also partly due to the fact that graduate students serving as teaching assistants were very unlikely to be included in the Becker and Watts samples, drawn from the AEA and CMG lists. Nevertheless, the magnitude of this difference in economics coursework between the AP and post-secondary instructors is disappointing. It is consistent with the observation that many teachers who are assigned to teach the AP Economics course get the appointments simply because they have many years of teaching experience, but not necessarily as economics teachers. All but two states include economics as part of their high school standards, but the results of this study suggest that only a small percentage of teachers at the high AP level are minimally prepared to teach these economics courses.

CONCLUSION

Compared to principles course in economics offered at post-secondary institutions, the typical high school AP Economics class has a smaller number of students. Compared to the post-secondary teachers, it appears that high school teachers are more likely to use classroom discussions as a teaching tool, and although they typically use the lecture, the high school teachers use it less often than do post-secondary instructors of economics. An interesting question is whether this is because of their lack of knowledge of economics (and thus less willingness to preach the "gospel") or their knowledge of good teaching practices (and thus their willingness to get students more actively engaged in the learning process). A second question related to the difference in academic backgrounds is whether a teacher’s formal economics education, or lack thereof, matters. If students do well on the AP microeconomics and macroeconomics tests, why should anyone care about the lack of formal economics education knowledge of their high school teachers?

With wider implementation of standards-based curricula and likely growth of the AP Economics program, it may be worthwhile to repeat this survey in a few years to see if and how teaching methods change and if the backgrounds of those teaching AP courses become more like those at the post-secondary level.
REFERENCES


_____. eds. 1998. Teaching economics to undergraduates: Alternatives to chalk and talk, Cheltenham, UK: Edward Elgar,.


APPENDIX

SURVEY ON TEACHING METHODS
IN AP ECONOMICS

I. Teaching Methods:

Use the 0-4 scale to indicate how often you use the following teaching methods and materials during the term of the course:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Never</td>
</tr>
<tr>
<td>1</td>
<td>Rarely, or 1-10% of the time</td>
</tr>
<tr>
<td>2</td>
<td>Occasionally, or 11-33% of the time</td>
</tr>
<tr>
<td>3</td>
<td>Frequently, or 34-65% of the time</td>
</tr>
<tr>
<td>4</td>
<td>Usually or Always, or 66-100% of the time</td>
</tr>
</tbody>
</table>

Macroeconomics       Microeconomics

A. Classroom Presentations
1. Traditional Lectures
2. Chalkboard Text/Graphs
3. Overhead Projector Displays
4. Computer Generated Displays
5. Team Teaching
6. Guest Lectures

B. Classroom Discussions
1. Student(s) with Student(s)
2. Instructor with Student(s)

C. Other Classroom Activities
1. Computer Lab Assignments
2. Classroom Experiments
3. Games & Simulations
   a. Computer
   b. Other
4. Cooperative Learning/
   Small-Group Assignments
5. Studies of Lives or Work of
   Nobel Prize or Other Eminent
   Economists
6. References to Gender/Race/
   Ethnic Issues
7. References to Literature,
   Drama, or Music Lyrics
8. References to Sports
9. Student Self-Assessments of
   Learning (e.g., One-Minute
   Papers)
10. Other: Please specify under
    appropriate course:

D. Assignments of Print and/or
    Electronic Materials
1. Textbooks
2. Workbooks/Study Guides
3. Instructor-developed Class Notes
4. Instructor-developed Problem Sets
5. Press Readings (e.g., articles from WSJ & The Economist)
6. Scholarly Readings (e.g., books or articles from AER, JEL)

E. Database Searches via:
   1. Library Holdings
   2. Internet/WWW
   3. CD-ROMs

II. Testing and Grading Methods:

Indicate what percentage (0-100%) of a student's course grade is determined by the following evaluation procedures. Leave a column blank if you do not personally teach the courses indicated.

<table>
<thead>
<tr>
<th></th>
<th>Macroeconomics</th>
<th>Microeconomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple Choice Questions</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Essay/Problems</td>
<td></td>
<td></td>
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<tr>
<td>Short-answer Questions</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Long-answer Questions</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Writing Assignments:</td>
<td></td>
<td></td>
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<tr>
<td>Term Papers</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Shorter Papers</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Homework/Problem Sets</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Other Written Assignments</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Class Participation</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Oral Presentations</td>
<td>____%</td>
<td>____%</td>
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<tr>
<td>Performance in Games,</td>
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<tr>
<td>Simulations, or Experiments</td>
<td>____%</td>
<td>____%</td>
</tr>
<tr>
<td>Other -- please specify the type of assignment, the category of course(s), and the percentage grading weight:</td>
<td></td>
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</tbody>
</table>

In your grading in these different categories of undergraduate courses, how important are exam questions and problems that require numerical calculations, graphs, algebra, and calculus?

Please answer here using an integer from 0 to 4, where 0 = not at all important, and 4 = extremely important:

<table>
<thead>
<tr>
<th></th>
<th>Macroeconomics</th>
<th>Microeconomics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Numerical Calculations</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>2. Graphs</td>
<td>____</td>
<td>____</td>
</tr>
</tbody>
</table>
3. Algebra _____  _____
4. Calculus _____  _____

Indicate what percentage (0-100%) of a student's course grade is based on group work, rather than individual assignments or exam scores.

Macroeconomics Microeconomics
____%  ____%

If you use group projects, how are they graded? (check one)
All students in a group receive the same grade. _____  _____
Grades in groups vary based on team-member input. _____  _____
Grades in groups vary based on instructor evaluations. _____  _____

III. Background Information:

Gender: ___ Male ___ Female

Ethnic Background: ___ African American ___ Hispanic ___ Asian ___ Other ___ Caucasian

Is English your first language? ___ Yes ___ No

Highest degree received: ___ Ph.D. ___ Master’s degree ___ Bachelor’s

In what year was your highest degree awarded? 19____

How many years of full-time teaching experience do you have? _____ # of years

How many undergraduate college level courses in economics have you taken? _____ # of courses

How many graduate level courses in economics have you taken? _____ # of courses

How many students attend your high school? ___________ # of students

In the classes you teach, what is the average class size?

Macroeconomics ___________ # of students
Macroeconomics ___________ # of students