

Study of the Effectiveness of the Policies for Course  
Placement and Credit by Examination for  
Economics 304K and 304L  
at The University of Texas  
at Austin, Spring 2001

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Effective at the beginning of the Fall 2001 semester, administrators in the Economics Department at the University of Texas at Austin elected to change their method for awarding credit by examination in microeconomics (ECO 304K) and macroeconomics (ECO 304L). The department's observation that certain students who placed out of ECO 304K were under-prepared for upper-division courses contributed to the decision to discontinue offering credit by examination for ECO 304K and to raise the qualifying scores for credit by examination in ECO 304L. To investigate empirically the department's observations, the Measurement and Evaluation Center (MEC) conducted a study of the academic success of students who placed out of either course by means of the College Board College Level Examination Program Subject Examinations (CLEP), the College Board Advanced Placement Examinations (AP), or the International Baccalaureate Higher-Level Examinations (IB), as compared to their counterparts who took Economics 304K and/or 304L. Success was determined by how well students performed in subsequent economics courses.

CREDIT BY EXAMINATION

Students enrolled in the university before the Fall 2001 semester could receive credit by examination in ECO 304K and 304L by means of several examinations, as shown in Table 1.

Table 1  
UT Austin Policies for Credit by Examination in Economics 304K and 304L  
during the 2000-2001 Academic Year

Examination	Examination Title	Qualifying Scores	UT Austin Courses, Grades
College Board College Level Examination Program Subject Examinations (CLEP)	Principles of Macroeconomics/ Introductory Macroeconomics	63-80 55-62 48-54	ECO 304L, <i>A</i> ECO 304L, <i>B</i> ECO 304L, <i>C</i>
	Principles of Microeconomics/ Introductory Microeconomics	61-80 54-60 47-53	ECO 304K, <i>A</i> ECO 304K, <i>B</i> ECO 304K, <i>C</i>
College Board Advanced Placement Examinations (AP)	Macroeconomics Microeconomics	4, 5 4, 5	ECO 304L, <i>CR</i> ECO 304K, <i>CR</i>
International Baccalaureate Higher-Level Examinations (IB)	Economics	5-7	ECO 304K, 304L, <i>CR</i>

## METHOD

### Subjects

The pool of students for this study consisted of all freshmen who had enrolled in UT Austin within the past 5 years (summer, fall, and spring sessions for 1996-2000). The 40,412 students in this pool either had credit by examination in ECO 304K or 304L (represented by Credit by Examination ("CBE") for ECO 304K/304L in Table 2), credit that resulted from taking one or both courses at UT Austin ("Course Credit" in Table 2), or no credit for one or both courses at UT Austin ("No Credit from UT Austin" in Table 2). The students' coursework data from this latter group did not include transfer coursework because of the study's focus on first-time freshmen at UT Austin. However, a subsequent look at the course records of some students revealed that they had unanticipated transfer credit from another institution, and other members of this group show no UT Austin credit for these courses on their records. The data from these students' records were retained in the study because several of the students enrolled in upper-division economics courses.

Table 2  
Two-Way Distribution of the Sources of Credit in Economics 304K and 304L for Students at The University of Texas at Austin for the Academic Years 1996-1997 through 1999-2000  
N = 40,412

Frequency Percent	Source of Credit for ECO 304L			Total
	Course Credit	CBE	No Credit from UT Austin	
Source of Credit for ECO 304K				
Course Credit	3919 9.7	553 1.4	7144 17.7	11,616 28.7*
CBE	73 0.2	321 0.8	204 0.5	598 1.5
No Credit from UT Austin	578 1.4	824 2.0	26796 66.3	28,198 69.8*
Total	4570 11.3	1698 4.2	34,144 84.5	40,412 100.0

\* Percent totals are affected by rounding.

The reading of Table 2 is illustrated by these examples: 3,919 students received course credit in both ECO 304K and ECO 304L; 553 received course credit for ECO 304K and credit by examination (CBE) for ECO 304L; and 578 had no credit from UT Austin in ECO 304K but had course credit for ECO 304L.

### Procedure

The SAS system was used to develop from the student records a data set employing variables that might be useful in making comparisons between the subsequent grades of students who took the lower-division economics courses, ECO 304K and 304L, and those who placed out of one or both of them. The data used were the students' complete list of coursework, SAT scores, credit by examination scores (from all 3 exam types), grades in other economics courses (specifically ECO 320K/420K and 320L), and mode of admission. These data permitted inquiry into the source of credit a student received for a course (course credit or credit by examination) and performance in upper-division economics courses. Students without the upper-division courses ECO 320K/420K and ECO 320L were not of interest in this study because academic performance in these courses was the central concern.

### Analysis

The data were analyzed to see how many combinations of student groups there were with sufficient numbers to make comparisons feasible. The groups of interest were students who took both introductory courses, students who placed out of both introductory courses by taking the AP test, the CLEP test, or the IB test, and students who placed out of one introductory course but enrolled in the other introductory course. This analysis led to the realization that some students may have taken the upper-division courses more than once, so the analysis included only the first time each student enrolled in either ECO 320K/420K or 320L.

The analysis revealed that 598 students received credit by examination for ECO 304K while 11,616 received course credit (see Table 3) and 1,698 students received credit by examination for

ECO 304L while 4,570 received course credit (see Table 4). Additionally, 321 students received credit by examination for both courses (see Table 2).

Table 3  
Distribution of the Sources of Credit in Economics 304K for Students at The University of Texas at Austin

Sources of Credit for ECO 304K	Frequency	Percent
Course Credit	11,616	28.7
CBE	598	1.5
No Credit from UT Austin	28,198	69.8
Total	40,412	100.0

Table 4  
Distribution of the Sources of Credit in Economics 304L for Students at The University of Texas at Austin

Sources of Credit for ECO 304L	Frequency	Percent
Course Credit	4570	11.3
CBE	1698	4.2
No Credit from UT Austin	34,144	84.5
Total	40,412	100.0

The results revealed an important issue to note in this and subsequent portions of the analysis—when dealing with large quantities of data as in this case, analysis should be based on practical significance rather than statistical significance. Most comparative tests such as t tests, F tests, and chi-square tests would appear to yield statistically significant results simply because of the large N associated with each group. Therefore, it was decided that trends in the data would be identified by inspection to determine practical significance rather than have seemingly important but ultimately non-informative statistical tests be performed. This decision meant performing a comparison--by means of the final course grade received in either ECO 320K/420K or 320L--of students who took either ECO 304K or 304L versus those who placed out of these courses.

As Table 5 shows, most students who reported test scores that may have qualified them for credit by examination in ECO 304K and/or 304L had AP examination scores. Because this table includes all scores reported to UT Austin and not just those for which students actually received

credit, the total number of examinations exceeds the total number of students receiving credit by examination as presented in tables above.

Table 5  
Distribution of the Types of Economics Placement Examination Scores Reported by UT Austin Students

Test Type	Frequency	Percent
Advanced Placement (AP), Macroeconomics	3241	59.4
Advanced Placement (AP), Microeconomics	1355	24.8
College Level Examination Program (CLEP), Macroeconomics <sup>1</sup>	2	0.04
College Level Examination Program (CLEP), Microeconomics <sup>1</sup>	5	0.1
College Level Examination Program (CLEP), Principles of Macroeconomics	487	8.9
College Level Examination Program (CLEP), Principles of Microeconomics	307	5.6
International Baccalaureate (IB), Economics	56	1.0

<sup>1</sup> These examinations were revised and renamed Principles of Macroeconomics and Principles of Microeconomics in 1993.

For example, this table shows that 3,241 students reported a score on the Advanced Placement Examination in Macroeconomics and 307 students reported a score on the College Level Examination Program Subject Test in Principles of Microeconomics.

### Results

Data analysis revealed a pattern that the students who placed out of ECO 304K and 304L performed proportionally better in subsequent economics courses than those students who took the introductory courses. For each upper-division course (ECO 320K/420K and 320L), students who placed out of either or both ECO 304K and 304L received a higher percentage of A's and B's and passed the course at a higher rate. This pattern occurred independent of the kind of credit a student received (either ECO 304K or 304L) and independent of the course under consideration (either ECO 320K/420K or 320L), indicating that credit by examination in one course was associated with improved performance in both upper-division courses (see Table 6).

Table 6  
 Student Performance in Upper-division Economics Courses Compared to the  
 Source of Credit in Lower-Division Course(s)

Upper-Division Economics Course	Lower-Division Course for Which Credit Was Received	For Those Who ...	Percentage Who Received Course Credit in the Lower-Division Course	Percentage Who Received CBE in the Lower-Division Course
ECO 320K/420K	304K	Received <i>A</i> or <i>B</i>	52.6	68.2
		Passed	79.6	88.6
	304L	Received <i>A</i> or <i>B</i>	51.2	68.4
		Passed	79.0	84.7
ECO 320L	304K	Received <i>A</i> or <i>B</i>	49.8	68.4
		Passed	84.2	84.2
	304L	Received <i>A</i> or <i>B</i>	47.2	54.8
		Passed	83.8	88.1
ECO 320K/420K	304K and 304L	Received <i>A</i> or <i>B</i>	51.3	70.0
Passed		79.1	83.3	
ECO 320L		Received <i>A</i> or <i>B</i>	48.0	66.7
Passed		83.9	91.7	

Table 6 shows that 68.2% of the students who received credit by examination in ECO 304K received either an *A* or a *B* in ECO 320K/420K as compared to 52.6% of the students who enrolled in ECO 304K. In this same upper-division course, 84.7% of the students with credit by examination in ECO 304L passed the course as compared to 79.0% of the students who enrolled in ECO 304L. For ECO 320L, 68.4% of the students who received credit by examination in ECO 304K and 54.8% of the students with credit by examination in ECO 304L received an *A* or a *B*, which is a higher rate than those who took ECO 304K (49.8%) and 304L (47.2%). Finally, the students who received credit by examination in both ECO 304K and 304L had a higher passing rate in ECO 320K/420K (83.3%) and ECO 320L (91.7%) than their counterparts who enrolled in the upper-division courses (79.1% and 83.9%, respectively).

Tables 7-12 show the results of a comparison by final course grades in the upper-division economics courses between students who took the lower-division courses and those who

received credit by examination for the lower-division courses. These tables present the information from Table 6 in more detail.

Table 7 shows how well students performed in ECO 320K/420K, as determined by their grades in this upper-division course, after receiving either credit by examination or enrolling in ECO 304K.

Table 7  
Student Performance in ECO 320K/420K Compared to the Source of Credit for ECO 304K

Frequency Row Percentage	Grade in ECO 320K/420K									Total
Source of Credit in ECO 304K	<i>A</i>	<i>B</i>	<i>C</i>	<i>CR</i>	<i>D</i>	<i>F</i>	<i>O</i>	<i>Q</i>	<i>W</i>	
Course Credit	166 21.9	233 30.7	200 26.4	5 0.7	48 6.3	33 4.4	3 0.4	59 7.8	12 1.6	759
CBE	22 50.0	8 18.2	9 20.4	0 0.0	1 2.3	2 4.6	0 0.0	2 4.6	0 0.0	44
No Credit from UT Austin	66 22.2	90 30.3	72 24.2	8 2.7	15 5.0	15 5.0	0 0.0	28 9.4	3 1.0	297
Total	254	331	281	13	64	50	3	89	15	1100

Table 7 shows that only 3 students (6.8%) with credit by examination in ECO 304K received an unsatisfactory grade of *D* or *F* as compared to 81 students (10.7%) who enrolled in ECO 304K and 30 students (10.1%) with credit from a source other than UT Austin. The results may also be discussed in terms of each letter grade received in ECO 320K/420K. For example, 50% of the students with credit by examination in ECO 304K received an *A* in ECO 320K/420K, while only 21.9% of the students who enrolled in the course and 22.2% of the students with credit from other sources received a comparable grade. Also, a slightly lower percentage of students who placed out of ECO 304K dropped ECO 320K/420K with a grade of *Q* than did students in the other two groups.

Table 8 shows how well students performed in ECO 320L, as determined by their grades in this upper-division course, after receiving either credit by examination or enrolling in ECO 304L.

Table 8  
Student Performance in ECO 320L Compared to the Source of Credit for ECO 304L

Frequency Row Percentage	Grade in ECO 320L									Total
Source of Credit in ECO 304L	A	B	C	CR	D	F	O	Q	W	
Course Credit	74 17.8	122 29.4	150 36.1	2 0.5	31 7.5	7 1.7	3 0.7	23 5.5	3 0.7	415
CBE	13 30.9	10 23.8	13 30.9	1 2.4	3 7.1	0 0.0	0 0.0	1 2.4	1 2.4	42
No Credit from UT Austin	38 24.7	59 38.3	40 26.0	5 3.2	6 3.9	5 3.2	0 0.0	1 0.6	0 0.0	154
Total	125	191	203	8	40	12	3	25	4	611

Table 8 shows that only 3 students (7.1%) with credit by examination in ECO 304L received an unsatisfactory grade of *D* or *F* as compared to 38 students (9.2%) who enrolled in ECO 320L and 11 students (7.1%) with credit from a source other than UT Austin. In terms of letter grades, 30.9% of the students with credit by examination in ECO 304L received an *A* in ECO 320L while only 17.8% of the students enrolled in the course and 24.7% of the students with credit from other sources received a comparable grade.

Table 9 shows how well students performed in ECO 320K/420K, as determined by their grades in this upper-division course, after receiving either credit by examination or enrolling in both ECO 304K and 304L.

Table 9  
Student Performance in ECO 320K/420K Compared to the Source of Credit  
for both ECO 304K and 304L

Frequency Row Percentage	Grade in ECO 320K/420K									Total
Source of Credit in Both Introductory Courses	A	B	C	CR	D	F	O	Q	W	
Course Credit	126 20.1	195 31.2	171 27.3	3 0.5	41 6.6	25 4.0	2 0.3	54 8.6	9 1.4	626
CBE	15 50.0	6 20.0	4 13.3	0 0.0	1 3.3	2 6.7	0 0.0	2 6.7	0 0.0	30
Total	141	201	175	3	42	27	2	56	9	656

Table 9 shows that 3 students (10.0%) with credit by examination in both ECO 304K and 304L received an unsatisfactory grade of *D* or *F* in ECO 320K/420K as compared to 66 students (10.5%) who enrolled in the courses. Additionally, 50.0% of the students with credit by examination received an *A* while only 20.1% of the students enrolled in the course received a comparable grade, although this latter group received more *B*'s and *C*'s (31.2% and 27.3%, respectively), as shown in this and other tables, than their counterparts with credit by examination in both lower-division courses (20.0%).

Table 10 shows how well students performed in ECO 320L, as determined by their grades in this upper-division course, after receiving either credit by examination or enrolling in both ECO 304K and 304L.

Table 10  
Student Performance in ECO 320L Compared to the Source of Credit  
for both ECO 304K and 304L

Frequency Row Percentage	Grade in ECO 320L									Total
	<i>A</i>	<i>B</i>	<i>C</i>	<i>CR</i>	<i>D</i>	<i>F</i>	<i>O</i>	<i>Q</i>	<i>W</i>	
Source of Credit in Both Introductory Courses										
Course Credit	64 18.1	106 29.9	125 35.3	2 0.6	24 6.8	7 2.0	3 0.8	20 5.6	3 0.8	354
CBE	4 33.3	4 33.3	2 16.7	1 8.3	1 8.3	0 0.0	0 0.0	0 0.0	0 0.0	12
Total	68	110	127	3	25	7	3	20	3	366

Table 10 shows that only 1 student (8.3%) with credit by examination in both ECO 304K and 304L received an unsatisfactory grade of *D* or *F* in ECO 320L as compared to 31 students (8.8%) who enrolled in the courses. Additionally, 33.3% of the students with credit by examination received a *B* while only 29.9% of the students enrolled in the course received a comparable grade.

Table 11 shows how well students performed in ECO 320K/420K, as determined by their grades in this upper-division course, after receiving either credit by examination or enrolling in ECO 304L.

Table 11  
Student Performance in ECO 320K/420K Compared to the  
Source of Credit for ECO 304L

Frequency Row Percentage	Grade in ECO 320K/420K									Total
Source of Credit in ECO 304L	<i>A</i>	<i>B</i>	<i>C</i>	<i>CR</i>	<i>D</i>	<i>F</i>	<i>O</i>	<i>Q</i>	<i>W</i>	
Course Credit	148 20.2	227 31.0	198 27.0	5 0.7	47 6.4	29 4.0	2 0.3	67 9.2	9 1.2	732
CBE	38 38.8	29 29.6	15 15.3	1 1.0	4 4.1	4 4.1	0 0.0	5 5.1	2 2.0	98
No Credit from UT Austin	68 25.2	75 27.8	68 25.2	7 2.6	13 4.8	17 6.3	1 0.4	17 6.3	4 1.5	270
Total	254	331	281	13	64	50	3	89	15	1100

Table 11 shows that only 8 students (8.2%) with credit by examination in ECO 304L received an unsatisfactory grade of *D* or *F* as compared to 76 students (10.4%) who enrolled in ECO 320K/420K and 30 students (11.1%) with credit from a source other than UT Austin. In terms of letter grades, 38.8% of the students with credit by examination received an *A* in ECO 320K/420K while only 20.2% of the students enrolled in the course and 25.2% of the students with credit from other sources received a comparable grade.

Finally, Table 12 shows how well students performed in ECO 320L as determined by their grades in this upper-division course after receiving either credit by examination or enrolling in ECO 304K.

Table 12 shows that 3 students (15.8%) with credit by examination in ECO 304K received an unsatisfactory grade of *D* or *F* as compared to 38 students (9.1%) who enrolled in ECO 320L and 11 students (6.3%) with credit from a source other than UT Austin. These percentages are

Table 12  
 Student Performance in ECO 320L Compared to the  
 Source of Credit for ECO 304K

Frequency Row Percentage	Grade in ECO 320L									Total
Source of Credit in ECO 304K	<i>A</i>	<i>B</i>	<i>C</i>	<i>CR</i>	<i>D</i>	<i>F</i>	<i>O</i>	<i>Q</i>	<i>W</i>	
Course Credit	81 19.4	127 30.4	142 34.0	2 0.5	31 7.4	7 1.7	3 0.7	21 5.0	4 1.0	418
CBE	8 42.1	5 26.3	2 10.5	1 5.3	3 15.8	0 0.0	0 0.0	0 0.0	0 0.0	19
No Credit from UT Austin	36 20.7	59 33.9	59 33.9	5 2.9	6 3.4	5 2.9	0 0.0	4 2.3	0 0.0	174
Total	125	191	203	8	40	12	3	25	4	611

slightly higher for the credit by examination group due to small group size, but the number of satisfactory grades is consistent with data in the tables above. Additionally, 42.1% of the students with credit by examination received an *A* in ECO 320L while only 19.4% of the students enrolled in ECO 304K and 20.7% of the students with credit from other sources received an *A*.

Because these results indicate that those who placed out of the lower-division courses performed proportionately better than those who took the courses, the SAT scores of the students who received credit by examination and of the students who took the courses were examined, and the scores revealed information useful for comparing these two groups. Students with credit by examination in ECO 304L had an average SAT score of 1296 and students with credit by examination in ECO 304K had an average score of 1289. Students who received credit by examination in both lower-division courses had an average SAT score of 1369. When compared to the average SAT score of 1154 for students who did not receive credit by examination in either course, it is evident that students who received credit by examination tended to have higher SAT scores than those who did not, indicating that the two groups may have constituted different populations, with students who received credit by examination tending to perform better academically.

## CONCLUSION

These results indicated that the students who placed out of the lower-division economics courses succeeded academically in the upper-division courses, and even proportionally better than those who took one or both introductory courses.