

FACTORS AFFECTING ECONOMIC LITERACY OF COLLEGE STUDENTS: SOME ADDITIONAL EVIDENCE

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ABSTRACT

The evidence regarding the impact of the high school economics class on a student's success in the college principles class is mixed. This study reviews the results of earlier studies and investigates the impact of previous training in economics on the students' knowledge at the beginning and end of the principles course. The current study concludes that high school training has no significant impact.

INTRODUCTION

It is believed that college students who take principles of economics may have some difficulty in understanding the economics concepts taught in this course. The question then is whether previous exposure to economic courses has any influence on performance and the likelihood of students' success in the basic economics courses they take at the college level. Previous research indicates that there are conflicting results regarding the impact of prior knowledge of economics, particularly high school economics classes, on student performance in college level economics classes. Some studies report that students do not benefit much in their performance in college economics course by taking economics class at high school level. Other studies suggest that prior economics courses in high school help them in understanding the college economics courses.

For example, Palmer, Carliner, and Romer's study (1979) indicate that college students who took an economic course in high school did not begin their introductory economics course with significantly more knowledge, nor did they learn significantly more during the semester. These students actually received

significantly lower grades in the principles course than did those who had not taken high school economics. Reid (1983) also found that students who had high school economics achieved significantly lower grades in introductory economics than those without the high school course.

On the other hand, Becker, Greene, and Rosen (1990) believe that high school economics help the students better understand economics in college based on pre/post-testing. However, the authors were doubtful about its lasting effect on the students. Myatt and Waddell (1990) report that the high school economics course is found to be significantly positively correlated with students' grades in principles of economics in college. A more recent study by Lopus (1997), using a large nationwide database, found that students who had exposure to macro or microeconomics in high school were better prepared to take principles of economics classes than those with no high school economics background.

In addition, Dale and Allen (1999) found no significant difference in basic economic knowledge (as measured by the National Council on Economic Education's Test of Economic Literacy) between a group of elementary education majors and students enrolled in microeconomic principles. This was found to be true even though there are some differences in the methodology and content of these two courses. In addition, one might expect differences based upon differences in other college coursework due to the requirements of the different major. Dale and Allen also found that previous coursework in economics, but not in other business disciplines, had a very significant positive affect on economic literacy, as measured by the TEL. However, it was not clear whether this included coverage of economics prior to college in grades K-12.

The purpose of this study is to gather additional evidence to help clarify the conflicting results of earlier research by analyzing the impact of various levels of prior economic training and students' majors on their understanding of basic economic concepts.

RESEARCH AND ANALYSIS

During the spring 1997 through fall 1998 semesters, the Test of Economic Literacy was administered to sections of Economics for Elementary Teachers, Microeconomics and Macroeconomics Principles at Henderson State University. Students enrolled in Economics for Elementary Teachers are typically juniors majoring in elementary education. Students in the sophomore economics principles

classes are primarily business majors but include some secondary education (for social science certification) and liberal arts majors.

One purpose of the study was to determine what differences in test scores, if any, exist between the two types of students. To ease students concerns that this testing would impact their class grades, individual scores were not identified by student; therefore a paired t- test on individual improvement was not possible. However, an independent-samples t-test found no statistically significant difference between the two groups on pre-test or posttest scores. This indicates that there is no difference in basic economic knowledge, as measured by the Test of Economic Literacy, between elementary education majors and a group made up primarily of business majors, but also including some secondary education and liberal arts majors. When each of the groups was tested to see if there was an improvement in scores (post-test versus pre-test), no significant improvement can be concluded for either group. However, a t- test comparing all pre-test scores against post-test scores, all students combined, did show a significant improvement. The mean pre-test score was 26.30; the mean post-test score was 28.17. While the mean improvement as only 1.87 points, the larger sample sizes (366 took the pre-test and 304 took the post-test) allow the conclusion that improvement was statistically significant (probability of error is 3%). As stated earlier, to maintain student anonymity, pre-test and post-test scores were not paired, so no analysis of individual improvement was possible.

Another issue of concern was whether or not a student's previous education in economics had an impact on pre-test or post-test scores. Students were asked to indicate which of the following categories best described their background at the beginning of the semester in which testing was conducted.

1. Only had a high school economics course (at least one semester)
2. Had one high school course AND one college course
3. No high school course AND one college course
4. Two or more college courses
5. No high school or college courses

Sample results for pre-test scores are given in the table below.

Table 1: Pre-test Scores		
Economics Background	Sample Size	Mean Pre-test Score
One high school course	35	25.46
No previous courses	250	25.71
No high school and on college	64	28.08
One high school and one college course	10	29.20
Two or more college courses	5	32.60

Basic one-way analysis of variance is based on assumptions of normality and equal variance for each treatment. An examination of the treatment distributions and Levene's test of homogeneity indicates that all treatment distributions are not normal nor are variances equal. However, analysis of variance is not appreciably affected if lack of normality is not extreme (Neter, Wasserman, Kutner, 1985, 624).

A one-way analysis of variance was conducted on the difference in pre-test scores by background. The F-test indicated a significant difference. Because treatment variances were unequal, Tukey's test of multiple comparisons was used to determine which treatment means were different. The only significant difference in pre-test scores was between the no high school/one college course group and the group with no previous coursework (several other multiple comparison tests based on unequal variances all produced the same results). Because the departure from normality might be large enough to affect the results of the analysis of variance, the nonparametric Kruskal-Wallis test was applied to the pre-test scores of the five groups. This test showed very significant differences in the five groups. However, this test does not permit determination of whether the mean, variance or skewness of the group is different (Neter, Wasserman, Kutner, 1985, 640).

To complete the analysis of differences in scores, two groups (one high school/one college course and two or more college courses) were dropped due to small sample size (10 and 5 observations). The remaining three groups were compared using the independent sample t-test. No significant difference in pre-test scores was found between those students who had at least one semester of economics in high school and those students who had no economics at all. However, the pre-test scores of students who have no high school but one college economics course were significantly higher than students with only a high school course or no economics at all. These results imply that high school training has no

impact on pre-test scores. Whether this is due to the high school course content or merely the length of the time that has passed since the high school course was taken cannot be determined from this data. It is also of note that the Krushal-Wallis test on post-test scores indicated no significant difference among the five groups.

SUMMARY AND CONCLUSION

The results confirm earlier findings of Palmer, Carliner, and Romer's study (1979), that college students with at least one semester of high school economics do not perform significantly better than those without any economics background when tested on basic economic concepts. Further research is necessary to determine whether the length of time, which has passed since the high school course was taken, has an effect on this conclusion. In addition, some public schools had adopted a curriculum, which integrates economic concepts across disciplines and is introduced beginning at the kindergarten level. Research to determine whether such an approach, either independently or in conjunction with a formal high school economics course, has an effect on a college student's understanding of basic economic concepts is needed.

Another area for further investigation is the impact of a student's major in test performance. While elementary education majors are clearly delineated in the study, no data was gathered to separate business majors from other majors in the principles of economics classes. A third and final area for expansion of this study should focus on the split between macroeconomics and microeconomics, and also whether the weight given to this decision on the Test of Economics Literacy might impact test performance.

In conclusion, these results add to the evidence on factors that affect college students' economic understanding, but further research is necessary to identify the key factors involved. As knowledge of these factors expands, curriculum improvements can be developed for public schools and college economics professors can better serve students in their principles classes.

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