
DO HIGH SCHOOL ECONOMICS COURSES MATTER?

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ABSTRACT

Over the past two decades several empirical studies have been published which sought to measure the impact of a high school economics course on student performance in college economics courses. The results of these studies have produced mixed results, with conclusions ranging from positive to negative correlations.

This paper uses the 1993 Test for Understanding College Economics (TUCE) database to address the impact of high school economics on student learning in the principles of economics courses at the college level. The paper begins with a review of the previous literature, and the rationales for the conclusions drawn. Then, some preliminary findings are presented which gauge the impact of high school economics courses on student knowledge, as demonstrated on both the pretest and the posttest in the TUCE database.

INTRODUCTION

Literally, millions of dollars are spent in both the private and public sector to teach high school students the basics of economic principles. Many states have mandated these courses. Organizations such as the National Council on Economic Education, as well as major publishing companies, have invested huge sums of money in curriculum materials and programs for the improvement of economic education. Are we, as a society, getting our money's worth? Most studies show that there are no lasting effects of this educational endeavor, though some have suggested otherwise.

PREVIOUS FINDINGS

Over the past several decades, researchers in economic education have sought to ascertain the value of high school economics courses with respect to students' understanding of economics. A plethora of studies, utilizing a variety of techniques, have produced decidedly mixed results.

In a wide ranging article, Saunders (1970) found that college students that had taken high school economics scored significantly higher on the Test of Economic Understanding (which was used as part of the final examination) than did students without a course in high school economics. However, they did not receive significantly higher grades in the college course.

Studies by Moyer and Paden (1968) and Rothman and Scott (1973) both found that students with high school economics scored higher on pretests, but these differences vanished at the completion of the college course. Conversely, an article by Palmer, Carliner, and Romer (1979) found that, when other factors were controlled, high school economics students did not score any higher on pretests. Further, the students with high school economics achieved lower course grades than did those who had not taken any economics in high school. A study by Reid (1983) agreed with this finding and also concluded that high school economics courses were negatively correlated with grades in university level courses.

During the 1990s, a study by Becker, Greene, and Rosen (1990) indicated that students with high school courses in economics entered their first course in college with a greater understanding of economics, but this advantage had disappeared by the completion of the course. On the other hand, Myatt and Waddell (1990) found that high school courses had a positive and significant impact through the principles level and did not dissipate until the intermediate level.

Two more recent studies found that high school economics courses do make a difference in student achievement. The first, by Brasfield, Harrison, and McCoy (1993) suggested:

Having had high school economics was positively and significantly related to students' grades in introductory macroeconomics and introductory microeconomics. Rates at which students fail both classes may be reduced by as much as 33 percent if all students take economics in high school . . . (p.109).

Similarly, Lopus (1997), using the TUCE database, discovered that students taking a high school class in micro or macro entered the principles course with more knowledge than those with no high school economics background.

With the exception of the Lopus paper, all previous studies involved the "one school, one time" approach to economic education research. Problems with this approach are well documented and are summarized in Siegfried and Fels (1979).

FURTHER EXTENSIONS USING THE TUCE

Based on a more thorough analysis than space here allows, it is apparent that little evidence, prior to Lopus, exists that demonstrates any lasting effects of the high school economics course. Using the TUCE database, a further examination of the lasting effects of high school economics is presented in this section.

TABLE 1 Description and Mean Values of Variables	
Variable	Description
<i>Dependent Variables</i>	
PRE	Score Pre-test on 30 micro questions comprising third edition of TUCE
POST	Score Post-test on 30 micro questions comprising third edition of TUCE
<i>Independent Variables</i>	
SAT	Combined score on verbal and math sections of SAT, for students for whom both scores were available
PRIORSEM	Number of semesters completed before current term
SEX	A 0,1 binary variable with 1 indicating a male student
HSECON	A 0,1 binary variable with 1 indicating that student had a high school economics class
CURUNITS	Number hours of college course work undertaken during current term (in quarter units)
TULECTGR	A 0,1 binary variable with 1 indicating that TUCE score affected student's grade in course (instructor reported)
HRSSTUD	Total hours per week spent studying
HRSWORK	Number of hours a week spent working at a job
HSMICRO	A 0,1 binary variable with 1 indicating student had a high school economics class (at least one semester) that covered micro

Table 1 defines the variables that are used in the various estimations that follow. Table 2 shows the results of univariate Analysis of Variance (ANOVA) to test for between subject effects of high school economics (HSECON) and a high

school microeconomics course (HSMICRO) with the TUCE pretest results (PRE) on the 30 question micro component. For HSECON the test statistic F yields a significance level of .063, which is not enough to conclude any significant difference (at the .05 percent level) between the students who took a course in high school economics and those who did not.

Table 2 Univariate Analysis of Variance Tests of Between-Subjects Effects Dependent Variable: PRE					
Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	54.550 ^a	1	54.550	3.459	0.063
Intercept	294164.437	1	294164.437	18652.472	0.000
HSECON	54.550	1	54.550	3.459	0.063
Error	39884.357	2529	15.771		
Total	337258.000	2531			
Corrected Total	39938.907	2530			

^a R squared = .001 (Adjusted R Squared = .001)

Table 2 (cont.) Univariate Analysis of Variance Tests of Between-Subjects Effects Dependent Variable: PRE					
Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	602.401 ^a	1	602.401	39.778	0.000
Intercept	151614.175	1	151614.175	10011.45	0.000
HSMICRO	602.401	1	602.401	39.778	0.000
Error	46189.429	3050	15.144		
Total	398350.000	3052			
Corrected Total	46791.830	3051			

^a R squared = .013 (Adjusted R Squared = .013)

Conversely, students that took a microeconomics course in high school scored significantly better on the pretest than students that did not take such a course.

However, when the dependent variable is the post test score (POST), both HSECON and HSMICRO show significant effects at the 5 percent level (Table 3).

Table 3 Univariate Analysis of Variance Between-Subjects Effects Dependent Variable: POST					
Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	254.376 ^a	1	254.376	7.815	0.005
Intercept	609501.763	1	609501.763	18726.114	0.000
HSECON	254.376	1	254.376	7.815	0.005
Error	82314.461	2529	32.548		
Total	697621.000	2531			
Corrected Total	82568.837	2530			

^a R squared = .003 (Adjusted R Squared = .003)

Table 3 (cont.) Univariate Analysis of Variance Between-Subjects Effects Dependent Variable: POST					
Source	Type III SS	df	Mean Square	F	Sig.
Corrected Model	1605.857 ^a	1	1605.857	50.357	0.000
Intercept	316205.616	1	316205.616	9915.624	0.000
HSMICRO	1605.857	1	1605.857	50.357	0.000
Error	97263.381	3050	31.890		
Total	822195.000	3052			
Corrected Total	98869.238	3051			

^a R squared = .016 (Adjusted R Squared = .016)

Based on prior studies, an explanatory equation was developed to model the results of the pretest, including the variable HSMICRO (Table 4). Here we can see

that student sex and SAT score dominate the relationship in such a way that makes the HSMICRO variable insignificant at the 5 percent level.

Table 4					
Regression: ANOVA ^b					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	6318.573	4	1579.643	127.223	0.000a
Residual	11584.396	933	12.416		
Total	17902.969	937			

^a. Predictors: (Constant), SEX, PRIORSEM, SAT, HSMICRO

^b. Dependent Variable: PRE

TABLE 4 (cont.)					
Regression Coefficients ^a					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std Error	Beta		
(Constant)	-0.688000	0.738		-0.931	0.352
SAT	0.012380	0.001	0.569	21.328	0.000
PRIORSEM	0.005063	0.003	0.038	1.445	0.149
HSMICRO	0.513000	0.295	0.046	1.738	0.083
SEX	-0.744000	0.238	-0.083	-3.134	0.002

^a Dependent Variable: PRE

When the score on the posttest is used as the dependent variable, and other variables are added into the mix, we find that both HSECON (Table 5) and HSMICRO (Table 6) remain significant at the 5 percent level as explanatory variables.

Table 5 Regression: ANOVA ^b					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	6115.332	8	764.416	43.528	0.000 ^a
Residual	5742.656	327	17.562		
Total	11857.988	335			

^a. Predictors: (Constant), HRSWORK, HRSSTUD, PRIORSEM, SEX, HSECON, TUCECTGR, CURUNITS, SAT
^b. Dependent Variable: POST

CONCLUDING COMMENTS

These preliminary findings indicate that, while economics courses (either general or micro) do not seem to have any lasting effects with regards to the TUCE microeconomics pretest, they do seem to show importance with respect to the results on the posttest. This could suggest that the learning curve is shortened by previous exposure to economics. If this is the case, then high school economics courses would appear to matter.

Further research will be conducted to see if this finding holds with regards to the macroeconomic TUCE and high school courses in macroeconomics. Other variations will include alternative specifications for the independent variables representing the high school economic experience and interpretation of the regression coefficients to gauge their magnitude.

Table 6 Regression: ANOVA ^b					
	Sum of Squares	df	Mean Square	F	Sig
Regression	6127.952	8	765.994	43.456	0.000a
Residual	5834.460	331	17.627		
Total	11962.412	339			

^a. Predictors:(Constant), HSMICRO, HRSSTUD, SEX, TUCECTGR, CURUNITS, PRIORSEM, SAT, HRSWORK
^b. Dependent Variable: POST

Table 6 (cont.)					
Coefficients ^a					
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-4.263000	2.011		-2.12	0.035
SAT	0.019760	0.001	0.656	15.842	0.000
PRIORSEM	-0.004765	0.009	-0.022	-0.539	0.590
SEX	-0.758000	0.486	-0.064	-1.559	0.120
CURUNITS	0.033160	0.059	0.023	0.558	0.577
TUCECTGR	1.508000	0.558	0.108	2.703	0.007
HRSSTUD	0.085500	0.067	0.05	1.279	0.202
HRSWORK	-0.001777	0.025	-0.003	-0.072	0.943
HSMICRO	1.514000	0.636	0.093	2.382	0.018

^a. Dependent Variable: POST

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