

An Evaluation of Choices and Changes: An Economics Program for At-risk Students

Jane S. Lopus

California State University, Hayward

There is widespread agreement that economic understanding is important in order for people to be productive citizens and workers. There is less agreement about how economics should be taught and what concepts should be introduced at what grade levels. Since many people perceive economics to be a difficult and abstract subject, they may view with scepticism suggestions that it should be taught to very young students, especially those identified as likely to become high school dropouts. However, teaching certain aspects of the economic way of thinking to these at-risk students in elementary and middle schools may help them reach their full potential later on.

Choices and Changes is a set of instructional materials initially published by the National Council on Economic Education (NCEE) in 1992. Divided into four grade-level units, it was designed to teach economic decision-making skills to students in grades two through nine. A primary goal of the program is to encourage students to choose to stay in school and to later become productive members of the workforce. The rationale is that if students learn about their role in the economy and their ability to affect their own futures at an early age, they will be less likely to drop out of school.

This paper reports the findings of a study conducted on the effectiveness of the *Choices and Changes* program with four classes of students in the Los Angeles area during the 1993-1994 academic year. Results indicate that both student knowledge and student attitudes about their role in the economy improved significantly as a result of the program, despite the fact that the schools involved in the study were among the most economically disadvantaged in the area. The study also finds that the *Choices and Changes* program is equally effective with the Spanish-speaking and English-speaking students in the sample.

The *Choices and Changes* materials emphasize three main economic themes throughout the four grade-level units (NCEE 1992).¹ The themes found in all the units are:

- ! Human Capital: by investing in your own skills and knowledge, you can improve your alternatives.
- ! Decision Making: by making sound decisions, you can have more control over your life.
- ! Participation in the Economy: by understanding your role in the economy, you can participate more productively.

¹The titles of the four units and the recommended grade levels are *Work, Human Resources and Choices*@ (2-4), *You Can Be an Inventor: Human Capital and Entrepreneurship*@ (4-6), *Choices, the Economy, and You*@ (6-8), and *Choice Making, Productivity, and Planning*@ (8-9).

In conjunction with the three main themes, each unit emphasizes different concepts to help students see the connection between education and future productivity. Although the *Choices and Changes* materials were designed for at-risk students- those thought likely to drop out of school and/or not reach their full academic potential; the economic lessons included are purported to be applicable to all young people. Students gain insights into their role in determining their own futures, and thus develop self esteem while learning basic economic concepts.

Despite widespread use of *Choices and Changes*, resulting from teacher-training and dissemination of the materials through the NCEE network, there have been few formal studies on its effectiveness. An exception is a comprehensive study commissioned by the NCEE (Grimes, 1991; Grimes, 1995). Using a nationwide sample of 1600 students and a two-staged least squares regression model, it was found that post-test scores improved significantly over pretest scores for measures of economic knowledge and attitudes about student ability to make choices and to influence their role in the economy. The assessment instruments used were the Test on *Choices and Changes* (TOCC) and the *Choices and Changes* Attitude Index (CCAI).² For comparative purposes, these instruments are also used in the current study.

The Los Angeles *Choices and Changes* Program

²A Teacher Resource Manual is available for each grade-level unit of materials and contains a fourteen-question Choices and Changes Index (CCAI) and a twenty-question Test on Choices and Changes (TOCC). These indexes, and the other choices and Changes materials, are available from the National Council on Economic Education, 1170 Avenue of the Americas, New York, NY 10036.

In June, 1993 Economics America of California recruited forty teachers and five curriculum coordinators to take part in a two-day workshop (funded by ARCO and the American Honda Foundation) to introduce them to *Choices and Changes*. Participants were selected by their principals and were primarily from schools in South Central Los Angeles involved in the ATen Schools Project. These schools were characterized by having the lowest reading, language, and math scores in the Los Angeles Unified School District on the California Test of Basic Skills. The district therefore allocated extra resources to try to improve the test scores, and offering *Choices and Changes* fit with this goal.

The Los Angeles teachers first implemented the *Choices and Changes* program during the 1993-1994 academic year. Although it is unknown how many of the trained teachers actually used the program, twenty-five teachers submitted their students' cognitive (TOCC) and attitudinal (CCAI) pretest scores to the California Council on Economic Education during fall, 1993. Three of these teachers also submitted post-test results, and the matched pre- and post-data from their four classes form the basis for the analysis for this paper.³

Background information on the teachers, schools, and students in this study was obtained from telephone interviews with teachers in June, 1994 and is summarized in Table 1. All three teachers taught in schools characterized by high percentages of families on welfare and qualifying for federally funded free-meal programs. Teachers 2 and 3 taught in schools enrolled in the Ten Schools Project. All teachers used the *Choices and Changes* materials designed for grades 2-4, and all three teachers administered the tests to their students by reading the questions to them, thus controlling for reading ability.

³The workshop leaders from Economics America of California were surprised to learn that so few teachers had collected post test data, as they believed that they had given teachers clear instructions regarding the importance of doing so in order to analyze the effectiveness of the program. Another data problem which could be addressed in future studies is the lack of control classes not using the materials.

Of particular interest is Teacher 3, who used the *Choices and Changes* materials with one class of English speakers/readers and with another class of Spanish speakers/readers. She spent part of each day with each class, and translated the materials into Spanish for the

Table 1: Description of Students and Teachers

	Classes	Student Gender, Ethnicity	Teacher	Comments from Teachers
Teacher 1: Class 1 (Moreno Valley)	31 5 th graders (19 took all tests)	55% male. Mostly Black or Latino; also Tongan and Filipino	Female, 15 years experience	Used materials for grades 2-4 due to low ability of students. Students very enthusiastic about program.
Teacher 2: Class 2 (South Central L.A.)	28 3 rd graders (18 took all tests)	46% male. 50% Black, 50% Latino	Male, 3 years experience	Liked materials, but found parts unclear. Re-phrased and explained often.
Teacher 3: Class 3 English Speakers/Readers (South Central L.A.)	28 3 rd graders (25 took all tests)	43% male. Mostly Black	Female, 10 years experience	Taught this group part of day. Thought program was Agreat@ overall.
Teacher 3: Class 4	30 3 rd graders (24 took all tests)	43% male. Mostly Latino	Female, 10 years experience	Taught this group part of day. Translated materials into Spanish as she went along.

Spanish-speaking students as she went along. This unusual situation provides an almost perfect natural experiment for comparing the results of *Choices and Changes* with both Spanish and English speaking students.

Empirical model and results

Pretest and post-test scores from the CCAI (attitude index) and TOCC (cognitive test) were used to analyze the effectiveness of the *Choices and Changes* materials used by the three Los Angeles area teachers with their four classes of students. Although there were 118 students who took either the pretests or the post-tests, 89 students took both the pretests and the post-tests and form the basis for the empirical analysis. Due to promises of anonymity, all that is known about the students is their test scores, their gender, and that virtually all were from poor African-American or Latino families in the Los Angeles area.

Columns 2 and 3 in Table 2 show results of paired t tests used to evaluate cognitive and attitudinal improvements in each of the four classes, including all students who took either a pretest or a post test. Reporting class scores enables us to see if the class on whole improved, to compare the results between teachers, and for Teacher 3, to compare her Spanish readers and her English readers. The paired t -tests indicate that for each class, including the Spanish reading class, there was statistically significant improvement between the pretest score and the post-test score on both the TOCC and the CCAI.

In looking at the differences in individual classes, the largest gains on the TOCC were made by students of Teacher 3 in both the English and Spanish speaking/reading classes. Teacher 3's students began with lower pretest scores and finished with higher post-test scores when compared to the other classes. The largest gains on the CCAI were made by students of Teacher 1, whose students gained 7

points between the pretest and post-test, compared to gains of 5 and 4 for students of Teacher 2 and Teacher 3 respectively.

Table 2: Scores on Test on *Choices and Changes* (TOCC) and *Choices and Changes* Attitude Index (CCAI), and Regression Results

	Regression Results (t statistics in parentheses)			
	TOCC Pre/Post-test: % correct, all students (Paired <i>t</i> score)	CCAI Pre/Post-test: Index score, all students (Paired <i>t</i> score)	Dependent variable: TOCC Post-test	Dependent variable: CCAI Post-test
Class 1 Teacher 1	47% / 59% 3.95***	21 / 28 4.30***	C	C
Class 2 Teacher 2	34% / 49% 5.99***	17 / 22 4.43***	.894 (.644)	-3.363 (-1.710)
Class 3 (English) Teacher 3	30% / 63% 4.14***	18 / 22 6.91***	3.150* (2.345)	-3.786* (-2.091)
Class 4 (Spanish) Teacher 3	29% / 62% 6.78***	20 / 24 2.39*	3.118* (2.316)	-2.923 (-1.682)
TOCC Pretest Score			.754*** (4.036)	C
CCAI Pretest Score			C	.400***

				(3.380)
Male			-.515 (-.604)	.801 (.653)
Constant			5.064*** (2.566)	18.850*** (6.136)
N	23 - 29 / class	22 - 29 / class	89	89
F	C	C	3.996	5.251
R²	C	C	.194	.240

***p# .001

**p# .01

*p# .05

To lend further insight into factors affecting the change between the pre-test score and the post-test score, equations of the following form were estimated using ordinary least squares regression analysis:

$$1) \text{ TOCC POST TEST SCORE} = f (\text{ TOCC PRETEST SCORE,} \\ \text{ MALE, CLASS2, CLASS3, CLASS4})$$

$$(2) \text{ CCAI POST TEST SCORE} = f (\text{ CCAI PRETEST SCORE, MALE,} \\ \text{ CLASS2, CLASS3, CLASS4})$$

Male is a zero-one dummy variable representing the gender of the student. Classes were numbered 1 (Teacher 1), 2 (Teacher 2), 3 (Teacher 3-English readers), and 4 (Teacher 3-Spanish readers). Class 1 was the omitted category for comparison purposes in the regression analysis.

Columns 4 and 5 in Table 2 give estimated coefficients from the two OLS regression equations. Column 4 indicates that the TOCC pretest score is statistically significant, indicating that students who began the *Choices and Changes* program with more knowledge were more likely to score higher on the post-test, regardless of whether the students were male or female, and regardless of which of the four classes they were in. Also, confirming the results of Column 2, Teacher 3's students scored significantly higher on the TOCC than those of Teacher 1 and Teacher 2, even while holding constant for the pretest score and the gender of the students.

Column 5 in Table 2 gives results of the CCAI regression equation. The CCAI pretest score is positive and significant for all classes, and Teacher 3's English readers scored significantly lower than students of Teacher 1, the comparison category. The other classes scored lower than those of Teacher 1 also, but the differences are not statistically significant at the 95% confidence level.

It is perhaps worth noting that the gender of the student does not affect the change in either the cognitive or the attitudinal post-test scores for the students in this sample. Whether gender makes a difference in learning economics, and at what level these differences may set in, is a controversial topic.

Both a strength and weakness of the current study is the fact that only three teachers were involved, and that their classes were quite similar. Since virtually all of the students were minority students from low income families, we know that the gains in test scores and attitudes occurred in spite of these factors. However, we are not able to rule out possible effects of individual teachers from other factors when looking at determinants of the test score improvements. With respect to Teacher 3, however, it is worth emphasizing that the cognitive gains of her Spanish-speaking students were as great or greater than those of their English-speaking counterparts.

Summary and conclusion

The *Choices and Changes* materials are designed to empower young students, perhaps those who need it most, with the knowledge that they can play an important role in the economy, and that they can make choices that will have positive and significant effects on their own futures. This paper has reported results of a study in California involving four classes of low income, minority students who show significantly improved test scores and attitudinal changes as a result of the program. It further demonstrates that within this sample, Spanish-reading students learn the material as effectively as their English-reading counterparts. The *Choices and Changes* program is undergoing revision,⁴ and given its demonstrated effectiveness, it is

⁴With funding from the Calvin K. Kazanjian Foundation, NCEE is revising and updating the materials with a projected completion date of fall, 2001. While keeping the same idea of drop-out prevention, the new materials are being designed to appeal to a wider age-range of students.

encouraging to know that the materials will no doubt continue to be used in their revised and improved format. Positive exposure to economic ideas and to economics as a discipline by both teachers and students may portend well for the future of the students involved, for future economic education programs, and for the future of the economy.

References

Grimes, Paul W. 1995. "Economic Education for At-Risk Students: An Evaluation of *Choices & Changes*." *The American Economist* XXXIX (Spring): 71-83.

Grimes, Paul W. 1991. *Cognitive and Attitudinal Effects for At-Risk Students Enrolled in Choices & Changes*. New York: National Council on Economic Education.

National Council on Economic Education. 1992. *Choices and Changes Teacher Resource Manuals*. New York: National Council on Economic Education (formerly Joint Council on Economic Education).

