TESTING THE ECONOMIC LITERACY OF K-12 TEACHERS:

A BASELINE ANALYSIS FOR MISSISSIPPI

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Abstract

Without a National Council on Economic Education affiliated state council, Mississippi lacked a formal economic education advocate for more than two decades. A new state council along with two university-based centers have recently undertaken an aggressive push to elevate the role and importance of economics in Mississippi's K-12 school systems. This study examines the level of economic literacy, as measured by standardized test scores, exhibited by K-12 teachers in the state near the beginning of this endeavor. A standard regression model is estimated to reveal those factors associated with the teachers' test scores. The results suggest that teachers, particularly elementary teachers, had relatively low levels of initial economic understanding. The degree of economic literacy was found to vary across gender, racial ethnicity, age, annual family income, and the previous levels of formal economics instruction. Additionally, teachers who taught economics as a separate discipline and those without a broad portfolio of teaching responsibilities scored higher, holding all else constant.

Key Words: economic literacy, teachers, public schools, Mississippi

JEL Classification: A21

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INTRODUCTION

For more than fifty years the National Council on Economic Education (NCEE) has orchestrated a nationwide campaign to enhance the economic literacy of our nation's citizens. To accomplish this, the NCEE relies on a network of non-profit state councils and university-based centers that provide teacher training and resources to the country's K-12 schools. However, the level and intensity of the NCEE's work has varied dramatically across states over time. This variation is a function of a large number of dynamic factors, such as, state curriculum mandates, teacher licensing requirements, the local and regional business climate, competition with other non-profits, and the leadership and management skills of those overseeing the state councils and running the university-based centers. Historically, some state councils have been more successful than others at maintaining a strong advocacy base and a positive working relationship with their local educational and business communities. Given these realities, the training and preparedness of teachers also varies across states and over time. To provide effective support, state councils and university-based centers should be cognizant of the existing degree of economic human capital held by their teacher clients.

Clearly, knowledge of the current state of economic understanding by local teachers is particularly important in those states where teacher training programs in economics have not been

readily available. This study examines the degree of economic understanding of K-12 teachers in one of those states, Mississippi, where the NCEE network was formally inactive for more than two decades until the current Mississippi Council on Economic Education (MCEE) was organized in 2003. The first section provides a brief overview of the history of economic education advocacy in Mississippi. This is followed by an overview of the data and our empirical model. The results are then presented and interpreted. Conclusions and recommendations are discussed in the final section.

HISTORICAL BACKGROUND

Mississippi boasted an active NCEE-affiliated state council from the mid 1960s through the beginnings of the 1980s. During the early years of this period, the council flourished. At one time, the original MCEE supported five university-based centers for economic education[1] and even hosted the annual national conference of the NCEE and the National Association of Economic Educators (NAEE) at Biloxi in 1970. By 1980 much of the original MCEE's financial support had been consolidated with that of the state's Chamber of Commerce, known as the Mississippi Economic Council (MEC). This resulted in a series of disagreements with the leadership of the NCEE over possible conflicts of interest and the direction of the MCEE's teacher training programs. Eventually, the NCEE disaffiliated the original MCEE and cut its ties with the MEC.

Without the support of an active state council, all but one of the original university-based centers withered away by the mid 1980s. The sole surviving center, located at the University of Mississippi (Ole Miss), operated on the financial earnings from a small endowment and concentrated on providing a limited array of summer credit courses in economics for high school and community college teachers. During this time the MEC continued to offer training for K-12 teachers, primarily through a series of summer institutes that focused on "private enterprise education." This situation

remained the status quo throughout the 1990s.[2] NCEE-sponsored activity in Mississippi was limited to a few sporadic special projects initiated through faculty members at Mississippi State University (MSU). Most of these special projects were research-based curriculum evaluations and pedagogical studies. The most significant exception was a state-wide series of teacher workshops in 1996 that supported the national distribution of the original *Virtual Economics* CD-ROM resource (NCEE 1996).

The *Virtual Economics* workshop series attracted the financial support of the Mississippi Department of Education (MDE) and created a renewed demand for specialized economics training for K-12 teachers, particularly high school social studies teachers (Grimes and Johnson 1996). Later, as the MDE modernized and updated the state's K-12 curriculum, economics was fully integrated as one of the four required "strands" of the social studies. The authors of the Mississippi curriculum guidelines relied on the NCEE's *Voluntary National Content Standards* (NCEE 1997) in establishing the new state content standards.

By 2001, the national leadership of the NCEE was working in Mississippi to identify how to renew its ties to the state. In late 2002, former Governor William Winter [3] called a meeting of state business leaders and policymakers to discuss the need to prepare the state's children to live and compete in the global economy of the twenty-first century. Out of this meeting a core group volunteered to accept the challenge of re-establishing the MCEE to provide training and resources to the K-12 teachers charged with implementing Mississippi's economics curriculum. By early 2003 the new MCEE had received its official non-profit charter, hired its first president (an alumni of the *Virtual Economics* workshops), and recognized its first university-based center – the MSU Center for Economic Education and Financial Literacy (MSU CEEFL). The first teacher training workshops were held late that spring.

During its first three years the MCEE successfully reached several thousand teachers and affected a significant proportion of the state's K-12 student population through its programming and outreach activities. These activities included a statewide implementation of the "Stock Market Simulation" program, participation in the NCEE's "Economics Challenge" competition for high school students, and the production and delivery of numerous workshops using NCEE curriculum materials such as *Capstone* (NCEE 2003) and *Financial Fitness for Life* (NCEE 2001). To date, the MCEE has received significant financial support from all sectors of the Mississippi business community as well as from several in-state educational foundations. It has also established strong working partnerships with the MDE and the educational divisions of both Federal Reserve Banks that serve Mississippi (Atlanta and St. Louis). In the summer of 2005, the new MCEE recognized the opening of its second center at the University of Southern Mississippi (USM).

Within this historical context, the MCEE and MSU CEEFL staff quickly discovered that the level of economic literacy and the degree of preparedness to teach economics varied dramatically from teacher to teacher. This was due in part to the fact that no systematic in-service training was specifically devoted to economics during the tenure of most current teachers working within the state. An additional contributing factor was also identified – the existing state licensing requirements for K-12 teachers. In Mississippi, an elementary teaching certificate can be obtained without earning prior university credit in economics. Even though all elementary teachers in Mississippi are required to teach the economics strand of the social studies curriculum, they are not required to study economics as part of their professional preparation. The situation is only slightly better at the high school level where a secondary social studies teaching certificate requires completion of one three-hour college course in economics. Usually the three-hour credit is earned as half of the normal "Principles of Economics" macro-micro undergraduate course sequence. Thus,

most Mississippi K-12 teachers are minimally prepared to teach economics upon graduation from college.

The current study was conceived to determine the level and nature of the economic literacy of K-12 teachers in Mississippi. By examining the factors that influence the economic understanding of teachers, it may be possible to design and produce more effective training workshops and outreach activities in the future. The current results will provide a baseline for economic education advocates in Mississippi to gauge the long run results of their actions. Furthermore, our examination also serves as a case study for those in other states where economic education advocacy has languished.

THE DATA

Over the past several decades, economic education researchers have extensively examined the learning process and behavior of economics students. Overwhelmingly, the subjects of this research have been college students, and in particular, undergraduate students enrolled in the Principles of Economics course sequence. Although a significant literature also exists on student learning at the elementary and secondary levels, a surprisingly small number of studies focus on the economic literacy and learning behavior of in-service K-12 teachers. This is true even in light of recent inquiries into teacher aptitude and quality by economists. (See for example, Angrist and Guryan (2004) and Hoxby and Lee (2004).)

Most of the empirical literature that explicitly addresses the economic literacy of teachers examines it through the effects of teachers' economic human capital on the ultimate educational performance of the their students (for example, Walstad and Soper (1988) and Lynch (1990)). However, an early study by Bach and Saunders (1965) which examined the economic literacy

demonstrated *by* teachers found that one or two college courses in economics had no significant impact on teachers' standardized test scores and that increases in the number of courses had only marginal positive effects. More recent analyses of teacher performance on standardized economics tests are consistent with the conclusion that relatively extensive training in economics is necessary to significantly improve teachers' scores and ultimately the scores of their students (Allgood and Walstad 1999; Parkison and Sorgman 1998). In light of this evidence, we expected teachers in Mississippi to demonstrate relatively low levels of economic literacy as measured by standardized test scores.

To examine the factors influencing the degree of economic literacy demonstrated by K-12 teachers in Mississippi within the historical and institutional contexts discussed above, participants at a state-wide series of one-day teacher workshops produced by the MCEE and MDE were tested during the Spring and Summer of 2005.[4] These workshops were designed to introduce elementary and secondary teachers to a recent revision of the state's social studies curriculum requirements. One half day of each workshop was devoted to an overview of the curriculum revisions; the other half day focused on teaching techniques to meet the economics strand of the curriculum. Prior to the content training, all teachers were asked to complete a brief survey and to take Form A of the *Test of Economic Literacy* (TEL) (Walstad and Rebeck 2001). Across the series of ten workshops, 350 teachers returned usable surveys and tests.[5]

Our empirical analysis follows the tradition of estimating an educational production function where a measure of cognitive achievement is modeled as a function of demographic characteristics, personal endowments, and environmental influences. (See Becker and Walstad (1987) for a review of this approach and the various econometric issues associated with it.) Specifically, our model postulates the following relationship for individual teachers in our sample:

$$\text{Personal Economics Knowledge} = f(\mathbf{D}, \mathbf{E}, \mathbf{H}, \mathbf{T}) \quad [1]$$

where **D** is a vector of the teachers' demographic characteristics, **E** is a vector of the teachers' educational endowments, **H** is a vector of the teachers' human capital investments, and **T** is a vector of the teachers' classroom and work environment variables. Each teacher's personal economics knowledge was measured using the observed TEL score (percentage correct out of 40 questions). The variables included in each of the dependent vectors on the right hand side of [1] are listed in Table 1 along with their specification and expected sign. Table 2 provides the mean and standard deviation of each variable for the overall K-12 sample and broken down by grade category, K-8 (elementary) and 9-12 (high school).

---------- Insert Tables 1 and 2 About Here ----------

Table 2 shows that teachers' TEL scores varied according to the grade level taught. Elementary teachers achieved an average score of 53 percent while high school teachers achieved an average of about 72 percent. This grade level gap is consistent with previous studies such as France, Summary, and Vasegh-Daneshvary (1989). For the overall sample, the mean TEL score was about 62 percent. Although these numbers appear to be low, the TEL is designed to be a discriminating, but reliable, test. On the other hand, the TEL is generally given to high school students, *not* to teachers. For the form given, the national mean score for high school students in an economics class was about 63 percent. A t-test revealed that there was no significant difference between the elementary teacher group and the national student norming sample.[6] Thus, elementary school teachers in Mississippi had a mean score not significantly different from the national average

high school student mean score. For high school teachers in Mississippi the mean literacy score was significantly greater than the national mean high school economics student score (t-value = 6.157). At 73 percent, Mississippi high school teachers approached the 71st percentile of the high school economics student distribution.

Thus, in this case casual perceptions are correct; the Mississippi teacher scores *are* low when compared to the national TEL norming sample of students. To effectively teach a relatively difficult subject such as economics, we should expect teachers to find large positive differences between their test scores and those of their prospective students. This was not the case we found in Mississippi, particularly for elementary school teachers. Such findings are not surprising given the historical inattention given economics in the Mississippi teacher licensing requirements and the lack of a strong economics education advocate in the state for an extended period of time. Unfortunately, at this time no known TEL data on teachers is available from other states for comparison.

Further examination of Table 2 reveals that the sample is representative of the teacher population in Mississippi. About 41 percent of the high school teachers in the sample were men compared to about 17 percent for the elementary grades. The average age was consistent across grade levels at roughly 41 years. More than one third of the sample were African American or other racial minority. This is in line with the racial composition of Mississippi which has an overall population that is about 36 percent African American (U.S. Census Bureau 2005). Slightly less than half of all teachers in the sample were the first in their family to graduate from college, and about half lived in households with annual incomes above $50,000.

Table 2 shows a significant difference between elementary and high school teachers with respect to their formal college education in economics. On average, elementary teachers took less

than one three credit hour economics course while high school teachers took almost two full three credit hour courses. This is consistent with the current teacher licensing requirements in Mississippi where no economics courses are required for a K-8 teaching certificate and only one three hour course for a 9-12 social studies teaching certificate. Table 2 also reveals that high school teachers in our sample were more likely to have majored in a specific disciplinary field other than earning an education degree. Furthermore, these high school teachers were about 50 percent more likely to have earned a college degree out-of-state.

No difference by grade level was apparent in the length of professional experience reported by the teachers in the sample. Both the elementary and high school sub-samples had about 12 years of teaching experience. The high school teachers were much more likely to have attended a previous economics education workshop sponsored by the MCEE and to highly rate their skill in teaching economic concepts. With respect to their teaching environment, high school teachers were three times as likely to report that their districts valued economics. Only 2 percent of the elementary teachers reported teaching economics as a separate subject while a little more than 41 percent of the high school teachers taught economics as a stand alone course. Interestingly, average class size was not found to vary by grade levels with both elementary and high school teachers reporting about 23 students per classroom.

EMPIRICAL RESULTS

Equation [1] was estimated three times using standard OLS regression techniques, once for the entire K-12 sample, once for the K-8 sub-sample, and once for the 9-12 sub-sample. The dependent variable was specified as the percentage correct on the TEL. The full complement of independent variables discussed above were included on the right-hand-side of each estimation. The

full sample estimation also included a categorical variable for the high school teachers. The results are reported in Table 3. Each estimation resulted in a significant F-statistic and an acceptable cross-sectional adjusted R^2.

---------- Insert Table 3 About Here ----------

Looking first at the coefficients for the demographic variables, Table 3 reveals that male teachers, overall and for the elementary grades, performed significantly better on the TEL than did their female counterparts. Such a finding is consistent with previous studies that found gender gaps on standardized economics test scores (Heath 1989). However, for our sample the difference disappears at the high school level where many more male teachers were found, suggesting that relatively better male teachers may self-select into the elementary teaching ranks. AGE entered the equation in quadratic form to capture any non-linearities between age and economic understanding. The significant negative AGE and positive AGE^2 coefficients in the overall and K-8 equations suggest that the teachers' economic literacy improves over time. This may be indicative of a "learning by teaching" phenomenon that appears more important for teachers in the elementary sub-sample; most likely due to their relatively lower levels of formal training in economics. Since K-8 teachers in Mississippi have little formal college training in economics but are required to include it in their lesson plans, they are forced to become more economically literate on the job and on their own time.

The results also suggest that African American teachers , or those of other racial minorities, scored significantly lower on the TEL, *ceteris paribus*. Again this is consistent with previous

studies of college student performance on standardized economics tests (for example, see Grimes and Nelson (1998)). Additional research is needed to determine if the current results reflect systematic differences in teacher training across racial groups or if it reflects other unobservable latent variables associated with race. Teachers from relatively high income households scored significantly higher on the TEL, all else being the same. This effect is greatest for high school teachers. Economic decision-making skills may be more valued or explicitly applied within families with access to relatively greater resources.

Even though high school teachers have on average about twice the number of college credit hours earned in economics than their elementary counterparts, the effect of those hours appears relatively stronger for the elementary teachers. This is seen in the statistically significant coefficient on ECON HOURS in the K-8 equation and in its insignificant counterpart in the 9-12 equation. Given that some elementary teachers have no college economics credit, this suggests that even a few hours of formal economics instruction can significantly influence the literacy of elementary school teachers. Overall teachers who majored in a disciplinary field performed relatively better on the TEL than those who obtained a degree in education. This conforms to the on-going trend in teacher education to stress disciplinary majors in programs of study (Goldhaber 1996; Bobbitt 1989). The OUT-OF-STATE variable was included to capture differences in teacher training programs that reflect differences in teacher licensing requirements across states. Specifically, the economics course requirements of teacher training programs in states where economics is mandated are greater than in those states, like Mississippi, that currently have weak or non-existent mandates (NCEE 2005). Thus, the OUT-OF-STATE coefficient was expected to enter the equation with a positive sign. OUT-OF-STATE was significant in both the K-12 and K-8 regressions, but not in the 9-12

specification. This is not surprising given that the biggest gap in economics course requirements between Mississippi and other states occurs at the elementary level.

Turning to the human capital investment variables, it is interesting to note that the years of teaching experience is most important at the high school level. Although EXPERIENCE is statistically insignificant for the overall and K-8 specifications, it is significant for the 9-12 specification. Likewise, previous participation at an MCEE teacher training workshop was found to be significantly correlated with TEL performance for high school teachers.[7] TRAINING was also significant for the overall sample. The insignificant TRAINING coefficient for the elementary sub-sample is not surprising given that only 2 percent of the K-8 teachers had previously attended a workshop (see Table 2). The SKILL variable consistently obtained regression coefficients with an unexpected negative sign. While SKILL is not statistically significant in any of three equations, the negative sign suggests that the teachers had poor metacognitive skills in analyzing their own personal economics knowledge. This is consistent with an earlier study examining the ability of college students to predict their own performance on an economics examination (Grimes 2002).

The results in Table 3 indicate that the teaching environment had little effect on the teacher's achieved economic literacy. The teachers' impression about how the economics curriculum was valued by their school and their own average class size were found to have no effect on their TEL scores. However, for the overall sample, TEL scores were negatively impacted by the average number of subjects that teachers taught per year. Apparently, larger portfolios of courses reduced the observed degree of economic literacy suggesting that fewer course preparations allowed teachers to attain greater expertise in economics. Also, for the overall sample and the high school sub-sample, the COURSE coefficient entered the equation with a statistically significant positive value.

Therefore, teachers, particularly those teaching grades 9-12, were more likely to demonstrate higher levels of economic literacy than those who only teach economics as an infusion into other subjects. Clearly, those teachers required to teach a stand-alone economics course cannot hide behind other material and must demonstrate a higher mastery of economic principles and concepts.

Finally, the categorical variable for high school teachers in the K-12 equation obtained a positive and significant regression coefficient. Thus, all else being the same, high school teachers demonstrated significantly greater TEL scores than their elementary school counterparts. The results indicate a gap of about five percent in favor of the high school teachers. This is not surprising since economics is still viewed as a "high school subject" in many Mississippi school districts. Prior to the reformation of the MCEE, economics received little attention from state and local curriculum committees and if it did, it was generally at the high school level.

CONCLUSIONS

Mississippi provides an interesting case study of a state in which economic education advocacy lay dormant for many years before a resurgence in private and public support led to the creation of a new and active state council with affiliated university-based centers. By measuring and analyzing the extent of economic literacy demonstrated by K-12 teachers within the state near the beginning of the council's major efforts to raise the level of their economics human capital, we have established a baseline by which future achievements in this area may be gauged. Our results indicate that teachers in Mississippi demonstrated relatively low levels of economic literacy as measured by the TEL.[8] This was particularly true for elementary level teachers whose mean TEL score was not significantly different from the national mean for high school students completing a one semester

course in economics. Although this appears alarming at first glance, it is not surprising given that elementary teachers in Mississippi do not have to complete a college course in economics to be licensed. Furthermore, it may be argued that a thorough knowledge and understanding of advanced economic concepts is not needed to teach the basic principles of economics at the elementary level. Indeed, what is the degree of economic literacy required to competently teach the economic principles suggested for the elementary grades by the *National Standards*? While more knowledge is clearly preferred to less knowledge, this question is left for future researchers to answer.

A number of other interesting and potentially important findings were revealed by our analysis. First, as in previous studies that examined college undergraduates, gender and race seem to matter in the degree of economic understanding demonstrated by K-12 teachers. Specifically, female and African American teachers were found to score lower on the TEL, holding all else constant. Additional work is needed to determine if this is due to systematic differences in economics training for these groups or if gender and race are proxies for other unobservable latent variables. Second, the results concerning age suggest that elementary teachers may learn economics through teaching and life experiences. Again, this is not surprising given the very low levels of formal training in economics reported by elementary teachers. Third, the economic understanding of teachers was positively correlated with annual family income, further suggesting that life experiences are important to adult understanding of basic economic concepts. Fourth, college coursework and teacher training workshops in economics do matter. Additional hours of college credit in economics were more important for elementary teachers while professional workshops and seminars were more important for high school teachers. Fifth and finally, those required to teach broader portfolios of courses demonstrated lower levels of economic understanding while those who

taught economics as a stand-alone subject or course demonstrated high levels of economic understanding. Together these findings suggests that the ability to specialize in economics while in the classroom improves teacher understanding.

The results presented here will be used to fine tune the MCEE's future teacher training initiatives and to measure the progress of its investments in K-12 teacher human capital. They are also offered as a case study for those states where economic education advocacy has lapsed.

ENDNOTES

[1]These original centers were located at Delta State University, Mississippi State University, the University of Mississippi, the University of Southern Mississippi, and William Carey College. The historical events described in this section are based on the lead author's first-hand experiences from 20-plus years of academic and economic education service in Mississippi.

[2]Without access to an in-state economics education advocacy network, some enterprising Mississippi social studies teachers went out-of-state, primarily to neighboring Alabama, Arkansas, and Louisiana, for training and access to resources. Some teachers also initiated and ran their own programs, such as stock market simulations and games, to fill the void.

[3]William F. Winter (Democrat) served as Mississippi's 58th Governor from 1980 through 1984. His term in office is most often remembered for the passage of the Education Reform Act of 1982 which mandated the availability of public kindergartens and reorganized the educational establishment within the state.

[4]The workshops were held in Starkville, Jackson, Greenville, Hattiesburg, Biloxi, Natchez, Oxford, Itta Bena, Rosedale, and Shannon. All methods and procedures for surveying and testing the students were approved by the MSU Institutional Review Board for Human Subjects Research. Copies of the consent releases and survey forms are available upon request of the authors.

[5]Approximately 370 teachers in total attended the series of workshops. A majority of those who are not included in the final sample failed to complete one or more of the test and survey instruments due to late arrival or early departure from the event. This attrition process appeared random and was not expected to result in a self-selection problem for the analysis.

[6]With an absolute t-value of 1.0874 we could not reject the null hypothesis that the two sample means were equal.

[7]The TRAINING variable captures teachers' attendance at either MCEE or JumpStart workshops. The two were combined into one variable to avoid teacher confusion given that MCEE and JumpStart had recently produced a major joint statewide workshop. However, less than 1 percent of the sample reported attending JumpStart programs.

[8]At the time this study was completed, two of the authors were also finishing an evaluation of teacher training programs in Russia. The Russian study provides an interesting international basis of comparison for the Mississippi data reported here. The mean (pre-workshop) TEL score for the sample of 260 Russian high school teachers was 76.100 compared to the mean of 72.308 for the 104 Mississippi high school teachers. A test for difference in means resulted in a t-score of 2.226. Thus, high school teachers in Mississippi scored significantly below those in transitional Russia.

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Table 1

Specification of Variables

Variable	Specification
Dependent Variable	
TEL	Percentage correct on 40-item *Test of Economic Literacy*.
Demographic Characteristics	
GENDER [+]	1 = teacher is male; 0 = teacher is female.
AGE [-]	Teacher's age in years.
AGE^2 [+]	Teacher's age in years squared.
RACIAL MINORITY [-]	1 = racial affiliation is black or other minority; 0 = otherwise.
1st GENERATION [-]	1 = first generation college graduate; 0 = otherwise.
HIGH INCOME [+]	1 = annual family income exceeds $50,000; 0 = otherwise.
Educational Background	
ECON HOURS [+]	Number of college credit hours earned in economics.
DEGREE MAJOR [+]	1 = college degree earned in disciplinary field; 0 = college degree earned in education.
OUT-OF-STATE [+]	1 = college degree earned in another state; 0 = college degree earned in state of Mississippi
Human Capital Investments	
EXPERIENCE [+]	Number of years spent teaching.
TRAINING [+]	1 = has attended workshop(s) produced by the Mississippi Council on Economic Education or the Jump Start Coalition; 0 = otherwise.
SKILL [+]	1 = self evaluation of economics teaching skills is good or better; 0 = self evaluation of economics teaching skills is fair or poor.
Teaching Environment	
VALUE [+]	Teacher's response to, "Is economics valued in your school district?" 1 = Yes; 0 = No.
COURSE [+]	1 = economics taught as a separate course subject; 0 = economics infused into other social studies subjects.
SUBJECTS [-]	Number of other course subjects normally taught during academic year.
CLASS SIZE [-]	Average number of pupils taught in each class.
HIGH SCHOOL [+]	1 = teaches high school students; 0 = teaches elementary and middle school students.

[ ] - Predicted value of OLS coefficient.

Table 2

Means and Standard Deviations of Variables by Grade Level

Variable	K-12 Teachers	K-8 Teachers	9-12 Teachers
Dependent Variable			
TEL	62.357 (16.801)	53.150 (15.794)	72.308 (14.861)
Demographic Characteristics			
GENDER	0.246 (0.431)	0.171 (0.377)	0.423 (0.496)
AGE	41.303 (11.046)	41.252 (10.788)	41.423 (11.735)
AGE^2	1831.429 (938.476)	1822.366 (906.616)	1852.865 (1014.127)
RACIAL MINORITY	0.383 (0.487)	0.398 (0.491)	0.346 (0.478)
1st GENERATION	0.506 (0.501)	0.512 (0.501)	0.491 (0.502)
HIGH INCOME	0.469 (0.500)	0.439 (0.497)	0.538 (0.501)
Educational Background			
ECON HOURS	3.480 (4.120)	2.659 (3.599)	5.423 (4.613)
DEGREE MAJOR	0.257 (0.438)	0.159 (0.366)	0.490 (0.502)
OUT-OF-STATE	0.151 (0.359)	0.130 (0.337)	0.202 (0.403)
Human Capital Investments			
EXPERIENCE	12.047 (9.820)	12.008 (9.849)	12.151 (9.799)
TRAINING	0.098 (0.317)	0.033 (0.179)	0.252 (0.479)
SKILL	0.509 (0.501)	0.455 (0.499)	0.635 (0.484)
Teaching Environment			
VALUE	0.391 (0.604)	0.248 (0.606)	0.731 (0.446)
COURSE	0.137 (0.345)	0.020 (0.141)	0.413 (0.495)
SUBJECTS	2.938 (1.905)	3.100 (2.028)	2.560 (1.520)
CLASS SIZE	22.680 (8.394)	22.602 (8.280)	23.865 (8.697)
HIGH SCHOOL	0.297 (0.458)	–.— –.—	–.— –.—
Observations	350	246	104

Table 3

Determinants of Teachers' Economic Literacy: OLS Results

Variable	K-12 Teachers	K-8 Teachers	9-12 Teachers
CONSTANT	78.769*** (6.691)	89.495*** (6.044)	73.761*** (3.648)
Demographic Characteristics			
GENDER	3.033* (1.566)	5.717** (2.186)	0.667 (0.239)
AGE	-1.038** (1.772)	-1.915** (2.566)	0.104 (0.106)
AGE^2	0.012** (1.673)	0.026** (2.815)	0.004 (0.376)
RACIAL MINORITY	-10.475*** (6.265)	-12.162*** (5.977)	-8.987*** (2.894)
1st GENERATION	-0.863 (0.537)	-0.114 (0.059)	1.712 (0.610)
HIGH INCOME	2.587* (1.594)	1.993 (0.992)	6.082** (2.314)
Educational Background			
ECON HOURS	0.615*** (2.956)	0.693** (2.367)	0.371 (1.212)
DEGREE MAJOR	3.702** (1.871)	4.631** (1.676)	0.560 (0.198)
OUT-OF-STATE	4.499** (2.095)	7.766*** (2.819)	0.570 (0.172)
Human Capital Investments			
EXPERIENCE	-0.183 (0.161)	-0.172 (1.257)	0.337** (1.609)
TRAINING	3.294* (1.476)	1.840 (0.362)	5.854** (2.008)
SKILL	-1.776 (1.144)	-0.540 (0.247)	-3.591 (1.281)
Teaching Environment			
VALUE	-0.833 (0.462)	-0.803 (0.342)	-1.789 (0.605)
COURSE	10.671*** (4.068)	8.294 (1.255)	9.706*** (3.537)
SUBJECTS	-0.577* (1.391)	-0.399 (0.849)	0.863 (0.890)
CLASS SIZE	0.101 (1.124)	0.172 (1.555)	-0.020 (0.132)
HIGH SCHOOL	4.808** (2.151)	–.— –.—	–.— –.—
F-Statistic	12.810	7.450	3.740
Adjusted R^2	0.377	0.308	0.309

( ) - Absolute value of t-statistic.

* - Statistically significant at the .10 level, one-tailed test.

** - Statistically significant at the .05 level, one-tailed test.

*** - Statistically significant at the .01 level, one-tailed test.