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JOURNAL OF ECONOMICS AND ECONOMIC EDUCATION RESEARCH

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We are extremely pleased to present this issue of the *Journal of Economics and Economic Education Research*, an official publication of the Allied Academies' Academy of Economics and Economic Education Research, dedicated to the study, research and dissemination of information pertinent to the improvement of methodologies and effective teaching in the discipline of economics with a special emphasis on the process of economic education. The editorial board is composed primarily of directors of councils and centers for economic education affiliated with the National Council on Economic Education. This journal attempts to bridge the gap between the theoretical discipline of economics and the applied excellence relative to the teaching arts.

The Editorial Board considers two types of manuscripts for publication. First is empirical research related to the discipline of economics. The other is research oriented toward effective teaching methods and technologies in economics designed for grades kindergarten through twelve. These manuscripts are blind reviewed by the Editorial Board members with only the top programs in each category selected for publication, with an acceptance rate of less than 25%.

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Dr. Larry R. Dale
Director Center for Economic Education
P. O. Box 2890
State University, AR 72467
e-mail; Dalex@cherokee.astate.edu
[870]-972-3416

ECONOMICS EDUCATION ARTICLES

ECONOMIC EDUCATION AS PUBLIC POLICY: THE DETERMINANTS OF STATE-LEVEL MANDATES

Paul W. Grimes, Mississippi State University
Meghan J. Millea, Mississippi State University

ABSTRACT

This paper presents an empirical examination of the factors that influence a state's decision to mandate the teaching of economics within the K-12 curriculum. 38 states currently require some form of economics instruction within their approved curriculum. A binary choice probit model was estimated to determine the relationship between a variety of socioeconomic, political and policy environment variables in the decision to implement and maintain an economic education mandate. The results indicate that the number of university-based centers for economic education and the number of parents belonging to state parent-teacher associations positively affect the mandate choice. The incidence of poverty was found to be negatively associated with a state's requirement to include economics within the curriculum. These and other results highlight the need for additional research into the aggregate effects of required investments in economic human capital.

INTRODUCTION

Most academic economists share the belief that formal training in the discipline and the "economic way of thinking" are valuable investments in human capital for the individual and for society. It is widely argued that economic literacy results in the ability of individuals to make better choices – whether in the marketplace or in the polling booth. More than 30 years

ago, Nobel laureate George Stigler (1970) reasoned that economically literate citizens are better able to make decisions about educational investments, job opportunities, personal finances, and politics, and that better individual decisions ultimately result in stronger societal outcomes. The National Council on Economic Education (NCEE) and its network of state councils and local centers have advocated arguments based on this theme since its conception in 1949.[1] Although the efforts of the NCEE and other advocacy groups have increased the degree and quality of economics education available in our nation's schools, recent studies indicate a startling degree of economic illiteracy still exists among the general public (Dahl, 1998). For example, the Federal Reserve Bank of Minneapolis conducted a national survey concerning basic economic concepts with respondents answering correctly only 45% of the time (Federal Reserve, 1998). Results such as this suggest that many schools may not yet provide an adequate degree of instruction in economics.

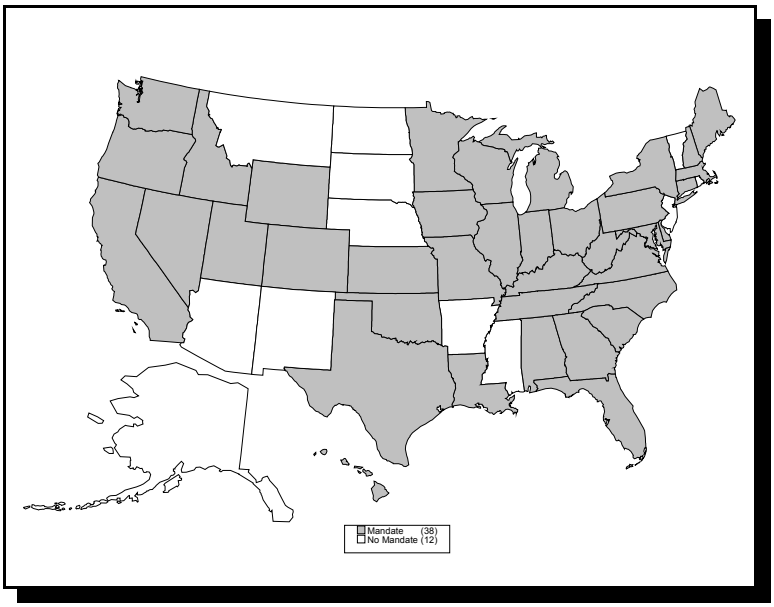
At any point in time, it is difficult to determine the overall extent of economics instruction within the curriculum of the nation's K-12 schools (Bragaw & Hartoonian, 1983; Walstad, 2001). In general, the states' central educational authority (usually a state Department of Education) constructs and issues an approved framework for the curriculum leaving local school boards and administrators only minor discretionary choices. Each state's central educational authority is held accountable by state legislators and other officials elected statewide; and local school boards are usually directly elected or appointed by locally elected office holders. Currently, 38 states mandate the teaching of economic concepts within their approved K-12 curriculum (up from only 28 states in 1991).[2] Only 13 of these states formally require a course in economics for high school graduation (Dempsey, 2000; Walstad, 2001). To date, economists have failed to evaluate the long-run effect of required economics instruction on individual outcomes such as income, educational attainment and employment. There is, however, some evidence to suggest that mandated economic education is important at the aggregate level. Grimes and Lee (2000) report that states with mandated economic education courses experienced significantly greater rates of growth in their gross state product than states without a mandate over the 1982-1997

time period. This observed association should be viewed with caution as the limitations of currently available data make it impossible to isolate and directly measure the effects of specific investments in economic education on aggregates of economic growth. However, given the documented degree of economic illiteracy and the potential benefits of economics instruction, it is important to understand why some states mandate economic education in their schools while others do not. The purpose of this paper is to examine the factors that influence the mandate choice.

STATE MANDATES

The 38 states that currently mandate the formal inclusion of economics within their K-12 curriculum are shown in Figure 1. Even between those with mandates, the degree to which school systems are required to provide economics instruction varies from state to state and school district to school district.

Figure 1
States With Mandated Economics Education in K-12 Curriculum



Some states specifically require a formal course in economics while others allow for economics content to be integrated within other social studies courses (e.g. history, government, etc.) or infused elsewhere within the curriculum. The grade levels at which economics instruction are to occur also vary with a few states requiring economics content throughout the K-12 curriculum while others restrict it to senior high school. It is also important to recognize that the degree to which school systems are held accountable for their instruction in economics vary across states. Some states require competency testing of students and others do not. In some states that do require testing, the outcomes are used in determining the allocation of resources between school districts, while in others, test scores are only used as benchmarks and for future goal-setting activities. Given the variety of potential mandate regimes, we use the broadest and most inclusive definition for our analysis.[3] A state is determined to have an economic education mandate if the state's department of education requires any type of formal instruction in economics within its approved K-12 curriculum.

Researchers in economic education have investigated the effect of state mandates on the effectiveness of economics instruction. The relationship between a state imposed mandate and student learning is complex. In states where a mandate exists, teachers are likely to have more training and experience in the subject and have greater access to resources to support their teaching, relative to teachers in non-mandate states. Additionally, state imposed curriculum requirements may also influence the attitudes of teachers toward the subject, and not always in a positive manner. An analysis by Marlin (1991) of the National Assessment of Economic Education (NAEE) database revealed that the degree of student learning in economics is strongly linked to teacher attitudes and that the existence of a state mandate diminished teacher attitudes, ceteris paribus. However, Marlin also found that additional training in economics improved teacher attitudes toward the subject and that teachers in mandate states had greater access to such training. This is consistent with an earlier study by Rhine (1989), which found that the factors that positively influence student learning in economics vary according to the mandate status of the student's home state. Rhine's results showed that performance was enhanced for students in mandate states

when their teachers had obtained additional formal training in economics, however, in non-mandate states, previous years of teaching experience in the subject proved to be a more important determinant of student performance. While studies such as these demonstrate that mandates result in observable and measurable outcomes that influence the formation of economic human capital, they do not attempt to explore the factors that result in the imposition of a state mandate.

THE EMPIRICAL MODEL

The underlying factors which determine the course of public policy have long been studied by economists and political scientists alike, and the resulting empirical literature suggests that a number of broad factors are potentially important determinants of state policies such as educational curriculum mandates. Some researchers have viewed the empirical state policy literature as a "contest" between political variables and socioeconomic and environmental variables as competing explanations for public policy choices (see for example, Wright, Erikson, and McIver, 1987). In many cases, socioeconomic factors are found to be better predictors of policy decisions than political factors. However, because of the inter-dependence between such factors in a representative democracy, most empirical models do not limit their scope to one set of explanatory variables. It is important to control for the existing policy environment as well as the major socioeconomic and political factors that may influence policy choice.

Our model is built upon the research tradition established by Crain (1979) and Benson and Engin (1988) who treat the enactment of legislation and public policy as the end result of a market process. Within the context of state educational mandates, a number of special interest groups can be identified as potential sources of demand for inclusion of economics in the state-approved school curriculum – parents, university centers for economic education, advocates for economic development, etc. The relative degree to which these demands are manifest is a function of the state's existing socioeconomic and public policy environments. The approval and retention of a state mandate by policy makers, held accountable by elected officials,

may be modeled as a response to this demand. Thus, in the spirit of the empirical state policy literature, the following functional relationship was posited:

$$MANDATE = f\ (R, P, S) \qquad [1]$$

where, MANDATE is a categorical variable reflecting the existence of a state imposed economic education mandate, R is a vector of environmental variables reflecting the availability of resources to support a mandate, P is a vector of variables reflecting the relevant policy environment, and S is a vector of variables representing the socioeconomic and political context. The specification of each variable included in the model can be found in Table 1 according to category.[4] The mean and standard deviation for each variable are reported in Table 2 according to state mandate status and in total. As specified, the model indicates that states face a simple binary choice – either to require school systems in the state to teach economics or to not require the teaching of economics. Thus, the model was estimated using standard probit analysis. (Note that we are not modeling the initial decision to mandate economics instruction – those decisions were made at different times across each state over the past 25 years – we are modeling the states' choice to maintain and enforce a statewide curriculum mandate during our sample year.[5])

EMPIRICAL RESULTS

Before turning to the probit results, it is interesting to note some of the obvious similarities and differences between the mandate and non-mandate state groups revealed in Table 2. First, there is no significant difference across mandate status in the mean per pupil public expenditure on K-12 education (EXPENDITURES), but this is not true for the other resource variable, CENTERS. States with a mandate have nearly three times the number of NCEE-affiliated university centers to train teachers. About two-thirds of all states use competency testing but mandate states report the use of high school exit exams twice as often as non-mandate states. The

mean incidence of childhood poverty appears to be slightly greater in non-mandate states while the degree of parental involvement in school activities, as measured by membership in state Parent Teacher Associations, is significantly higher in states which mandate economic education. The a priori expected sign for these and the other variables are also reported.

Table 1: Specification of Variables

Variable Label	Specification
Dependent Variable	
MANDATE	1 = State requires formal instruction in economics within K-12 curriculum;
	0 = otherwise.
R Variables	
EXPENDITURES	Per pupil public expenditure on K-12 state educational system. (1999 dollars)
CENTERS	Number of NCEE-affiliated economic education centers in state.
P Variables	
TESTING	1 = Minimum competency testing by state; 0 = otherwise.
EXIT EXAM	1 = High school exit exam required by state for graduation; 0 = otherwise.
S Variables	
POVERTY	% of state's children living in households with income below poverty threshold.
PARENTS	Number of parents belonging to the state Parent Teacher Association (PTA), in thousands.
REPUBLICAN	1 = Governor of state belongs to Republican Party; 0 = otherwise.
SOUTH	1 = State located in Southern census region; 0 = otherwise.
WEST	1 = State located in Western census region; 0 = otherwise.
MIDWEST	1 = State located in Midwestern census region; 0 = otherwise.
NORTHEAST	1 = State located in Northeastern census region; 0 = otherwise.
All data reflect 1999-2000, or closest academic year, values.	

Table 2: Mean and Standard Deviation for Variables by State Mandate Status			
Variable	Mandate States	Non-Mandate States	Total
MANDATE	1.0000	0.0000	0.7600
	(0.0000)	(0.0000)	(0.4314)
EXPENDITURES [+]	6304.1591	6291.3596	6301.0872
	(1187.8474)	(1788.6566)	(1335.5426)
CENTERS [+]	6.3158	2.0833	5.3000
	(4.9380)	(1.5643)	(4.7219)
TESTING [-]	0.6579	0.6667	0.6600
	(0.4808)	(0.4924)	(0.4785)
EXIT EXAM [+]	0.5263	0.2500	0.4600
	(0.5060)	(0.4523)	(0.5035)
POVERTY [-]	17.9763	19.2417	18.2800
	(4.1497)	(4.9963)	(4.3480)
PARENTS [+]	160.1515	18.8287	126.2341
	(221.3503)	(19.5177)	(201.9895)
REPUBLICAN [+]	0.6063	0.7500	0.6400
	(0.4954)	(0.4523)	(0.4849)
SOUTH [+/-]	0.3684	0.1666	0.3200
	(0.4889)	(0.3892)	(0.4712)
WEST [+/-]	0.2368	0.3333	0.2600
	(0.4309)	(0.4924)	(0.4431)
MIDWEST [+/-]	0.2368	0.2500	0.2400
	(0.4309)	(0.4523)	(0.4314)
NORTHEAST [+/-]	0.1579	0.2500	0.1800
	(0.3695)	(0.4523)	(0.3881)
N	38	12	50
[ ] - Expected sign			

The resulting probit equation from estimation of [1] is reported in Table 3. The model yielded a relatively good fit of the data with a significant log-likelihood statistic of -8.3639 and a Psuedo R^2 (percentage of correct predictions) of .9000. Most of the independent variables obtained coefficients of the expected sign and were significant using the appropriate

one-tailed test. Given the specification of the probit equation, the independent variable coefficients indicate the influence of the respective variable on the conditional probability that a state has enacted and maintained requirements for economic education within the approved K-12 curriculum.

Looking first at the resource variables, EXPENDITURES was included in the model to reflect the fact that curriculum mandates are costly. Additional resources may be necessary to produce and deliver instruction in an area that may not otherwise be part of a school's curriculum. However, the EXPENDITURES coefficient entered the model with a negative and insignificant sign. Thus, the degree of per pupil spending does not appear to be related to the mandate choice, and of the two resource variables, only CENTERS was found to positively and significantly affect the probability that a state has chosen to implement required economic education.

Table 3: Probit Estimates: Determinants of State-Level Economic Education Mandates

Variable	Coefficient	Standard Error
Constant	17.7946	10.9041
EXPENDITURES	-0.0006	0.0005
CENTERS	0.3475*	0.2526
TESTING	-3.8783**	2.3129
EXIT EXAM	2.4098*	1.7554
POVERTY	-0.9889**	0.6037
PARENTS	0.1078**	0.0664
REPUBLICAN	2.3292*	1.7538
SOUTH	2.8219	3.3852
WEST	2.5867	2.0635
MIDWEST	-4.6569*	3.0715
N	50	
Log-Likelihood	-8.3639	
Pseudo R^2	0.9000	

** Statistically significant at the .05 level, one-tailed test.
* Statistically significant at the .10 level, one-tailed test.

As seen in Table 3, the number of NCEE-affiliated university centers was found to be positively associated with the choice of imposing and maintaining an economic education mandate. Without the establishment of university-based centers and the valuable activities they perform, economic education mandates may have little chance for survival (MacDowell, 1986). Without a mechanism to train teachers and promote economic education, a state is less likely to support a mandate (Kourilsky & Bruno, 1992). Thus, the number of centers may be viewed as an important factor in implementing and maintaining a mandate.

The two policy measures included in the model were the categorical TESTING and EXIT EXAM variables. TESTING reflects the existence of required student competency testing. The type of testing and the grade levels at which it is performed vary across states. However, as specified here, the requirement of competency testing may be viewed as a substitute for curriculum mandates. Instead of mandating school districts to offer classes in specified subjects, some states simply require a test, or series of tests, and allow the individual school districts to devise curriculums that meet the desired goals. This relationship is reflected in the negative and significant coefficient obtained by the TESTING variable reported in Table 3. While a required exit exam for high school graduation provides some of the same functions, in practice it is more of a complement to mandated curriculum requirements. Whereas competency testing occurs at various points within the overall curriculum, high school exit exams occur only upon completion of the curriculum. Exit exams are therefore designed to capture student understanding within the broad range of subjects covered by the overall curriculum. Exit exams are used by states and school districts to determine if their requirements have been met upon completion of the curriculum by students. Thus, the positive and statistically significant EXIT EXAM coefficient reported in Table 3 was expected.

Turning to the socioeconomic variables, POVERTY was found to have a significant negative affect on the probability that a state mandates economic education, ceteris paribus. Thus, higher rates of childhood poverty within a state are associated with public schools that are less likely to offer required economics instruction. Given that economic growth is strongly

correlated with lower rates of poverty, this result is consistent with the previously discussed findings of Grimes and Lee (2000), which showed that mandate states demonstrated higher rates of economic growth during recent years. Findings such as this indicate the potential importance of economic literacy as proxied by requirements for economic education within the K-12 curriculum. In the war on poverty, economic education may be one weapon that is overlooked by many policymakers.

Another important socioeconomic variable that affects the probability that a state will mandate economics instruction is the number of parents actively involved in school activities. This was proxied by the PARENTS variable, which measures the number of parents belonging to local chapters of the Parent Teacher Association (PTA) within each state. As seen in Table 3, PARENTS was found to have a positive and significant coefficient. Thus, the results indicate that more parental involvement in the activities of the schools results in a greater likelihood that the state will mandate a curriculum which requires economics instruction.[6] This finding is consistent with the popular push by parental groups to strengthen the nation's schools by incorporating curriculums which prepare children for the demands of modern life.

The estimated coefficient on the variable designed to capture the prevailing state political environment, REPUBLICAN, indicates that states with a Republican governor are more likely to have an economic education mandate. This is consistent with the current Republican educational agenda which has called for schools to be more accountable and to prepare students for the world of work. A vector of regional dummy variables was also included in the model to capture any differences in the socioeconomic environment that may systematically vary across the nation. Table 3 indicates that only the MIDWEST variable's coefficient was found to be significant. The negative sign indicates that midwestern states are less likely to mandate economic education than those in the northeast (the omitted reference region), ceteris paribus. This is consistent with the observation that many midwestern states have a longstanding reputation for local, not state, control of schools.

CONCLUSIONS

A binary choice probit model was estimated to determine the relationship between a variety of socioeconomic, political and policy environment variables in the decision of states to implement and maintain an economic education mandate for K-12 education. The results revealed several interesting and important relationships. First, a statewide requirement for economics instruction is positively associated with the number of university-based centers for economic education that operate within the state. These centers, which are affiliated with the NCEE, provide the teacher training and curriculum development used to support the teaching of economics within a state's school systems. The results of the model suggest that these centers are a significant component of the infrastructure needed to maintain a mandate. States that are considering an economic education mandate should be aware of this important relationship. Additionally, this result may indicate that university-based centers are effective at creating a public demand for economics instruction in the schools of their state. Second, the state's decision to use either competency testing or high school exit exams appear to affect the choice of requiring economics instruction in the K-12 curriculum. The results suggest that competency testing may serve as a substitute for curriculum mandates while exit exams appear to be used as a complement to such requirements. Third, the economic conditions within a state were found to be associated with the mandate choice. Specifically, states with higher rates of poverty among children were less likely to mandate economic education than those states with relatively low rates of poverty. If economic education mandates do improve overall economic literacy (and this has yet to be determined), then this result suggests that states may be able to promote economic growth through investments in economic human capital. Much more work is needed to verify this possible aggregate relationship. Finally, parental involvement in the educational system was found to be a significant positive determinant of state mandates for economic education. Organizations, such as the PTA, which reflect the special interests of parents appear to stimulate the demand for inclusion of economic instruction in the public schools. Recent calls for

greater parental involvement within the nation's schools may have significant influence on the curriculum choices made by state departments of education.

Although economists have spilled much ink over the years trying to determine which factors influence student learning in their classrooms, very little work has been done on the consequences of that learning. The requirement of economic instruction in a majority of states' school systems indicates that there is a strong belief that positive benefits will flow from this policy choice. While this paper has tried to shed some light on the determinants of economic education mandates, much more work is needed to uncover the aggregate effects of such policies.

ENDNOTES

[1] Formerly known as the Joint Council on Economic Education, the NCEE is a non-profit organization that promotes economic literacy through curriculum materials development and teacher training programs conducted by more than 250 university-based centers nationwide.

[2] All information concerning state mandate status was taken from a survey maintained by the Center for Economic Education at James Madison University and published on their website. Retrieved July 20, 1999 from http://cob.jmu.edu/econed/mandates/

[3] The NCEE has extensively documented the various mandate regimes that exist across the states (Dempsey, 2000). Given the heterogeneity in state curriculum requirements and implementation at the local level, we define "mandate" based upon the survey, referenced above, of professional in-state educators who are most likely to be informed about actual practices within their state's school systems. Strict restriction of the mandate definition to include only those states which require a course in economics for high school graduation does not materially alter the empirical results presented later in this paper. (Specification tests of the model using this definition are available upon request of the authors.)

[4] The data sources for each of the independent variables in the probit model are as follows: EXPENDITURES – Digest of Education Statistics, 1999, Tables 164 and 40. Retrieved March 29, 2001 from http://www.nces.ed.gov/pubs2000/Digest99/

CENTERS – National Directory of Affiliated Councils and Centers, 1999, (New York: National Council on Economic Education). TESTING - Digest of Education

Statistics, 1999, Table 158. Retrieved March 29, 2001 from http://www.nces.ed.gov/pubs2000/Digest99/
EXIT EXAM – Digest of Education Statistics, 1999, Table 157. Retrieved March 29, 2001 from http://www.nces.ed.gov/pubs2000/Digest99/
POVERTY – State and County Quick Facts, U.S. Census Bureau. Retrieved May 25, 2001 from http://quickfacts.census.gov/qfd/index.html/
PARENTS – Membership numbers were collected via e-mail and telephone contact with individual state Parent Teacher Association offices. Observations for Connecticut and New Jersey were interpolated via regression analysis due to unavailable data.
REPUBLICAN – Provided by Republican Governors Association. Retrieved March 19, 2001 from http://rga.policy.net/
REGION – Bureau of the Census. Retrieved March 19, 2001 from http://census.gov/

[5] In this respect our analysis is analogous to the recent work by Mixon and Gibson (2001) that examines the retention of state level concealed handgun laws.

[6] Analysis of the data reveal that PARENTS is highly correlated with relevant measures of state population, therefore, it could be argued that PARENTS serves as a proxy for state size. Various specification tests were conducted which replaced the PARENTS variable with measures of the overall state population and more refined measures of the adult population by educational attainment. The results suggest that the relationships reported here are stable. Perhaps a more appropriate specification of the degree of parental involvement is the percentage of parents who are organized by the PTA or other special interest group organizations. Given the variations in age distributions, family size, birth rates, and school enrollment levels across states, a variable of this specification could not be reliably constructed given the data that is readily available.

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TEACHING ECONOMIC PRINCIPLES THROUGH LITERACY METHODS

Janaan H. Haskell, Idaho State University
Susan J. Jenkins, Idaho State University

ABSTRACT

In a nation of economic uncertainty, productive workers, responsible citizens, knowledgeable consumers, prudent savers and investors, effective participants in the global economy, and competent decision makers need to come forth. A National Test of Economic Literacy (Brenner, 1999) revealed "an appalling lack of knowledge among adults and teens" in the United States. Forty-nine percent of adults and 66% of high school students failed the test (Brenner, 1999, 5)! "While 96% of Americans think economics should be taught in the schools, only 13 states require students to take an economics course to graduate, and only two require them to take a course in personal finance" (Brenner, 1999, 5) .

Literacy (reading and writing) is a core subject in schools; economics has not been recognized as a standard component of the school curriculum. Both subjects are critical to the success and well being of children and adults. By introducing economics through literacy methods, this "two at a time curriculum" can help students become acquainted with economic vocabulary and concepts, and at the same time learn how to read and write. Ultimately, if the economic concepts learned through this method of partnering economics and literacy are transferred to daily classroom language and situations, students will be able to generalize and apply them to other areas of their life!

Children need to be taught economic principles kindergarten through twelfth grade. This can happen without additional teaching time or resources by teaching economics and literacy simultaneously. Economic education can be integrated into a crowded curriculum using literacy methods. This paper

will consider the implications of "two at a time curriculum" featuring economics as the content and literacy as the process.

INTRODUCTION

Webster defines the word literate as "*knowing letters, able to read and write*" (Teal, 1984, 181). Recent studies reveal that the above definition of literacy is very basic and that literacy is so much more. Research indicates that teaching reading and writing skills in isolation is difficult for children because there is no meaning involved. Integration of literacy skills with content area subjects help learning become relevant to the student. Literacy is a process that must have a content area. Herr (1964) states, "[*t]eaching phonics by elaborate isolated drills cannot be justified. The work must be meaningful and function with the reading lesson*" (p. 16). This important concept is now used in classrooms so that learning can be more effective. It is important to understand

> *"that subject area instruction must guide children's reading and writing in order to produce the kind of literacy interactions and transactions that yield rich, full learning opportunities. Such instruction not only assists children in learning the content itself, but teaches them how to become increasingly independent, fluent readers and writers in subject areas"*
>
> (Ruddell & Ruddell, 1995, 433).

A content area that is often overlooked is economics. Children's knowledge in economics can increase while learning to read and write. Classroom teachers can integrate the content area of economics into the regular classroom by daily introducing economic concepts through children's literature. With children's literature as the foundation, reading and writing skills can be used to introduce and reinforce economic literacy. Other literacy methods and economic games can be motivating to the students and provide a rich environment for learning. Economic literacy needs to be taught K-12. When students are younger, it is a prime time or "*window of opportunity*" for learning because they are so teachable and fascinated with money. They can

learn that with money comes the responsibility to make good choices and decisions. Economic literacy is important and so is literacy in reading and writing. Economics is the content and literacy is the process. Teamed together, these two subject areas can maximize the processes of teaching and learning, thereby increasing productivity. Ultimately, children can have benefits in both literacy and content area.

Economic education has long been ignored in the United States. People are going through life acquiring economic literacy in a "*hit and miss*" fashion. Literacy (reading and writing) is a core subject. It is supported by schools, communities and individuals, because it is essential for a successful and fulfilling life. Economic literacy needs to be integrated into the schools through literacy programs. It is imperative that our country looks to the future and supports economic literacy.

Literacy is an issue evoking strong feelings in both economic educators and elementary teachers. Economic educators have long argued that children of all ages deserve the opportunity to become economically literate. Elementary classroom teachers have argued for literacy, too; that is, reading and writing. Traditionally, the case for literacy in reading and writing has taken precedence in the curriculum, thus explaining why a large percentage of the elementary school day has always been devoted to language arts instruction. Although everyone might agree that economic literacy is desirable, teachers say there simply isn't enough time in the school day to teach economics without giving up time elsewhere. Ironically, this problem of how we use our limited time to satisfy our many wants is an economic problem. It is the essence of the discipline of economics. Addressing it requires an economic understanding of efficiency and productivity: increasing output with given inputs (Flowers, Meszaros & Suiter, 1994, ii).

By integrating economics and children's literature with literacy methods, both disciplines (economics and literacy) will be benefitted and children's lives will be enhanced. Demographic trends indicate that our country's economic situation is becoming more and more uncertain. This is creating an awareness of the importance of economic education. Support in the form of economic standards, legislation, and educational programming

is emerging. The National Council on Economic Education (NCEE) develops curriculum, conducts research, and is committed to training teachers who are willing to take advantage of this opportunity. Incorporating economics into the curriculum can happen. One way is to integrate it with literacy. Reading and writing are natural ways to take economic principles and adopt them into daily life. Economics is a content area that has its own vocabulary or jargon. If the vocabulary is not known, then the content of economics cannot be known. There are economic principles integrated throughout children's literature. Economics can be introduced and rooted in students' minds in this way.

The lack of economic literacy among teachers K-12 is one of the most significant limitations hindering it from becoming a part of school curriculum. Teachers are not sure how to teach economics, so they don't teach it. The "*economic way of thinking*" is about a logical, systematic way of making decisions. This way of thinking can empower children and adults in daily life.

Teachers often have limited support for teaching economic literacy from their administration. Even though it is included as one of the nine core subjects in Goals: 2000 (Ohanian, 2000, 348), economics continues to be absent in a large percentage of school curricula's.

Another significant problem with teaching this subject is that teachers feel there is no time. They are overwhelmed with the amount of curriculum that is required by district, state, and federal mandates. However, if economics is integrated with reading and writing through literacy methods, it can become a reality in schools without requiring extra teaching time or resources.

The goal of integrating the content of economic literacy into classrooms through the process of literacy can exist. Classroom teachers are very competent in language arts, because they have been trained extensively in this discipline; economic literacy is now the challenge.

REVIEW OF LITERATURE

Economics and Economic Education

In 1930, John Maynard Keynes described economics as a theory that "'*does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking, which helps its possessor to draw correct conclusions*'" (Buckles, 1991, 24). "*At the most fundamental, and perhaps most important level, the economic way of thinking is best exemplified by the adage: 'There is no such thing as a free lunch'*" (Buckles, 1991, 24, 25). "*It is important to realize that economics relies on fundamental principles that are necessary to discover the consequences of alternative courses of action, which in turn enable individuals to implement their value judgments more intelligently*" (Schur, 1985, 21). Many citizens of the United States do not have a clue how to define or apply economics. To the average person, economics appears as an abstract, mystical phenomenon that is 'out there somewhere.' Yet, every society on earth must deal with economics, because economic literacy is life. The basic economic problem: The existence of scarcity creates the basic economic problem faced by every society, rich or poor: how to make the best use of limited productive resources to satisfy human wants. To solve this basic problem every society must answer these three basic questions: 1) What goods and services will be produced? 2) How will goods and services be produced? 3) Who will consume the goods and services (Day & Ballard, 1996, 2-2).

Economics is complex, but it does involve all people in every walk of life. "*The economy effects everything in our lives: how we earn a living, how much we earn, the availability, cost and quality of what we buy, and how we invest for our future*" (Brenner, 1999, 4). Parade magazine (Brenner, 1999) reports the results of a National Test of Economic Literacy administered to 1,010 adults and 1,085 high school students. This study reveals an appalling lack of economic knowledge. "*Forty-nine adults scored an F while only 6% got an A. Among the high school students, 66% got an F, while only 3 % got an A*" (Brenner, 1999, 4). Brenner (1999) concludes:

"*This is not surprising, when you learn how little Americans are taught about it*" (p. 4).

A further summary of the results (Brenner, 1999) revealed that: 1) On average, adults got a grade of 57%, high school students averaged 48%; 2) Almost two-thirds did not know that in times of inflation, money does not hold its value; 3) Only 58% understood that when the demand for a product goes up, but the supply does not, that product's price is likely to increase; 4) Half of the adults, and about two-thirds of the students, did not know that the stock market brings people who want to buy stocks, together with those who want to sell them; 5) Just over one in three Americans realize that society must make choices about how to use resources; and 6) While 96% of Americans think economics should be taught in the schools, only 13 states require students to take an economics course to graduate, and only two require them to take a course in personal finance.

Prior to the 1999 study (Brenner, 1999), the last national test of economic literacy was given in 1988; Robert Duvall, President of the National Council on Economic Education, states that "*there has been no noticeable improvement*" (Brenner, 1999, 4). Where is our society lacking if economic literacy has not improved in eleven years. "*Most Americans have no formal education in basic economics or in personal finance, which is its practical application*" (Brenner, 1999, 4). "*As adults, most of us have had to acquire our understanding of economics and finance on the run*" (Brenner, 1999, 6). Duvall indicates that few American schools have taught economics because "*the subject has been seen as abstract, not applicable to daily life. Yet, paradoxically, parents and teachers alike believe that children should be taught economics. If children are not taught economics in the family setting by good role models, then where can they learn it except by trial and error*" (Brenner, 1999, 5-6)?

The National Council for Economic Education (NCEE) has been fundamental in providing support for expansion of economic education in America. It is a unique, nonprofit partnership of leaders in education, business and labor devoted to helping youngsters learn to think, to choose, and to function in a changing global economy. Founded in 1949, the NCEE is the premier source of teacher training and resources for economic

education in kindergarten through grade twelve. This network of 50 state councils, and over 260 university-based centers, is called EconomicsAmerica (National Council on Economic Education, 1999).

EconomicsAmerica is a nationwide, comprehensive program for economic education in America's schools that: 1) Leads in the development of national and state content standards in economics; 2) Assists in development of national, state and local standards-based curricula; 3) Publishes classroom-tested materials and strategies for teachers and students; 4) Provides university/college-based courses, workshops, and professional development for teachers; and 5) Conducts evaluation, assessment, and research (National Council on Economic Education, 1999).

NCEE also heads a similar program internationally. EconomicsInternational is an international program to help build economic education infrastructures in the emerging market economies that: 1) Collaborates with international colleagues to build economic education delivery systems; 2) Provides professional development for teachers and teacher trainers; 3) Translates, adapts, and develops instructional materials; 4) Advises on development of standards, curricula, and assessment tools; and 5) Supports multilateral exchange of ideas, methods, and materials (National Council on Economic Education, 1999).

"*Through this vital network we carry out our mission with vigor, integrity and demonstrated success*" (National Council on Economic Education, 1999). A national imperative reveals:

The shocking reality is that American high school and college students know precious little about how the American economic system actually works and what they need to know to work successfully in it. Fifty percent don't know what a federal deficit is. Sixty percent do not understand the purpose of profits. Seventy percent cannot identify the most widely used measure of inflation. Sixty percent think wages are set by government action. The price of economic illiteracy is more than this country can afford. Young people are unfamiliar with the basics of saving, investing, and the uses of money and credit. As adults they are more likely to have money problems, career problems and credit problems, and less likely to make informed decisions as citizens and voters (National Council on Economic Education, 1999).

The mission of the NCEE is "*to help all students develop economic ways of thinking and problem solving that they can use in their lives as consumers, savers, members of the workforce, responsible citizens, and effective participants in the global economy*", National Council on Economic Education, 1999). The decision-making process of economic literacy helps students to analytically learn how to weigh the benefits and costs to any decision. Economic literacy gives them an orderly and reasoned approach to economic decision-making. The NCEE provides the following guidelines for decision-making:

(1)	State the problem or issue. What are the important facts? What questions of the choice are raised? What is the heart of the problem?;
2)	Determine the personal or broad social goals to be attained. Assign some rough order of priority for achieving them;
3)	Consider the principal alternative means of achieving these goals. Take account of the limits on available resources and other restrictions that limit freedom of action;
4)	Select the economic concepts needed to understand the problem and use them to appraise the merits of each alternative. Which concepts are not useful in grasping the essentials of the problem? Which concepts are most useful in exploring the effect of each alternative solution?;
5)	Decide which alternative best leads to the attainment of the most goals or the most important goals. Which of the solutions seem to be most feasible? Which are the most desirable? What are the tradeoffs among the different goals; that is, how much of one goal must be given up in order to achieve more of another (Saunders, Bach, Caulderwood & Hansen, 1993, 9 & 10).

These five steps give the students an organized and orderly approach to solve their problems in school and life.

The Campaign for Economic Literacy is underway. The National Council on Economic Education announced "*an ambitious five-year, nationwide campaign to increase economic literacy among both students and adults. We, as a nation, can no longer afford to make economic literacy an option in our schools. It is critical that we give our future leaders a grasp of*

the basic principles of the American economic system so they can discern the consequences of powerful international economic changes" (National Council on Economic Education, 1999).

Economics often comes across as extremely difficult. This should surprise no one-think of what it would be like if all mathematics education were postponed until the junior or senior year in high school. Math literacy would be described as "*abysmal*," "*totally inadequate*," or "*frightening*." It is difficult to argue that mathematics learning is developmental throughout the curriculum, but that economic learning is not (Soper & Walstad, 1991, 134).

In a study that focused on teaching economic principles to children, it was found that the children learn concepts in developmental stages. "*The responses of the children were distinct, suggesting a stage like progression*" (Schug, 1991, 143). The younger children learn about concepts that are familiar to them and that are concrete. Schug (1991) found through his research that "*the importance of age in much of this research strengthens the idea that students need instruction in economics over several years*" (p. 151). He asserts that teachers should just introduce a few key economic principles and give the children a thorough background without rushing too much, too soon. They should build the principles with activities that are rich and concrete. This will allow students to assimilate the material into their daily lives. The students need to be presented with these ideas in a developmental fashion going from concrete to abstract.

Saunders, et al. (1993) outlines the following teaching rubric:

1)	*Mastery of the basic concepts of economics*. Like all other disciplines, economics has its own tools of analysis and "*language*," and students should know these well;
2)	*An appreciation of how the principal concepts of economics relate to each other*. Such an appreciation enables students to deal with the complex "*real world*" economic problems they will face as adults;
3)	*Comprehension of the structure of the economy*. This comprehension should also include a knowledge of how the various components and sectors of the economy interact;

4)	*Knowledge about major economic concerns-both public and personal*. Such knowledge and some understanding of how public and personal economic issues relate to each other provide a basis for grasping how individual action's shape and are shaped by economic forces;
5)	*Exercise of a reasoned approach to economic decisions.* Economic decisions can be reached more effectively if an objective, orderly, and reasoned approach replaces emotional, unreasoned judgments (p. 9).

Economic literacy can start as early as elementary and middle school. In 1987, Soper and Walstad (1991) conducted a study to determine the economic literacy of intermediate student's and junior high students. The Basic Economics Test (BET) was used to measure the economic understanding of intermediate elementary students. "*The BET appears to be a content-valid measure of the economic knowledge of fifth and sixth grade students*" (Soper & Walstad, 1991, 127). Also used was the Test of Economic Knowledge (TEK), which is a cognitive test instrument, designed to measure economic achievement of students at the eight and ninth grade level (Soper & Walstad, 1991). The results of this study (Walstad & Soper, 1991) revealed that elementary students can and do learn economics. Very little time is spent in directly teaching economics at this grade level because of the limited amount of instruction time. "*But students show basic understanding of a wide range of fundamental, microeconomic concepts and some knowledge of a few macroeconomic and international economic ideas*" (Soper & Walstad, 1991, 133).

These tests led the authors to recommend that substantially more economics could be learned by pre-high-school students than they are currently being taught. Teachers need to devote more time to economic instruction, primarily because of the developmental nature of economic learning. Finally, "*curriculum developers and instructional material producers (e.g., textbook publishers) ought to infuse more economics into the standard social studies curriculum because it appears to be the most likely place for economic instruction to occur*" (Soper & Walstad, 1991, 133-34).

A Nation At Risk

The Imperative for Education Reform states that a change in American schools is recommended and that social studies should focus on "*understanding the fundamentals of how our economic system works and how our political system functions*" (National Commission on Excellence in Education, 1983, 12). In March 1994, Congress passed President Bush's Goals 2000: Educate America setting competencies for the schools in America to achieve by the year 2000. Goal three states:

> *All students will leave grades 4, 8, and 12 having demonstrated competency over challenging subject matter including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography, and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy*
>
> (Ohanian, 2000, 345 & 348).

Obviously, the government supports the fact that economic literacy needs to be taught in American schools. Ultimately, economic literacy incorporates decision-making skills---the economic way of thinking---which will "*ensure that all students learn to use their minds well*" (Ohanian, 2000, 348). The goal is to have standards in this content, with benchmarks at 4th, 8th, and 12th grades. These benchmarks are concepts and methodology that children should master by the time they leave that particular grade. By doing this, the students will be getting a consistent "*dos*e" of economics that is developmentally appropriate for their age. The economic concepts they learn at each step or grade need time to be digested, and then new concepts can be introduced at the next grade level.

The NCEE has identified 20 content standards that are essential principles of economics. Each standard is followed by a rational for its inclusion. Then benchmarks for the teaching of each of the content standards are provided, indicating recommended levels of attainment for students in grades 4, 8, and 12. Finally, samples of what students can do to enhance or

demonstrate their understanding of the benchmarks are provided (National Council on Economic Education, 1997).

On August 4, 1999, "United States Senator Daniel K. Akaka (D-Hawaii) introduced legislation to improve the education of American students. It was called "*The Excellence in Economic Education Act (S1487)*" (Akaka, 1999, 1). This bill will "*increase students' economic knowledge, strengthen teachers' ability to teach economics, encourage research to increase economic understanding and instruction*" (Akaka, 1999, 1). It will enable states to give additional help to integrate economic literacy into the school curriculum and promote public and private partnerships to support economic education.

This bill produced significant support for the National Council on Economic Education(NCEE) network by providing funds (1) to NCEE for use in its national efforts and (2) to state councils and centers through NCEE for use in activities such as teacher training programs, resource dissemination to school districts wanting to incorporate economics into curricula, evaluations of the impact of economic education on students, related research, school-based student activities, and student and teacher exchanges. The Akaka measure provides funding and flexibility to promote economic education for students in elementary and high schools (Akaka, 1999, 1).

In order for the students to be taught economics in a separate class or by integration in an area of content, teachers must have training in economics. They cannot teach something that they do not know. "*Staff development appears to be an effective method to improve the economic understanding of students. Students in the classrooms of trained teachers perform better on nationally normed tests of economic understanding than do students in the classrooms of untrained teachers*" (Schug, 1991, 150). "*The teacher is the key to what is taught in the classroom. A growing body of research suggests that in-service courses and teacher training have a direct and significant impact on students' economic understanding and attitudes*" (Walstad & Watts, 1985, 9-11).

Another limitation that teachers have is actual teaching time. Time is especially scarce in the elementary grades. It would be better to have separate courses in economic literacy, but this may be slower to happen. "*The*

dominant method of teaching economics in the United States is through integration or infusion" (Walstad & Watts, 1985, 9-11). Miller (1991) feels that a separate course in economics is better because "*students who learn economics under the infusion approach are not likely to 'acquire an overview of how individual concepts fit together in a meaningful whole*'" (p. 45). As Miller (1991) looks at a separate course realistically, however, he finds that there are important reasons "*to improve the infusion approach. The first is the critical explanatory power of economics for other subjects, such as U.S. history, and second, infusing economics can reorient the traditional emphasis from lower-level learning to problem solving and decision making*" (p. 45).

Because integration of economics will be the most likely way it is incorporated in the curriculum, the most effective methods of teaching need to be used. "*Traditional methods of instruction include 'lectures, supplemented problems sets, written assignments, and limited classroom discussion*'" (Nelson, 1997, 17). Nelson (1997) advocates that we must go beyond the traditional modes of instruction. The case method is one technique. "*Cases are narrative accounts of actual, or realistic, situations in which policy makers are confronted with the need to make a decision. Cases do not stand alone as a teaching technique but are integrated with, and supported by, a variety of other strategies, such as lectures, readings, and problem sets*" (Carlson & Schodt, 1997, 18). Demonstrations and simulations are two other effective teaching methods.

Demonstrations are methods of economic instruction and "*may be used to show the use of rules or problem-solving skills*." Simulations are methods that actively involve the learner and attempt "*to address problems under real life conditions and to discuss them completely afterward*" (Gilley, 1991, 263 ; Nelson, 1997, 18).

Literacy

Literacy starts at birth and continues throughout life. Literacy is communication through language---reading and writing. Reading is the comprehension of written language. This is a receptive process where a

message is received from the author. Writing is a productive process where a product is actually produced. "*Writing has a method and a purpose; to read, one must master both*" (Adams, 1994, 26). Literacy is a standard component of all classroom curriculum. In order to function in our world today, it is extremely important to be able to read and write at the highest level of capability.

Pehrsson (1996) asserts, "[*l]iteracy involves relationships among humans who are interacting and transacting via text*" (Pehrsson, 1996, 120). Years ago, people were considered literate if they could sign their own name. Today literacy is a huge umbrella that includes many aspects of reading and writing. Reading and writing are introduced in the early grades of school; however, literacy actually starts when children are born. Literacy begins with good oral language. Language acquisition "*is most strongly influenced by the language used at home, and is well under way in infancy*" (Ruddell & Ruddell, 1995, 34). The environment and the social interactions of families and others have a great influence. Vygotsky "*emphasizes that adult modeling and opportunity for children to interact verbally with adults are very important*" (Ruddell & Ruddell, 1995, 37).

Young children not only learn from hearing others speak, but they learn environmental print by observing their surroundings and from having others read to them. Most children know the word "*stop*," the "M*cDonald's*" sign, and their favorite candy bar or a cereal box by the time they go to school. When children are read to often and consistently, as an infant and older, they learn the concepts of print. They learn what is the front and back of a book, how it opens, the difference between pictures and print, how to turn a page, and if the book is right side up or upside down. They learn that the squiggly lines on the pages have meaning.

Environmental print and the concepts of print are important because of two basic principles that are needed to learn how to read and write. The first principle is the message principle. The "*message principle*" is the concept that printed and written materials convey a message. Writing is a form of communication. This is basic to reading comprehension. Problems develop in reading comprehension if this principle is not understood. Children must understand that there is a message contained in the written

word. The prerequisite for the message principle is that the child must understand the language. Three things that complicate this principle are: 1) if English is not the first language; 2) if the child has a different dialect; or 3) if the child has a developmental language delay. Most children learn the message principle effortlessly and naturally.

Another principle that children must understand is the "*alphabetic principle.*" It must be understood that letters, or groups of letters, represent speech sounds. This concept of basic phonics is a sound symbol correspondence. As a prerequisite, the child must be able to visually discriminate letters, and auditorially discriminate speech sounds. Visual discrimination is being able to visually discriminate the curves and lines in each letter of the alphabet. Visual memory is being able to hold the picture of the letter in short-term memory long enough to continue to the next process. Auditory discrimination (now called phonemic awareness) is the ability to hear the distinct sounds of the alphabet correctly. This includes the initial sounds (beginning consonant), medial sounds (sounds in the middle of the word) and final sounds (ending sounds). The auditory memory is the ability to hold the sounds that were just heard in short term memory, long enough to process the connection with the visual representation of the letter. If phonics is difficult for a student, there may be a deficiency in one or more of these areas. If children are able to recognize letters and sounds, it is a good predictor of ability to read and write. When children have not had experiences that help them to learn these concepts and principles at home, they need to be taught in school.

The process toward literacy can be a rich and inviting experience. Gipe (1998) suggests six principles that should be practiced by teachers in literacy development:

1)	All learners are capable and can be trusted to take responsibility for their own learning;
2)	Learning is a social process---all learners share a need to communicate and learn from each other;
3)	Learning is a building process and so learning occurs over time;

4)	What is learned is unique for each learner as what you already know affects new learning;
5)	Reflection and self-monitoring are necessary to learning;
6)	Learning occurs in the context of use, or we learn by doing, by being actively involved; thus written language (i.e., reading and writing), like oral language, is learned "*in the context of its use*" (p. 4).

These learning principles are universal for all ages and stages of development. Children can take responsibility for their own learning. Teachers need to find a way to encourage students, and create an atmosphere of curiosity to learn, and then to discover reading and writing.

Reading and writing are reciprocal and are tied to children's ability to read. Through reading, children tend to include spelling patterns in their writing that they have observed in their reading. On the other hand, when children are encouraged to use inventive spelling (spelling as they hear the word rather than by convention) and write a lot, they become better readers (Beach, 1996, 22). Developing concepts about reading are done by immersing "*them in a print-rich environment and provide opportunity daily for reading and writing to be a natural part of classroom events* (Ruddell & Ruddell, 1995, 88). Adams (1994) suggests that "*if we want children to learn to read [and write] well, we must find ways to induce them to read [and write] lots*" (p. 5).

Reading workshops encourage literacy development and are used successfully in primary grades. Two theories that contribute to the workshop's success are: 1) giving children choices and 2) giving them ownership of the workshop. During reading workshops, the children are able to make a choice from a list of activities that interest them. "*Research has shown that choice is a powerful motivator. When students can choose tasks and texts they are interested in, they expend more effort learning and understanding the material*" (Turner & Paris, 1995, 664). Another motivating force is that children as a group are allowed make up the list of possible activities. This activity gives the children ownership in their schooling. Ideas may include:

1)	Reading a book of the students or teachers choice;
2)	"*Friendly folders*" (personal space) are containers like cereal boxes where favorite books, personal writings, and textbooks are kept. These selections are kept (in their personal space) to be read again and again. Rereading books develops fluency and confidence;
3)	"*Reading the room*" is a very popular workshop activity. The children are provided with a variety of pointers, e.g., batons or dowels. The children go through the "*print rich room*" and read everything on the walls, shelves, dividers and windows; and
4)	Audio-tapes, with the accompanying books, can be available so children can read along with the book.

"*As a process, early writing development is characterized by children moving from playfully making marks on the paper, through communicating messages on paper, to making texts as artifacts*" (Ruddell & Ruddell, 1995, 316). Children need an opportunity to learn to write by actually writing for true and useful purposes. One of these purposes might be as simple as to sign their name on a sign up list or on a piece of their work. The purpose of true and useful writing is to increase fluency and sophistication in the process rather than the product (Ruddell & Ruddell, 1995, 329).

Writing workshops can be another effective strategy for literacy development. Ruddell and Ruddell (1995) emphasize that writers need a regular 'chunk of time' to write, need their own topics, need response from peers or teachers, need to learn the mechanics in context, need to know adults who write, need to read, and need to take responsibility for their own knowledge and teaching (p. 330). Material and space need to be available for the writing workshop.

The writing workshop is designed to include activities, such as: 1) Journal writing fosters creative thinking where personal thoughts, reflections, and ideas can be recorded. Students write about events happening in the world around them and are encouraged to watch the news and read the newspaper. The children are given the opportunity to sit in the "*author's chair*" (sitting in a special chair in front of the group and to share what they

wrote); 2) Another kind of journal is a dialogue response journal in which the child writes something, and then a parent or teacher responds in writing. The written conversation continues as long as necessary; 3) Writing a letter to a friend or a family member; 4) Writing a poem or a song; 5) Making a list of vocabulary words with which they are not familiar; 6) Creating a personal word wall. (Making a list of all the words that are known and categorizing them alphabetically, according to endings, or thematically.); 7) Write a book or story and illustrate it. The idea for the book or story can come from an activity that the class has participated in, personal experience or pure fiction; or 8) Writing a new ending to a story, or finishing a story line, such as: If my grandmother gave me one hundred dollars for my birthday, I would buy?

Children can also engage in tactile activities, which promote learning in many modalities. This accommodates children with different learning styles. Strategies include: creating words and sentences with magnetic letters, manipulating scrabble tiles to make up words, or developing sentences using pocket charts. Most of the above activities are accomplished in a social atmosphere. Gipe (1998) suggests:

> "*Analytic teachers have a good understanding of how human beings learn and acquire* knowledge. *Ideas from cognitive, educational, and developmental psychology, literacy and early childhood research, tell us that human beings usually learn best in social situations where they can interact, discuss, and collaborate with one another*"
> (Gipe, 1998, 44).

Economics the Content; Literacy the Process

"*Language is always a means and never an end. Reading is best learned when the learners are using it to get something else: a message, a story, or other needed information. Literacy development, therefore, must be integrated in with science, social studies, math, arts, and other concerns [economics] of the classroom*" (Adams, 1994, 91). The task to be considered is how to integrate economics into the daily curriculum of the classroom. Even though economics is not taught in the schools, language arts, reading and writing are given a considerable amount of time in school curriculum.

"*There is a growing recognition from educators and other opinion leaders that to be effective citizens, students must have a basic understanding of the economic world around them*" (Day, et al. 1997, i).

A very efficient method is to integrate economics through children's literature. Children and teachers love stories; stories have a great impact on children as they relate to them. Therefore, using literature is a highly motivational technique for learning. As economic concepts are taught within the context of literature, students realize that economics is a very real and interesting part of the world around them. Using children's literature allows teachers, as the proverb says, 'to kill two birds with one stone.' In a crowded curriculum this interdisciplinary approach is certainly appealing (Day, et al. 1997).

Saunders (1993) claims "*mastery of the basic concepts of economics*" is one of the keys to understanding of economics (p. 9). Vocabulary both facilitates reading and is increased by reading. Just and Carpenter (1989) state that reading may contribute more to vocabulary acquisition than does the intentional memorization of word meanings (p. 103). The more frequently words come to the attention of the reader, the easier it is for the reader to learn and comprehend. Automaticity is when a reader has learned the words so thoroughly that little effort is needed to recognize a new word or word parts. Automaticity is best achieved by practice in reading whole, meaningful text, not by isolated word drills (Gipe, 1998, 173-174).

Through economic literature, the children learn economic vocabulary such as: productive resources (natural, capital, and human), productivity, specialization, goods and services, scarcity and wants and needs. Vocabulary is the sum of words employed by a language, group or individual. It refers to the words used in a particular field of work or field of knowledge. Many children understand words that are spoken, but do not have the skills needed to read the words; therefore, they cannot understand what is printed. Gipe (1998) states that 'listening vocabulary' refers to words that are heard and understood in speech, while 'reading vocabulary' refers to words in print that are recognized instantly and effortlessly. Sight vocabulary refers to words in print that are recognized instantly and effortlessly.

As students start to learn economic vocabulary in the classroom, they find that they can generalize the terms to real world situations and their knowledge in proportion to the foundations they have built. Since making good decisions is a basic principle behind economics, the children will begin to look at the benefits and costs of their choices. Making good choices is using time, energy, money, and resources wisely. Children's literature can introduce and reinforce these concepts.

Through the integration of economics and literature, the children will gain a love for literature, knowledge of economics, and learn the fundamentals of literacy at the same time. Children's literature that includes economic themes is widely available. Many classics have economic concepts and are likely already included in existing classroom libraries. This literature needs to be used with the intent of emphasizing economic principles. Economic vocabulary needs to become familiar, used in the classroom, used in daily language, and applied in authentic situations that happen everyday. For example, if a child tells the teacher that he/she wants a ball for recess, the teacher could say that the balls are "*scarce*," and a "*choice"* will have to be made. Participating in interactive children's economic and literacy games are techniques to teach and reinforce economic principles and reading and writing techniques. Children love to play using their whole bodies to accomplish a goal. Playing---being creative and using imagination---is a child's way of exploring the world. Ultimately, teachers can teach, and children can learn, "*two-at-a-time curriculum*" in economics and literacy.

METHODOLOGY

Reading and writing are core subjects in schools, but economics has not been recognized as a standard component of the school curriculum. Both subjects are critical to the success and well *being of children and adults. By introducing economics through literacy methods, this "two at a time curriculum*" can help students become acquainted with economic vocabulary and concepts, at the same time, learn how to read and write. Ultimately, if the economic concepts learned through this method of partnering economics and literacy are transferred to daily classroom language and situations, students

will be able to generalize and apply them to other areas of their life. Economics is the content and literacy is the process!

The study was created to assess the effect of the direct teaching of economics using literacy methods, on the economic literacy of fifth-grade students. Participants: 1) completed an economics pre-test; 2) received direct instruction in economics through literacy methods; and 3) then completed a post-test in economics. Five fifth-grade classrooms were self-selected from southeastern Idaho to participate in this study. The objective was to determine if this direct instruction would effect the economic literacy of the fifth-grade students over a short period of time (four 45-minute sessions). The teachers selected came from a group of teachers that had previously shown an interest in economic education for their classes. Classroom scheduling and time availability of the selected classrooms was utilized to determine the final participants. The fifth-grade age group was selected in order to utilize a nationally normed test from NCEE, the Basic Economic Test (BET). This assessment tool evaluates the economic literacy for grades 4 through 6.

The study included six days in each of the five classrooms, with the same six lesson plans for each group. The format of the lesson plans included two days, one of pre-assessment and one of post-assessment using the Basic Economic Test (BET). The lesson plans for day's two, three, four and five included direct instruction of basic economic concepts using literacy methods. Two classroom teachers chose to have lessons every school day for six consecutive days. The other three teachers chose to have the economic lessons taught one day a week for six weeks. The lessons were designed to take approximately 45-minutes of class time.

The lessons were designed to encourage student interaction, an effective teaching method. For example, one lesson focused on producing bookmarks. The students were assigned to work as teams of 4 or 5 producers. To be productive, and to produce the biggest quantity of bookmarks, the team had to work closely together and communicate. This type of activity also promoted active learning, students' learning by participating cooperatively, rather than passively taking notes, or listening to teacher lectures. The

lessons were designed so students were able to apply their reading and writing skills in each activity.

Students were also asked to use deductive in order reasoning to generalize the concepts learned from one activity to other tasks. For instance, the students completed an activity on the 'law of demand' and 'the principle of scarcity' that required their knowledge of how 'incentives influenced human behavior' and how to generalize it to their lives.

RESULTS AND CONCLUSIONS

The results of the assessment, the pre and post Basic Economics Test, revealed that there was very little improvement in the student's economic knowledge. Direct economic instruction using literacy methods over a short period of time did not significantly improve test scores. Economics is a developmental subject that needs to be taught over a long period of time. Even with the use of literacy methods, students need time to assimilate and scaffold the information as they gain it.

Scores may also have been affected because children learn concepts in developmental stages. Younger children need to learn about concepts that are familiar to them and that are concrete. Teachers should introduce a few key economic principles. These can be enhanced with activities that are hands on and interactive. This will allow students to assimilate the material into their daily lives. The students need to be presented with these ideas in a progressive, developmental fashion.

IMPLICATIONS AND RECOMMENDATIONS

This research design should be replicated in another small and random selected set of classrooms. The teaching of economics using literacy methods should occur over a longer period of time, for example, a semester or a year between the pre- and post- tests. Another important feature to include in a replicated study would be to teach and assess students and classrooms at various age levels. For example, the effect of direct instruction across time could be compared between 5th graders, as in the initial study,

and perhaps 8th graders. Increasing student economic knowledge taught with literacy methods should also begin to be tracked across time. A longevity study tracking a single class from kindergarten through 5th, 8th or 12th grades would be ideal. Not only could this "*two at a time approach*" be evaluated, but the cumulative results of economic education.

The researcher recommends teaching economic concepts through literacy methods beginning at kindergarten and extending to twelfth grade, rather than the more common approach of a one semester class in high school. By learning economics through literacy methods, beginning in kindergarten, the students can have a continual daily or weekly dose. In this way, the students can be immersed in the curriculum. They will learn to generalize and infer meaning from other sources and content. Economics is a decision-making process that helps students in their personal, school, and community life, to make choices by weighing the benefits and costs. Furthermore, economics is a "*way of life*" and can enrich all other subject areas. Literacy is a process that can support economic content. Literacy is basic to all human life. It is speaking, listening, reading and writing. Economics and literacy are a perfect fit for "*TWO AT A TIME CURRICULUM*."

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TECHNOLOGICAL APPROACH TO BUSINESS EDUCATION: WEBCT APPLICATION

Alina M. Zapalska, Marshall University
Lawrence P. Shao, Marshall University
Dale H. Shao, Marshall University

ABSTRACT

WebCT has attracted the attention of many individuals around the world, including that of educators and trainers. Despite all the interest, there has not been much research to support claims for the effectiveness of WebCT instruction. This study provides evidence that WebCT is an effective learning and teaching instrument that brings several dimensions together including interactive, collaborative and critical learning techniques. This study finds that WebCT provides an effective learning environment for students with different learning styles and creates numerous benefits for many diverse groups including nontraditional, physically impaired or disabled, or culturally deprived students.

INTRODUCTION

Technological developments like the World Wide Web, CD applications, WebCT, and other multimedia tools are new means for teaching and learning. The compelling evidence shows that with the advancement of instructional technology in education the teaching duties in higher education are changing. For example, in business education, technology instruction has become an integral part of the instructional process. Its goal has been to create learning environments that are flexible, dynamic, and capable of

responding to a wide variety of individual needs and learning styles through the use of advanced media techniques. There is no denying that Web-based courses open new educational access to nontraditional and geographically dispersed students. The online setting provides a level of flexibility and convenience not provided by traditional classroom courses. However, effective Web-based teaching requires responsible and motivated students whose aims are to learn and enhance their cognitive reasoning.

Recently, business students have been expected to become comfortable with the new network-based global economy. Businesses are hoping that one way to learn about the new world economy is from recent business school graduates. To educate the business student about the global network economy it is desirable and logical that the student's education, at least partially, utilize network-based technology. WebCT allows students to become familiar with network technology and learn their traditional material in an interactive online environment. In fact, WebCT is used by more than 2,500 institutions in 81 countries, and is available in 10 major world languages. It is currently used by The French National Center for Distance Learning, the Japanese National Institute of Multimedia Education, and two Australian territories (WebCT, 2002).

This paper discusses how to embrace technological tools in the name of modernity, efficiency, and effectiveness through the development, structure, and use of WebCT in teaching business courses. In this paper we illustrate how the use of WebCT can contribute to cost-effectiveness of learning, bridge the gap between the textbook and other learning resources, and improve the quality of the students' learning outcome. In particular, we examine the areas of critical thinking, problem solving, decision-making ability, aptitude for detail, oral and written communication, knowledge of information, and ability to organize and analyze. The increasing dependency of business education upon WebCT instruction seems inevitable, because it helps meet the needs of students for greater individualism of instruction and greater relevance of subject matter in a more global, competitive, and challenging business world.

LITERATURE REVIEW

Higher education has begun to respond to the challenges of the new instruction paradigm in part by developing a strong technology component. Availability of an improved infrastructure and an increasing variety of course development tools encourages faculty to develop online or WebCT courses. New aspects of online and WebCT instruction are directed toward improving learning by reducing time, labor, and costs. The most attractive benefit to faculty members is a technological instrument that improves the quality of their teaching and the cognitive learning of their students. Green (1997) conducted a survey and reported that a growing number of faculty across all types of institutions and disciplines employed a wide variety of technologies in college courses. Substantial one-year increases can be found for e-mail, Internet resources, CD-based materials, multimedia, and other technology-based course applications. The author also observed that instructional technology has not radically transformed classrooms or the instructional activities of most faculty of higher education. It appears that an increasing number of faculty use technology to supplement traditional instruction (Kemp et al., 1994). The fuller integration of technology into college classrooms provides learning outcomes similar to those that were created by the introduction of cooperative, collaborative, or other active learning techniques into traditional teaching settings (Shotsberger, 1996).

The changing learning environment caused by advances in technology creates conditions conducive to learning, engages students actively in their learning processes, and allows the instructor to adjust teaching strategies as needed to facilitate subject mastery and professional growth. However, instructional technology skills are necessary to integrate technology into the teaching-learning process and to facilitate the individual, active, and collaborative learning strategies. As shown in Table 1, collaboration and cooperation, problem solving, and critical thinking are important skills in various approaches that can be used in instruction.

Table 1: Comparison of Different Paradigms of Instruction		
Traditional-Teacher Directed	New-Learner Centered	Technological-WebCT
Didactic teaching	Student exploration	Online instruction
Short blocks of instruction	Extended blocks of multi-disciplinary instruction	WebCT application
Passive or one-way modes	Active and interactive modes	Web-based learning
Individual effort	Collaborative/Cooperative	Individual/Collaborative /Cooperative
Teacher as knowledge provider	Teacher as facilitator/guide	Teacher and WebCT resources as facilitator/guide
Ability groups	Heterogeneous groups	Heterogeneous groups
Knowledge/Skill Assessment	Knowledge/Skill and Cognitive	Knowledge/ Skill and Cognitive
	Performance Assessment	Performance and Interactive Assessment

In contrast to traditional classrooms that are space bounded, WebCT extends the boundaries of learning, so that learning occurs in the classroom, from home, and in the workplace. Having permanent access to a multitude of learning resources regardless of one's geographical location allows continuity in learning and encourages uninterrupted learning process (Shotsberger, 1996).

WebCT provides interactive support and guidance via both synchronous and asynchronous communications among students and instructors. Under the new system, the instructors serve as facilitators by providing support, feedback, and guidance. WebCT instruction facilitates learning activities that address all students' learning styles by incorporating

a variety of multimedia elements, such as text, graphics, audio, video and animation (Hiltz, 1994; Jonassen, 1996; Wilson, 1995).

Kearsley (1996) argues that WebCT is easily available and provides a variety of materials so that learning becomes more relevant for all diverse learners. He shows that the Web provides an easy mechanism for electronic publishing where both students and instructors can publish their work to a global audience. For example, the posting of students' projects, papers, and other student work may be used for modeling, discussion, or review. McManus (1996) states that this rapid access to resources can promote higher levels of student involvement and motivation. Interactive peer reviews from the global educational community can also be a powerful motivating force leading to improved effort and self-esteem of students (Robin et al., 1996; Schmitt, 1998; Kearsley, 1996).

WebCT can be employed to promote experiential learning or learning "on site' so that the process of learning is integrated with the real world. While traditional instruction may discourage social interaction, WebCT is designed for collaboration and interaction that can be effectively employed toward critical and reflective learning. This type of social interaction also fosters a greater sense of accountability among the students. The ability of the faculty and students to communicate privately or collectively leads to a new dimension and design of instructional strategies (Schmitt, 1998).

It should be noted that the rich environment of WebCT promotes study and investigation within authentic, realistic, meaningful, and information-rich contexts. It encourages the growth of the student initiative, decision-making, and broad-based learning. Finally, it cultivates an atmosphere of cooperative learning among students and promotes critical thinking processes (i.e. analysis, synthesis, problem solving, experimentation, and creativity) to help students integrate new knowledge (McManus, 1996).

AN INSTRUCTIONAL DESIGN FOR TEACHING WEBCT BASED COURSE

By using WebCT we address the following teaching and learning issues: (1) enable students to take more active roles in their learning processes; (2) provide interaction among students and instructors; (3) present course material in ways that recognize a variety of learning styles; (4) make a greater array of resources available for students; (5) make those resources available inside and outside the classroom; (6) provide exercises and experiences that promote the development of higher-order cognitive skills.

WebCT provides unlimited opportunities for addressing the development of a variety of skills such as analytic, problem solving, drawing reasonable inferences from observations, synthesizing and integrating information, thinking holistically, creatively, and critically and being able to distinguish fact from opinion.

The course is structured around readings and supplemental lessons posted on the class WebCT. Course readings include materials provided by the publisher and the instructor. The publisher supported WebCT material contains text chapters, quizzes, chapter reviews, exams and on-line articles. The instructor's material includes PowerPoint presentations, assignments, homework, sample examinations, quizzes, bulletins, and instructors feedback on homework and class assignments.

Instruction is conducted via regular classroom lectures. Learning on WebCT is conducted via Web-based discussion groups and posting or reading materials or comments via Web chat areas. We assume greater roles as planners, designers, guides, mentors, and facilitators and have to be willing to relinquish our traditional roles as providers of content material. We have to be technologically literate as we use WebCT technology. With our involvement we focus on developing higher-educational cognitive, reflective, critical, creative thinking, and problem solving skills.

Based on our experience with the use of WebCT, students who use WebCT assume greater responsibility for their own learning and are more willing to communicate and share their results with others. They are able to develop and practice the skills necessary for cooperation and collaboration

with others. They become familiar with how to use WebCT technology in order to use available resource to complement their learning. For example, skills in writing are enhanced as students examine journal articles and transcribe their reports on bulletins.

WebCT improves test presentation and standardization, offers enriched display of information, provides increased variety of testing forms, provides equivalent scores with reduced test time, reduces measurement error, provides improved scoring and reporting, and gives immediate feedback to both students and faculty. It also provides simple mechanisms for storing and retrieving valuable information and allows the instructor to easily tailor tests.

ASSESSMENT OF TEACHING EFFECTIVENESS

Student learning is a fair and objective way to assess the effectiveness of teaching with WebCT. Evidence of what students learn is important for instructional and course improvement. When student evaluations are used for instructional improvement, the detailed diagnostic items and written comments can lead to improvement in the teaching techniques used by instructors. The use of other methods of evaluation to assess teaching effectiveness can be applied in conjunction with current methods to form a more comprehensive model of faculty evaluation. The primary objectives of this study are to learn about student attitudes and practices regarding WebCT and to examine their learning performance.

In order to evaluate student learning and instructor teaching effectiveness via WebCT we conducted a student opinion survey.

WebCT Student Opinion Survey

This questionnaire is being sent to selected students to learn about your attitudes on using WebCT and to offer suggestions for its improvement. For your convenience, most of the questions in this questionnaire require a mark (●), or for you to circle a number under the appropriate answer. Your responses will remain strictly confidential and only aggregate data will be analyzed. Thank you very much for the time and effort that was necessary to complete this survey.

1. How often did you participate in the following WebCT activities?

Activity	Most Often ←----------		Somewhat Often ----------	Least Often ----------→	
Communication: Mail	1	2	3	4	5
Communication: Bulletins	1	2	3	4	5
Communication: Chat	1	2	3	4	5
Course Content: from professor	1	2	3	4	5
Course Content: from publisher	1	2	3	4	5
Tests/Quizzes: from professor	1	2	3	4	5
Tests/Quizzes: from publisher	1	2	3	4	5
Course Calendar	1	2	3	4	5
Syllabus	1	2	3	4	5
Progress Tool	1	2	3	4	5

2. Please indicate your satisfaction with the following WebCT tools:

Communication: Mail	1	2	3	4	5
Communication: Bulletins	1	2	3	4	5
Communication: Chat	1	2	3	4	5
Course Content: from professor	1	2	3	4	5
Course Content: from publisher	1	2	3	4	5
Tests/Quizzes: from professor	1	2	3	4	5
Tests/Quizzes: from publisher	1	2	3	4	5
Course Calendar	1	2	3	4	5
Syllabus	1	2	3	4	5
Progress Tool	1	2	3	4	5

3. Please indicate how the use of WebCT influenced each of the following skill areas:

Critical thinking					
(1) from professor	1	2	3	4	5
(2) from publisher	1	2	3	4	5

WebCT Student Opinion Survey					
Problem solving					
a. from professor	1	2	3	4	5
b. from publisher	1	2	3	4	5
Decision making ability					
a. from professor	1	2	3	4	5
b. from publisher	1	2	3	4	5
Aptitude for detail					
a. from professor	1	2	3	4	5
b. from publisher	1	2	3	4	5
Oral communication					
a. from professor	1	2	3	4	5
b. from publisher	1	2	3	4	5
Written communication					
a. from professor	1	2	3	4	5
b. from publisher	1	2	3	4	5
Knowledge of information					
a. from professor	1	2	3	4	5
b. from publisher.	1	2	3	4	5
Ability to organize/analyze					
a. from professor	1	2	3	4	5
b. from publisher	1	2	3	4	5
4. Please indicate your level of agreement with the following statements:					
WebCT stimulated my intellectual efforts beyond that required by most other courses within:					
a. division	1	2	3	4	5
b. college	1	2	3	4	5
c. university	1	2	3	4	5
WebCT helped me develop more professional respons-ibilities (self-reliance, self-discipline) than most other courses within:					
a. division	1	2	3	4	5
b. college	1	2	3	4	5
c. university	1	2	3	4	5

WebCT Student Opinion Survey						
WebCT required me to work harder than most other courses within						
a.	division	1	2	3	4	5
b.	college	1	2	3	4	5
c.	university	1	2	3	4	5
WebCT helped me develop better technological skills & competencies than other course within:						
a.	division	1	2	3	4	5
b.	college	1	2	3	4	5
c.	university	1	2	3	4	5
5.	What could be done to improve this WebCT course?					
6.	What is your major? [ ] accounting [ ] economics [ ] finance [ ] marketing [ ] management [ ] information systems [ ] other					
7.	What is your class status? [ ] senior [ ] junior [ ] sophomore [ ] freshman [ ] other					
8.	What is your work status? [ ] full-time [ ] part-time [ ] do not work					
9.	What is your student classification? [ ] traditional [ ] nontraditional					
10.	What is your gender? [ ] male [ ] female					
11.	How many WebCT courses have you taken? [ ] 1-2 [ ] 3-4 [ ] 5-6 [ ] 7 or more					

WebCT Student Opinion Survey

12. Which one of the following reasons best explains why you selected this WebCT course?
[ ] my previous experience with WebCT was favorable
[ ] my friend (s) recommended it
[ ] my faculty advisor recommended it
[ ] my professor (s) recommended it
[ ] it was convenient for my schedule
[ ] other

STATISTICAL ANALYSIS AND RESULTS

The data were collected at the end of the spring 2002 semester. Each student was given the same feedback form - questionnaire - in which they had to select one of the several ordered categories. The survey addresses the students' opinions regarding the use of WebCT. Survey participants, students of business courses, were selecting one of the five ordered categories (see assessment instrument in Appendix One) to evaluate how strongly (if at all) the method of instruction influenced each of the skill areas: critical thinking, problem solving, decision making ability, aptitude for detail, oral communication, written communication, knowledge of information, and ability to organize and analyze. By studying the discrepancies in their evaluation we are able to study the impact of the WebCT on the pedagogical performance.

After converting the data into the "differences" representing the shift between categories selected on both occasions, we noticed that these "differences" were either 0 or 1, sometimes two or more categories apart. We looked at these differences from two perspectives: (i) perspective of a particular student - is shift magnitude randomly distributed, or is there a certain pattern?; and (ii) from the perspective of a particular skill area: are all skill areas influenced by the use of instructor provided WebCT in a similar way or is there an indication that it varies?

We used the data to see in how many skill areas a particular student had seen an improvement when taking the course with instructor prepared WebCT component. Such cases correspond to a positive shift and occurred with the frequencies given in the Table 2.

Table 2									
Numbers of Students Who Noticed an Improvement in a Particular Number of Skill Areas									
Category	0	1	2	3	4	5	6	7	8
Number	35	4	11	8	11	11	6	10	4

Based on results reported in Table 2, we conclude that the most frequent group is the group of students who did not feel they benefitted in any area (35% +/- 9%). The distribution of students who benefitted in at least one skill area does not express any particular trend or pattern, and a test of its uniformity came out non-significant (chi-square = 8.23, 8 df., P-value =0.021). The variation in the other group is due to randomness. This result is very interesting. The data we collected are based on subjective judgment, and it seems that it is not the problem of the technology not being the adequate teaching tool, but the problem of students not being quite ready for it. We will examine this aspect in our next study by including questions designed to evaluate the degree of student familiarity with Internet resources, and with computers in general. Also a trend over time may be studied.

To compare the skill areas from the point of view of the magnitude of the improvement we summarized the data in the Table 3. For each of the 8 skill areas we obtained the frequencies of students who either did not notice any improvement (0), noticed some improvement (shift by 1 category), or noticed strong improvement (shift by 2 or more categories).

A Chi-square test for homogeneity was performed (chi-square = 26.714, 14 df, P-value = 0.021) in order to compare distributions among all skill categories. According to our results, significant standardized residuals were all moderate except one. Twelve students reported strong improvement in the ability to organize and/or analyze with using WebCT technology. That is more than expected. The possible explanation is certain elements of the WebCT instrument allowed students to better organize their work via the use of WebCT calendar, lecture notes, course content, etc.

Table 3			
Distribution of the Magnitude of Change for all Eight Skill Areas			
Skill Area	0	1	2 or more
Critical thinking	61	35	4
Problem solving	70	28	2
Decision making ability	67	29	4
Aptitude for detail	71	24	5
Oral communication	73	23	4
Written communication	57	39	4
Knowledge of information	68	23	9
Ability to organize and analyze	56	32	12

The other differences are not significant and are due to random variations. By combining the data related to the first seven skill areas: critical thinking; problem solving; decision-making ability; aptitude for detail; oral communication; written communication; and knowledge of information, we can obtain an estimate of the common proportion of improvement (regardless of the magnitude) by using WebCT technology is 24.6% +/- 3.2%.

CONCLUSION

The widespread availability of WebCT allows instructors to make greater use of available Internet technologies. By using WebCT, instructors can assume the roles of counselors, guides, and mentors. They are able to spend more time planning and facilitating learning and developing higher order skills and less time presenting content. With the technological capabilities available via WebCT, students are able to take more responsibility for their own learning. They assess information from more resources than are available from just a single instructor or a single textbook, and can now easily collaborate with their fellow students.

WebCT-based courses typically include lessons, modules, lectures, readings, assignments, quizzes, tests, and other instructional materials that serve as learning resources. While many students are initially reluctant to embrace the use of WebCT, they eventually become very satisfied with the technology, because it requires significant interaction among students and instructors both inside and outside the classroom.

An important advantage of using WebCT relates to the development and design of course material by the instructor. It enables faculty to extend teaching and learning opportunities by combining features of communication, passive and active learning, and independent and group experiences. WebCT is widely accessible and provides a variety of materials so that learning becomes more relevant for various learners, provides numerous benefits to nontraditional students, and can even be delivered to those who are physically impaired or disabled or culturally deprived.

As the use of network-based technologies increases in business and as the phrase "international business" becomes more and more redundant, the use of online learning systems such as WebCT becomes especially critical to multinational organizations. WebCT allows interactive learning, letting the employees decide when they will learn, instead of the geographical-and-time-schedule constrained traditional university. Because the new global employees are constantly on the move, the multinational firm could have difficulty keeping its workers current in their knowledge and skills.

Based on the result of the survey, it can be argued that WebCT has the potential to make significant improvements in teaching and learning. WebCT instruction improves quality through better access to useful information, improves instructional delivery and organization, and provides alternative means for student interaction and improvement. The combination of the WebCT instruction, the course objectives and instructional organization determines the effectiveness of business education and instructional development in higher education as required by national accreditation agencies.

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Table 1: Introduction Section of Course Syllabus

OB, Inc.: MGNT3250, ORGANIZATIONAL BEHAVIOR AND MANAGEMENT
Spring Semester, 2001

Organizations are increasingly moving toward group- or team-based designs, where teams of employees assume more responsibility for their own performance. Companies such as Volvo, Quad-Graphics, Delco, Northern Telecom, Saturn, and Honeywell have reported tremendous success and turnarounds which they attribute in large part to employee teams. Organizations who have not adopted team-based work designs have increasingly employed other forms of individual employee participation and involvement.

There is also a growing body of empirical evidence that learning is enhanced by student involvement in the design of the learning experience. Individuals learn in different ways, which makes a single course delivery system (e.g., lecture) ineffective for at least some students. This course is designed around and based on this empirical evidence, and the following assumptions:

1. Employee/student participation in decision making generally results in more accurate decisions.
2. Employee/student participation in decision making generally results in more commitment to making those decisions work.
3. Employee/student responsibility for their own performance and results generally leads to higher motivation and performance.
4. Individuals differ in how they learn most effectively and therefore require different instructional/learning methods.
5. Different instructional/learning methods require different methods of assessment and evaluation.

MGNT 3250, hereafter referred to as OB, Inc., is a non-traditional course in Organizational Behavior and Management. It is based on the idea that the traditional lecture is an effective course delivery method for some students, but ineffective for others. In addition, since organizations are increasingly employing team-based work designs rather than more traditional individual job assignments, this course will provide students with an opportunity to gain skills in working in teams. Primarily, this course will enable you to select and design the learning and instructional methods most effective for you. The Instructor's role in this course is similar to the role of a manager or supervisor in a self-managing team; that is, as a resource. Individuals and/or teams may call on the Instructor to provide lectures, explanations, descriptions of assigned material and to design evaluation methods.

Table 1: Introduction Section of Course Syllabus Continued

GRADING

You must reach an agreement on how your performance will be evaluated for each work period with the instructor. Once this agreement is made it may not be changed during that work period. It may, however, be changed for the next work period. You may choose to work as an individual or in a self-managing team. Regardless of the method you choose, you must reach agreement with your instructor as to how your performance will be evaluated by the second day of that work period.

Evaluation Methods

You may choose any reasonable method by which to have your performance evaluated. For example, if you prefer to work as an individuals and prefer traditional methods, you may ask the instructor to lecture to you on the assigned material and administer a variety of forms of examinations. If you decide to work in a self-managing team, you may still ask the instructor to administer an examination to you, or you may make presentations to the instructor, write papers, ask the instructor to verbally ask you questions about the material, or any other reasonable method by which the instructor can assess your understanding of the assigned material. THE ONLY REQUIREMENT IS THAT YOU MUST DECIDE ON A METHOD BY WHICH THE INSTRUCTOR CAN ACCURATELY ASSESS THE LEVEL OF UNDERSTANDING OF THE MATERIAL OF EACH MEMBER OF YOUR GROUP. That is to say, one group member may not carry other group members...everyone's performance must be assessed. The assessment method chosen must permit determination of differentiation in levels of student performance. You must reach agreement with the instructor about how your performance will be evaluated by the second day of each work period.

All students must take a 50 question multiple choice midterm and a 50 question multiple choice final examination on the day scheduled by the university for this course.

WORK RULES

OB, Inc. has some common work rules.

1. You have 5 personal days that you may use at your discretion. These must cover all illnesses as well as any other types of absences. The 6th absence costs you one letter grade. The 7th absence results in an F for the course.
2. Self-managing teams who find they have a non-performer, must manage this problem during the current work session. Teams may change their membership at the end of each work period. If you are fired from a team, you are responsible to perform the work during the next work period individually, or gain membership in another team.
3. YOU MUST NOT BE ABSENT DURING AN ASSIGNED EVALUATION OF PERFORMANCE....IT IS NOT POSSIBLE TO "MAKE UP" EVALUATIONS.

ECONOMICS ARTICLES

INDUSTRY SECTOR AND PRODUCTIVITY GROWTH: POTENTIAL BIAS OF INFORMATION TECHNOLOGY INTENSITY IN SERVICES

R. Cayce Lawrence, Christian Brothers University
Rob H. Kamery, Christian Brothers University

ABSTRACT

Overall, productivity growth may be underestimated in the U.S.; despite continued progress, measurement and conceptual barriers remain. The concerns about underestimation of productivity growth have been focused on data for the business sector, especially its service components. Services, broadly defined, include all producing activities outside the goods sector. Productivity in the service sector has not grown as rapidly as productivity in the manufacturing sector. Anecdotal accounts of improvements in technology due to the method of measurement for the two different areas have been similar, which is why the measurement is incorrect. The productivity data does not fully reflect changes in the quality of goods and services due to the new concepts and considerations that must be taken into account in order to evaluate the accomplishments of the service industries, as opposed to the simple manufacturing industries. Economists have to determine if the best techniques are used to introduce new, advanced products into the data series. Current techniques do not capture the impact of new information technology on economic performance. This is why statistics may help to clear up ambiguities and start provide a fresh outlook to properly analyze successes of the service industries as a result of information technology.

INTRODUCTION

Economics, like every social science, is incomplete and therefore constantly evolving. A central concern of economics has to do with productivity--the ability to grow wealthier by extracting more value from the same amount of labor. Productivity is the measure of economics, which is the study of how a society uses its limited resources to produce, trade, and consume goods and services. In other words, the world has to satisfy unlimited wants with limited resources.

Looking at the constantly growing amount of new products and technological improvements at the end of the twentieth century, people are tremendously impressed. It seems logical that these inventions and improvements are increasing consumer welfare, and the technical innovations are contributing to output. Then why is the question of whether or not these new products and technological improvements are increasing at a noticeable rate? Logical reasoning supposes one thing, but officially, reported numbers do not support this assumption of productivity growth.

Economic statistics provided by the government demonstrate a modest rise in productivity numbers, which are not consistent with the highly increasing technological advances occurring across the economy. Economists, along with the rest of the world, see more new products, more changes in consumer service, more technical changes, and other innovations. The only problem is that these observations, while promising in terms of growth, are also consistent with the relatively minor increase in government productivity numbers. Many economists go as far to proclaim that society has been experiencing a productivity slowdown despite the apparent growth.

PRODUCTIVITY RELATIONSHIPS

Even though computers are not the only factor that affects an economy, the world will utilize computer technology as the center of improvement. Since the development of the first computers, society has not only changed in the way people conduct business, but also in the growing

efficiency of aspects of daily life. One example is the ability to visually see a person several hundred miles away instead of simply being able to communicate by voice alone. This is achieved with the invention of the computer along with the voice transmission and visual images brought about using programs such as the Netmeeting software.

The relationship between information technology (IT) and productivity is widely discussed but little understood (Brynjolfsson, 1993). Delivered computing power in the U.S. economy has increased by more than two orders of magnitude since 1970, yet productivity in the service sector has stagnated. Because improvements such as technical changes and new product discoveries reportedly bring cause a decrease in government measurements of productivity, many believe that there must be some discrepancy in the data collection and/or analysis (Dean, 1995). Historically, an advancement in industry was the idea of mass production or assembly lines. The complicated production process was broken down to general, less complex tasks that could be performed by one person or a small group. Each person or small group specialized in one task and became very proficient as a result. This increased the quality of the product and speed of production because chances of error are less pronounced when simple duties are performed consecutively. Concurrently, the individual or group became so familiar with the designated job that they produce faster the higher quality products than did one person performing multiple tasks. This innovation enabled mass production of many products such as food, clothing, and transportation. The use of mass production enabled countries like the U.S. to produce enough to meet the demands of the more developed countries and went beyond that level to meet the needs of other lesser-developed countries. Ultimately, the assembly line concept beat Malthus' prediction that the world's population growth would outgrow the food supply growth. One would think that a similar success will come from the widespread application of information technology.

What exactly is productivity? Simply stated, productivity is output per unit of input. The term productivity is often confused with the term production. Although there is a close relationship, production is concerned with the activity of producing goods or services while productivity relates to

the efficient utilization of inputs in producing prescribed outputs of goods or services. Calculating a number can become complicated. For example, suppose the accepted formula for calculating productivity output is the Cobb-Douglas Function:$K=a*p*y/w_K$ and $L=b*p*y/w_L$ where Y is the aggregate output, K is the capital stock, L is the labor input, w is the time-period index, and a/b are constants. The problem is not that we have bad equations; it is finding the correct variables for each particular industry. Determining what means input and output, in itself, is often obscure because no one method is standard for all businesses (Hall, 1999).

In an era that is sensitive to performance measurement, there has been an aroused interest in productivity. The definition of productivity, as the general population perceives it now, only matters in repetitive processes that produce or handle similar items. The concept comes from factory work. A factory manufactures a particular kind of thing, in large quantities by methods such as mass production. The more things produced in the same amount of time, the smaller the capital and labor cost of each item, leading to lower prices and higher margins. This is the goal of a typical business. Some white-collar jobs do involve repetitive processes such as call centers, insurance claims processing, and mortgage application processing. Automation with improved technology demonstrably increases productivity in these areas (Triplett, 1999). The types of service industries measurement economists are focusing on do not perform repetitive processes and/or handle similar items. Thus, the norm for measuring productivity in the past is antiquated for analyzing the rapidly evolving IT-service industries of today.

The widespread application of information technology in the U.S. has not resulted in a measurable increase in worker productivity. This paradox is due as much to deficiencies in the tools used to measure productivity as to misuse of IT by developers and users. The four explanations put forth for this paradox are that (1) outputs and inputs have been mismeasured, (2) learning and adjustment cause lags, (3) quality has been omitted from the equation, and (4) information and technology have been mismanaged (Brynjolfsson, 1993).

INPUTS/OUTPUTS

Although recent productivity growth has rebounded somewhat in manufacturing industries, the negative correlation between the advent of computers and the economy-wide productivity is the basis for many arguments that information technology has been counter-productive. One should keep in mind that relative productivity cannot be directly inferred from the number of information workers put in per unit output. For instance, if a new delivery schedule optimizer allows a firm to substitute a clerk for two truckers, the increase in the number of white-collar workers is evidence of an increase in their relative productivity. A financial service center is another example of how complexly the measurement of output per input is being utilized. Particularly, some banks consider deposits as their input capital while others consider it as their available output capital. One bank may classify deposits as a payback for services made available, while another bank would categorize deposits as credit for future customers. Neither method is more correct than the other. Measurement problems in the service industry arise because many service transactions are idiosyncratic and cannot be evaluated as aggregates. Therefore, classification and/or categorization become arbitrary even with abundant data (Brynjolfsson, 1993).

Even when considerable data on revenues of service industries is available, the data does not provide a measure of output that distinguishes changes in price over time from changes in real output. Measuring service industries' output first involves identifying the unit of output and then dealing with the issue of quality change. The usual way to measure the real output of the industry when employing typical sources of data is to deflate a nominal measure of output for the industry with the price index for the industry's product. When constructing a price index for deflating nominal output, it is necessary to specify first exactly what is being purchased or the basic transaction unit of the product. Then, the characteristics such as cost of production and profit that determine its price are evaluated. The variation that occurs in a given characteristic over time or among suppliers amounts to a change in quality of the product. If the price of a product rises due to an improvement in one of the characteristics of the product, one would attribute

the increase to a change in the product's quality, and not to an inflationary price change. One technique attempts to measure the unit of transaction of the service, while the other attempts to measure the outcomes of the service (Sherwood, 1994).

It is possible that the benefits of IT investment are extremely large, but that a proper index of its true impact has yet to be analyzed. Traditional measures of the relationship between inputs and outputs fail to account for nontraditional sources of value. To elaborate on this reasoning, total productivity is the overall measure of economic effectiveness based on output per unit of all resources utilized. The only practical way that inputs can be aggregated is in monetary terms (Stainer, 1997). When a comparison is made over a period, the measurements should be kept to base-year prices to allow meaningful comparisons as well as isolate inflation. For this purpose, it is important to select a relatively stable base year, as this will aid that sound types of analysis. Ideally, total output is defined in physical terms. The problem with this is the wide variety of output precludes physical aggregates (Kunze, 1995). In some cases, the measurement can be based on adjusted sales, but what about the areas that do not sell anything? Economists have yet to come to an agreement for measuring the latter areas. Following is a table that lists some industries that classify physical output by measures of output, which might not be the most advantageous method.

To illustrate, does the airline industry measure output by weighing a plane to see how much it carries from point a to point b? Would it be more business-oriented to measure the cost of a flight against the amount of money paid by the passengers, or whether the flight made a profit or lost money? Additionally, even if the airline did not make a profit on the particular flight, the customer service was excellent. This produced future revenue for the company that would make up for the initial loss in revenue. Another example is the determination of output for a university. A deserving student may get a full scholarship to the university resulting in a financial loss for the institution. This may be true, but administrators may look at this as an opportunity for the institution to perform a civic duty of educating a student who has not been too fortunate in the past. As a result, this student remembers this particular university for its generosity and gives back money

when he or she becomes successful. In the end, the airline and university do meet their goals despite the calculations between processes. This goes to show how timing is everything, so statistics must measure the right variables at the right time.

Measuring the output and productivity of service industries is difficult. The problem occurs in determining what the basic service unit and in examining quality control changes. In measuring the service unit, the consumer's role, variations in what service is measured, and the difference between value-added and gross output must be taken into account. Additionally, new technologies/IT in production or products also affects output (Sherwood, 1994).

Table 1: Output measures in total productivity

Industry	Measure of output
Airline	Tons-kilometers
University	High-caliber students
Department store	Inventory-adjusted sales
Underground coal mine	Giga-joules of saleable coal
Hospital	Patients treated
Farming	Tons of saleable crop
Catering	Meals served
Refuse collection	Tons of waste

The role of the consumer of services may well be different from the role of the consumer of goods. For example, it may not be possible to define medical output adequately without considering whether the patient follows the doctor's advice or ignores that advice. Similar issues arise in the fields of education and entertainment. For instance, the output of a jazz band may not be well defined without considering whether the audience was one thousand people, ten people, or no one at all. The output might be considered

to depend on whether or not the performance was recorded for the pleasure of a future audience. Further, the experience of being in the audience may depend on whether other members of the audience are enthusiastic or indifferent to the performance. Yet, in all these possibilities, the music actually performed might be identical. There is no widely accepted model for incorporating the role of the consumer into the measurement of service outputs (Sherwood, 1994). Consequently, output data relating to insurance, banking, construction, health services, and utilities should be scrutinized for their relative accuracy. With better output concepts of the service industries, one could eliminate some measurement discrepancies with the debated statistics.

WHEN TO MEASURE

It has been said that traditional measures of the relationship between inputs and outputs fail to account for nontraditional sources of value. Another source of the mismeasurement may stem from the significant lags between the cost and the expected benefit. The idea that new technologies may not have an immediate impact is common. While the benefits from investment in infrastructure may be large, they may be indirect and often not immediate. Most of the output of computer-using industries is intermediate, not final (Hall, 1999). By definition, all of business services, except for exports, and all of wholesale trade are intermediate products. Although finance, insurance, and communications contributes to final output in their sales to consumers, much of their output goes to industries that primarily produce intermediate output. If only short-term costs and benefits were measured, then it might appear that the investment was inefficient.

The coincidence of the technological explosion and the falling productivity growth has puzzled many observers (Triplett, 1999). Because of its unusual complexity and novelty, a person entering the IT business often requires some experience before becoming proficient. People may need substantial amounts of learning in order to use computers effectively. After modifying a standard model to require that learning accompany a

technological change, the statisticians may discover that a technological change can boost output growth in the end, even though it causes an initial period of lower productivity. The use of computers, in the end, is efficient in increasing the quality of the goods produced (Stainer, 1997).

If managers are rationally accounting for lags, this explanation for low productivity growth is particularly optimistic. In the future, not only should society reap the then-current benefits of technology, but also enough additional benefits to make up for the extra costs that are currently being incurred. While the idea of firms consistently making inefficient investments in IT is abominating the neoclassical view of the firm as a profit maximizer, it can be explained by evolutionary economics which treat the firm as a more complex entity that it is. The fact of the matter is that researchers do not yet have the comprehensive models to evaluate internal organizations of the firms, and these experts could not come into agreement on why or how productivity has slowed while the rest of economy continued on its course (Stainer, 1997).

QUALITY

The computer industry has long struggled with the problem of showing the business payoff of IT investments in a tangible manner. Traditional methods of productivity measurement do not satisfy many non-information system (IS) executives, who prefer to point to U.S. government statistics showing stagnant white-collar productivity in recent years despite heavy spending on computerization (Triplett, 1999). The payback exercise was challenging enough when mainframe computers were the norm but has become exponentially harder as computers proliferate into nearly every tributary of business. The possible solution is to look at the long-term viability of the corporation, which is very much affected by non-financial measures such as customer satisfaction, quality, and the ability to rapidly deploy customer-driven products. Using only financial measures to improve performance is analogous to concentrating on the scoreboard in a football game. While the scoreboard tells you whether you are winning or

losing, it does not provide much guidance about the plays that should be called. What is needed is information about the intermediate decisions that ultimately affect the score. Measures are needed of the underlying processes and prior outcomes that lead to superior financial results.

When comparing two output levels, it is important to deflate the prices so they are in comparable real dollars. Accurate price adjustments should not only remove the effects of inflation but also adjust for any quality changes. Much of the measurement problem arises from the difficulty of developing accurate, quality-adjusted price deflators.

Output is defined as the number of units produced times their unit value, proxied by their real price. Establishing the real price of a good or service requires the calculation of individual price "deflators" that eliminate the effects of inflation without ignoring quality changes (Brynjofsson, 1993).

Performance may be defined as productivity multiplied by quality. It consists of both the amount of work completed and the value of the work to the customer. Increased productivity reduces cost since higher outputs per hour result in lower labor costs per unit. In addition, higher productivity increases service quality because faster delivery improves the timeliness of service, thus increasing quality to the customer. Increases in quality lead to higher revenues since high-quality products increase client satisfaction, sales, and ultimately retention. Furthermore, increased quality improves productivity because performing tasks correctly the first time eliminates the need for inspection and rework, thus reducing costs per unit. Because many organizations only focus on measuring and improving either productivity or quality, they do not grasp the intrinsic relationship between them.

The evaluation of job performance should be geared toward enhancing work quality and productivity. Customers are constantly searching for lower prices, faster responses, better service, and support that is more knowledgeable. If a company fails to differentiate between quality of output and productivity, it will not be successful in reducing operating costs or enhancing profits. Only focusing on productivity or quality will bring about customer dissatisfaction and/or increased production cost/time. For example, a productivity-only company may have a machine that processes work at a frenetic pace. Consequently, the machine makes

mistakes that are passed on to the customers. A quality-only company may generate great products accompanied by unacceptable lead times and missed delivery dates.

Systematic quantitative and qualitative measurements bring order, structure, and meaning to a mass of collected data. Qualitative measurement is not a circular definition. It provides a basic direction or common integrated purpose. These broad, open-end methods address verbal and non-verbal behavior. Quantitative measurement shifts to qualitative assessment as the task varies from simple to complex, from repetitive to unique, and from well defined to abstract. Qualitative (descriptive) information and quantitative (numerical) data supplement each other. Therefore, the optimal performance measurement method should assess and associate quantity with quality (Sherwood, 1994).

MISMANAGEMENT

Many of the difficulties researchers encounter in qualifying the benefits of IT also affect managers. As a result, they may have difficulty in bringing the benefits to the bottom line if output targets, work organization, and incentives are not appropriately adjusted. Therefore, IT might increase organizational slack instead of output or profits. Sometimes the benefits do not even appear in the most direct measurements of IT effectiveness. This stems not only from the intrinsic difficulty of system design and software engineering, but also from the fact that the rapidly evolving technology leaves little time for time-tested principles to diffuse before being supplanted (Sherwood, 1994).

A related argument derives from evolutionary models of organizations. The difficulties in measuring the benefits of information and IT outlined previously may also lead to the use of heuristics, rather than strict cost/benefit accounting to set levels of IT investments. In current institutions, heuristics and management principles evolve largely in a world with little IT. The radical changes enabled by IT may render these institutions outdated. The rapid speedup enabled by information systems

may have created unanticipated bottlenecks for each person in the information processing chain. A successful IT implementation process must not simply overlay new technology on old processes (Stainer, 1997).

White-collar productivity is very complex and difficult to measure because it is not like measuring the productivity of a tire-assembly line or a widget line. To alleviate this burden, researchers have suggested ways to measure efficiency and effectiveness. Efficiency shows how well managers are using their resources, and effectiveness lets administrators know how well the managers' services meet their customers' needs. No single formula for PC productivity can apply to all managers because there are too many variables from job to job and organization to organization.

OTHER ARGUMENTS

A very simple mismeasurement of the productivity lag could be explained by the usage of the arithmetic scale, as opposed to the logarithmic scale. To have an impact on productivity, the rate of new product and new technology introductions must be greater than in the past, and not just in their numbers. Suppose increases in productivity come strictly from the development of new products. For argument's sake, let the initial production rate be five percent. This means that five new products were produced in the period following one in which there existed 100 products. The next period on the measurement must produce six new products. Then, seven new products must come about in the subsequent period. At the end of ten years, a constant productivity growth rate requires 30 new products, and after 20 years, 283 new products and so on. As the economy grows, an ever-larger number of new products are required just to keep up the productivity growth rate constant (Triplett, 1999). There is disagreement on how one goes about comparing the production rate of the past to present developments. Even the elementary task of simply counting and plotting into a chart raises conflicting views among researchers. This illustrates how society needs a deeper understanding of productivity and its intricate components.

Statistics illustrate that personal computers have not brought about productivity gains in many organizations, but employees are deeply tied to them (Triplettt, 1999). Productivity may not be useful to measure and may not apply to every role in a company. Productivity measures how much a person, group, or machine can make in a unit of time and matters only in repetitive processes analogous to factory work. Effectiveness, of which productivity is only one measure, is a more general and far more useful measure of value for IT-services organizations. It can often only be measured subjectively. Technology has transformed the workplace to an extent where people are not necessarily more productive, but they may be more effective. This is possibly why researchers have not found any significant productivity improvements from the introduction of computers to the workplace. Possibly they are measuring the wrong thing; what they need are measures of effectiveness, but these experts have to realize that often, the only measures of effectiveness are subjective.

EVALUATION

Rapid innovation has made IT-intensive industries particularly susceptible to the problems associated with measuring quality changes and valuing new products. The way productivity statistics are currently kept can lead to bizarre anomalies. For example, to the extent that ATMs lead to fewer checks being written, productivity statistics appear lower (Triplett, 1999). Because information is intangible, increases in the implicit information content of products and services are likely to be underreported compared to increase in materials content.

Information-systems (IS) organizations strive to develop systems that are faster, higher in quality, and lower in cost. It is a constant process that has no definite time frame. One could relate IT work to what the research and development (R&D) department does. A researcher never is completely satisfied with the end result or if there even is an end result. The task is never ending. The two are not similar in day-to-day tasks, but the comparison shows that computers can definitely be differentiated from other

physical stocks. Furthermore, one can look at the efficiency of R&D as a function of computer quality, which does not depend on the price of computers.

Asignificant amount of research has been written analyzing service productivity. The research states that there are many disadvantages in the investment policy, technological improvement, quality control systems, organizational behavior, and structural organization of the economy (Triplett, 1999). To address this problem, a great number of productivity improvement programs based on technological modernization, long-term investment policy, and organizational improvements have been introduced and utilized in the U.S. Some attempted to analyze productivity in connection with losses that occurred during the production process. The main idea of this approach is to base productivity improvement on a new measurement system that fully describes the productivity behavior according to loss variation. The system should be able to produce scientifically based recommendations in productivity improvement (Stainer, 1997).

The currently low productivity levels are symptomatic of an economy in transition, in the information era (Brynjolfsson, 1993). Parallels can be drawn between the recent adoption of the computer and the adoption of electric power a century ago. When electricity came into general use, major productivity gains did not occur for many years. During 1890-1913, when the world's leading economies, the United States and Great Britain, rapidly increased their use of electricity, there was a pronounced slowing in aggregate productivity (Stainer, 1997). New factories were designed and built to take advantage of electricity's flexibility, which enabled machines to be located based on workflow efficiency instead of proximity to waterwheels and steam engines. This is a historical example of a revolutionary new technology that significantly raised output in the end, although the introduction may have temporarily depressed measured productivity (Brynjolfsson, 1993).

CONCLUSION

Productivity statistics can help in understanding the growth and prosperity of nations. With a firm grasp of the most widely used statistics, one can better understand current debates such as those on the causes of lower productivity growth in the last quarter century. The controversy over the slowing productivity growth may remind people of the old line that if all the economists in the world were laid end to end, they would not reach a conclusion (Webb, 1998). In this case, the importance of the problem has led economists to explore possible explanations, but lack of definitive data has prevented a consensus from emerging. More research is needed.

In particular, it would at least be useful to have boundaries on the probable amount of bias in price, output, and productivity statistics for indirect evidence. To illustrate the value of such boundaries, consider the behavior of real interest rates. Economic theory states that real rates should move with productivity growth; thus, for example, if the trend in the rate of productivity growth were to increase, that would tend to raise real interest rates. Now suppose that one knew that there was no ongoing change for bias in the core CPI. One could then look for a trend in real rates. One could look at other relationships as well, such as real wages tracking the trend of productivity growth. The point is to have some limits on movements of measurement biases over time. Naturally, the tighter the boundaries, the sharper the inference that can be made (Webb, 1998).

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DOES OLD-FASHIONED FOREIGN AID STILL HAVE A PLACE IN THE TWENTY-FIRST CENTURY? CORROBORATIVE EVIDENCE

Abdalla Hagen, Grambling State University
Macil Wilkie, Grambling State University
Morsheda Hassan, Grambling State University

ABSTRACT

This study investigates the impact of foreign aid on the economic growth of recipients in less-developed countries. Using a sample of 81of these countries over a ten-year period (1990-2000), this study reveals that foreign aid has a negative and insignificant impact on their economic growth.

INTRODUCTION

Foreign aid is granted for different purposes: humanitarian and disaster relief, military and security assistance, and development aids. For example, the United States, the largest contributor, provides about $14 billion a year in federal funding to these projects. Of this $14 billion, 38 percent is allocated to disaster relief, humanitarian assistance, security assistance, and military aid. Approximately 53 percent of the entire foreign aid budget is dedicated to development and economic aids, either bilaterally or through multilateral institutions. Another 5 percent is parceled as corporate welfare through various export promotion programs. The remaining 1 percent goes to supporting foreign aid programs. However, these programs have failed to

help Less-developed countries (LDCs) develop economically (Johnson & Schaefer, 1997).

The Organization for Economic Cooperation and Development (2002) reported that development assistance from western nations was $56.378 billion in 1999, $53.058 billion in 2000, and $51.353 billion in 2001 (see Appendix 1). In addition, $1.4 trillion was transferred from developed countries to (LDCs) as foreign aid between 1960 and 1996 (*The Economist,* 1996). Such foreign aid from western nations can increase the welfare of both the recipient and the donor country. Foreign aid serves as an enforcement mechanism in the absence of any global organization that can rule on private contracts across borders. Foreign aid is not motivated by altruism in all cases. The rich country provides aid only if doing so increases its utility. If an altruistic motive to alleviate poverty is also present, this will result in an increase in aid and thereby further enhance the poor LDC's welfare (Villamil & Asiedu, 2001).

On the other hand, several researchers (e.g., Clad & Stone, 1993; Islam, 1992; Griffin & Enos, 1970; Boone, 2002) demonstrated that despite this huge amount of foreign aid received by many LDCs, there is no real evidence to prove that these resources improved their economic growth. In contrast, they are worse off today in terms of economic growth, poverty, and disease than they were in the 1960s. Recognizing that foreign aid may not contribute much to the economic development of LDCs, many authorities involved in the foreign aid business are calling for a shift in the orthodox ways of aiding these countries (Schmitz, 1996). Despite this realization, the clamor for foreign aid to LDCs continues unabated (Bowen, 1995; Dhakal, Upadhyaya & Upadhyay, 1996; Tanner, 2002).

However, it is appropriate that before we suggest the replacement of foreign aid by other types of capital inflows (foreign direct investment, portfolios, foreign loans, etc.), a proper investigation of the relative impact of foreign aid on the economic growth should be conducted. This study utilizes an extensive data set covering 81 LDCs over a ten-year period (1990-2000) in order to determine the effects of foreign aid on the economic development of LDCs.

BACKGROUND OF THIS STUDY

This section includes a brief classification and description of the world countries. In addition, it includes selected studies for and against foreign aid.

World's Classification and Description

Chaliand (2002) classifies the whole world into four categories: The "First World" is the developed world including the United States, Canada, Western Europe, Japan, Australia, and New Zealand. The "Second World" was the Communist world led by the Union of Soviet Socialist Republics (USSR). With the demise of the USSR and the communist block, there is no longer a Second World. The "Third World" is the underdeveloped world-agrarian, rural and poor. Many Third World countries have one or two developed cities, but the rest of the country is poor, rural and agrarian. Eastern Europe should probably be considered Third World countries. Russia should also be considered a Third World country with nuclear weapons. China, has always been considered a Third World country, and still is. However, the term Third World is not universally accepted. Some prefer other terms such as non-industrialized countries, underdeveloped countries, less-developed countries, or emerging nations. The term "Third World" is probably the one most widely used in the media today.

In general, Latin America, including Mexico, Africa, and most of Asia are still considered Third World. The Asian tigers-South Korea, Taiwan, Malaysia, Indonesia, Thailand (except for their big cities, their maquiladora-type production facilities, a small middle class and a much smaller ruling elite) should probably be considered Third World countries because their populations are overwhelmingly rural, agrarian and poor. Some of the very poorest countries, especially in Africa, are sometimes termed the "Fourth World". These have no industrialization, are almost entirely agrarian (subsistence farming), and have little or no hope of industrializing and competing in the world marketplace. The oil-rich nations (Algeria, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Oman, Saudi Arabia, the United Arab

Emirates, and Venezuela) and the newly emerged industrial states (Taiwan, South Korea, and Singapore) have little in common with desperately poor nations (e.g., Haiti, Chad, Afghanistan, and others).

The underdevelopment of the Third World is characterized by a number of common traits: (1) Little or no advanced technology and economy; (2) Economies distorted by their dependence on the export of primary products to the developed countries in return for finished product; (3) High population growth, (4) Widespread poverty; (5) High rates of illiteracy; (6) High rates of disease, and (7) Traditional and rural social structures. Nevertheless, the Third World is sharply differentiated; it includes countries on various levels of economic development. Despite the poverty of the countryside and the urban shantytowns, the ruling elites of most Third World countries are wealthy.

Whatever economic development has occurred in the Third World, it has not been distributed fairly between nations or among population groups within nations. Most of Third World countries that have managed to achieve substantial economic growth are those that produce oil: Algeria, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Oman, Saudi Arabia, the United Arab Emirates, and Venezuela. Other important raw materials are also produced by underdeveloped countries, but even strategic raw materials like copper and bauxite are not as essential to the industrialized countries as oil. Indeed, among the countries that do not receive oil revenues, only Brazil, the Ivory Coast, Singapore, South Korea, and Taiwan have enjoyed significant economic growth. Because the underdeveloped nations are collectively so weak, the so-called "new economic order" proposed by some of them will probably remain a phrase, and no more, for the foreseeable future.

While Khor (1999) revealed that about 80 of LDCs (the majority of them being African and Latin American) fell into a debt trap and under the sway of the World Bank (WB) and the International Monetary Fund (IMF), the WB (2001) increased the number of severely indebted countries to 88. Out of the 88 countries, 81 are included in this study.

STUDIES SUPPORTING FOREIGN AID

Public aid from western nations can increase the welfare of both the recipient and the donor country. Foreign aid serves as "an enforcement mechanism" in the absence of any global organization that can rule on private contracts across borders. Foreign aid is not motivated by altruism in the authors' model-the rich country provides aid only if doing so increases its utility. If an altruistic motive to alleviate poverty is also present, this will result in an increase in aid and thereby further enhance the poor country's welfare payments (Villamil & Asiedu, 2001).

In their study of foreign investment and foreign aid, Villamil and Asiedu (2001) found that public aid helps rather than hinders private investment in developing countries. For example, technical assistance to a LDC decreases the chance that the nation will default on its private debts. Foreign aid also offers positive incentives for a nation to stabilize its institutions. Lack of institutional stability (due to corruption, civil war or authoritarian rule) is a leading cause of third-world defaults as well as poor economic growth. The less stable a country, the greater incentive its government has to expropriate foreign companies and renege on its debt.

Bowen (1995) criticized the ambiguous findings of previous studies on the relationship between foreign aid and economic growth because those studies had fundamental methodological limitations. Bowen's (1995) study claimed that a clear and significant foreign aid-economic growth relationship does exist depending on the economic development stage of the recipient countries. The author's results revealed a negative foreign aid-economic growth relationship for LDCs with per capita annual income of less than $987, whereas a positive relationship was observed for countries with per capita annual income above $987. Snyder (1993) and Dhakal, Upadhyaya, and Upadhyay (1996) provided similar findings.

Bigsten (1998) also provided evidence supporting the impact of foreign aid on economic growth in Africa. Evidence from both cross-country regressions was considered, and issues relating to economic policy, governance, ownership, and sustainability were identified as particularly important. Bigsten (1998) focused on how to structure the foreign

aid-economic growth relationship so that it encourages good governance, which is deemed essential for long-term economic growth. The author suggested that donors should delegate more responsibility to the recipients, while at the same time creating an incentive structure for good performance. Given the improvements in the economic policy environment in Africa, the prospects for effective foreign aid in Africa seem to be more promising than in previous eras.

STUDIES AGAINST FOREIGN AID

A recent study by Boone (2002) of the London School of Economics and the Center for Economic Performance confirmed that United States' economic aid does not promote economic development. Studying more than 100 countries, Boone concluded that long-term aid is not a means to create economic growth. Using the most quantifiable measure of development (the average wealth of the country's citizens) and the index of economic freedom, Johnson and Schaefer (1997) examined the figures on gross domestic product (GDP) per capita of 67 long-term development aid recipients over 29 years (1965-1994). Of these 67 countries, 37 had achieved average per capita GDP growth rates of less than one percent. Most economists agree that this rate is low. Johnson and Schaefer (1997) concluded that foreign aid does not help countries develop economically.

Schmitz (1996) elaborated on the fact that the impact of aid on economic development is still unclear. He reported that while some people call for a termination of all foreign aid, those who still support foreign aid agree that aid as currently administered does not reach those who need it the most. Foreign aid has not significantly changed the lives of people in LDCs. The consensus, even among those involved in the foreign aid business indicated that a shift in the orthodox means of giving aid is long overdue.

Clad and Stone (1993) observed that the American public is completely disenchanted with the nation's aid program. They have clearly demonstrated that this disenchantment does not primarily result from the feeling that foreign aid is taking resources away from domestic programs.

Rather, the disenchantment is deeply rooted in the belief that foreign aid has failed to achieve desired results. However, America currently devotes less than 0.3 percent of her gross national product (GNP) to foreign aid, ranking only ahead of Ireland among all aid-donor nations. It seems that America needs to refocus and redefine its aid program.

Islam (1992) examined the impact of foreign aid on the economic growth of Bangladesh, one of the poorest countries in the world. Between 1971 and 1989, Bangladesh received about $18.9 billion in aid. The results of that study indicated that foreign resources in aggregate did not significantly help the development of economic growth in that country. Similarly, Mbaku (1993) investigated the impact of aid on economic development in Cameroon. His results strongly support those of Islam's (1992) study. The results of both studies (Islam, 1992; Mbaku, 1993) support the findings of previous studies conducted by Griffin and Enos (1970) and Papanek (1973). Finally, Snyder (1996) attested that the relationship between foreign aid and private investments is negative.

Foreign aid and existing institutions have failed to solve LDCs' problems. The United Nations Conference on Trade and Development (UNCTAD), held in New Delhi in 1971, suggested that "one percent" of the national income of industrialized countries should be devoted to aid Third World countries. This figure has never been reached, or even approximated. The UNCTAD, held in Santiago (Chile) in 1972, set a goal of a six percent of economic growth rate for underdeveloped countries. This figure was not achieved either. The living conditions endured by the overwhelming majority of the three billion people who inhabit the poor countries have either not noticeably changed since 1972 or have actually deteriorated (Chaliand, 2002).

THE DEVELOPMENT OF AN AD HOC ECONOMIC MODEL

The neoclassical growth model (Solow, 1956; Denison, 1961) proposed that capital accumulation and technological progress are the engine of economic growth. However, this neoclassical exogenous growth model

rejected the impact of other variables. An alternative approach for studying economic growth is to view it as an endogenous model (Lucas, 1988; Romer, 1986) of several factors.

Levine and Renelt (1992) and Harms and Ursprung (2002) asserted that there is no universal model of economic growth accepted by all researchers. We have developed an ad hoc model including basic determinants of economic growth as follows: GDP (gross)= foreign aid + foreign loans + foreign direct investment + human capital + growth rate of labor force + growth rate of population + government spending + openness to international trade + Trade openness indicator + economic freedom + business climate + oil + inflation + political regime + political risk + initial GDP in U.S. $1988.The initial level of per capita GDP was used to test the neoclassical assumption that the starting level of per capita output has no effect on the steady state economic growth. In the transition to steady state, countries with a lower output per capita are expected to grow faster.

These variables drawn from the literature are by no means exhaustive. We examined the relationship between the independent variables and the dependent variable after controlling for cyclical fluctuations and unusual changes. We controlled this factor by creating a sample covering the 10-year period. The average of ten years should eliminate any cyclical fluctuations. However, most previous studies for or against foreign aid and FDI did not simultaneously run regressions including foreign aid, FDI, and potential factors that affect economic growth in their studies. Therefore, we have included certain factors that influence economic growth and investigated the impact of foreign aid and FDI on economic growth in LDCs.

RESEARCH METHODS

Research methods include sample and data collection, measurements of variables, and data analysis. Each component was implemented according to the following procedure.

Sample and Data Collection

Data collection consisted of annual data pertaining to a cross-section of 81 LDCs from 1980 to 2000 period (see Appendix 2). The purpose of selecting this period of time was to include a consistent set of recent data. In addition, the perceptions of LDCs about FDI changed from a primarily negative effect on their economies to a primarily positive role that contributes to their economic growth. The number of countries selected reflects the number of countries on which we could gather data on the variables included in our developed ad hoc economic model.

Required data were collected from various resources including World Bank, 1990- 2001; UN reports from 1990 to 2001; International Monetary Fund (IMF) from 1990-2001; UN Development Programme, 2002 and previous reports; Political Risk Services, 1997 and previous issues, and Harms, 2000; Freedom House, 2001 and previous issues; Gwatney et al., 2001; Pen World Table 5.6 developed by Summers and Heston (1995), and World Bank's (2001) Global Development Finance report and previous reports.

Due to limited data availability concerning our sample, the inclusion of variables and timeframe was reduced. For example, illiteracy variable was not available on annual basis. Some African countries (e. g. Zaire, and others) do not have all data on annual basis.

Measurement of Variables

The dependent variable is the average of the economic growth for the years 1990-2000. To control for country size, we divided the total volume of foreign aid and foreign direct investment by the population size of each country. The average of the two ratios for the years 1990 through 2000 are the independent variables. To be sure that the results are not just due to the omission of other determinants of GDP, we introduced a number of control variables that we believe to have a significant effect on GDP.

Control variables included in this study are: human capital, growth rate of population, growth rate of labor force, government spending,

openness to international trade, economic freedom, inflation, business climate, oil, political regime (political rights and civil liberties), and political risk.

(1)	Dependent variable
	♦ Economic growth was measured by the average of the natural logs of GDPs of each included country from 1990 to 2000. (World Bank, 2001; UN, 2001).
(2)	Independent variables
	♦ Foreign aid was measured by the natural log of the average of foreign aid received by each recipient country from 1990 to 2000. (World Bank, 2001; UN, 2001).
(3)	Control variables
	♦ Foreign loans were measured by the natural log of the total foreign loans received by each recipient country from 1990 to 2000. (World Bank, 2001; IMF, 2001).
	♦ FDI was measured by the natural log of the average of FDI received by each recipient country from 1990 to 2000. (World Bank, 2001; IMF, 2001).
	♦ Human capital was measured by the average of adult literacy rates in each country for 1990, 1995, and 2000. (UN, 2001; UNESCO (1999).
	♦ Growth rate of labor force was measured by the average of the growth rates of the labor force of each country from 1990 to 2000. (UN Development Programme, 2001)
	♦ Growth rate of population was measured by the average of growth rates of population in each included country from 1990 to 2000. (UN, 2001; World Development Report, 2001)
	♦ Government spending was measured by the average of net spending on defense and education as a percentage of GDP for each government of every country from 1990 to 2000. (UN, 2001)
	♦ Openness to international trade (reflects the existence of administrative and barriers to trade) was measured by the average of the ratios of exports plus imports to GDP population in each country from 1990 to 2000. (World Bank, 2001)
	♦ Trade openness indicator (reflects the existence of to tariff protection, restrictions to capital movements, and other distortions) was measured by the average of values of trade openness indicator for 1990, 1990-1992 and 1995-2000. (Gwartney et al, 2001; scale 0-10, where number 10 is the maximal openness)
	♦ Economic freedom was measured by index of economic freedom assembled by Gwartney et al. (2001). The average values of economic freedom for 1990 and 1995, and 2000 were used because it is not available on annual basis. (Scale 0-10, where 10 is the maximum economic freedom)

♦	Business climate (quality of business environment) was measured by the average of corruption in government, the quality of the bureaucracy, and a country's law-and-order tradition in each country from 1990 to 2000. (Political Risk Services, 2001and previous issues; scale 0-18, where 18 is the optimal business climate)
♦	Oil was measured as a dummy variable: 1, if oil exports throughout 1990s were greater than imports; zero otherwise each country from 1990 and 2000. (UN 2001)
♦	Inflation in LDCs was measured by the average inflation rates in each included country from 1990 and 2000. (IMF, 2001).
♦	Political regime:
	a. Political rights (people's ability to participate freely in the political process) were measured by the average of Gastil index from 1990 to 2000. (Freedom House, 2001 and previous issues; scale 1-7; represents the maximum political repression.
	b. Civil liberties (freedom to develop views, institutions, and personal autonomy apart from the state) were measured by the average of Gastil index from 1990 to 2000. (Freedom House, 2001 and previous issues; scale 1-7; represents the maximum civil repression)
♦	No political risk was measured by the average of expropriations, exchange controls, and default on government contracts in each country from 1990 to 2000. (Political Risk Services, 1997 and previous issues and Harms, 2000. Scale 0-30, where 30 minimal risk)
♦	The initial GDP per capita was measured in U.S. 1988 dollars for each country from 1990 to 2000. (UN, 2001).

Data Analyses

Regression analysis is an appropriate statistical tool and is widely used by researchers investigating relationships of a behavioral and/or economic nature. Regression estimates the relationship concerning independent variables by explaining the variations in the dependent variables (Pindyck & Rubinfeld, 1998).

We utilized the multiple regression technique in order to estimate the relationship between the independent variables and the dependent variable. Thus the regression model is:

$$y = a + b1x1 + b2x2 + b3x3 \ldots\ldots + b16x16 + e$$

Where:

Y = GDP per capita
X1 = Foreign aids
X2 = Foreign loans
X3 = Foreign direct investments
X4 = Human capital
X5 = Gowth rate of labor force
X6 = Growth rate of population
X7 = Government spending
X8 = Openness to international trade
X9 = Trade openness indicator
X10 = Economic freedom
X11 = Business climate
X12 = Oil
X13 = Inflation
X14 = Political regime:
a. political rights
b. civil rights
X15 = political risk (reverse)
X16 = Initial GDP in U.S. 1988 dollars
b1, b2,....,b15= estimated regression coefficients
a = constant
e = error term

However, potential problems such as multicollinearity, hetroscedasticity, autocorrelation, outliers, non-linear relationship, and the goodness-of-fit of the overall regression model are potential issues that may confront the regression model. In addition, the data may lack the assumption of normal distribution. The existence of such problems to a significant degree, may lead to inaccurate results and misleading conclusions and implications (Pindyck & Rubinfeld, 1998). Therefore, various appropriate statistical techniques will be utilized to detect and remedy any potential problems.

FINDINGS OF THE STUDY

To ensure that the multiple regression model has not been undermined by any potential problem, certain statistical tests have been used to check the existence of any problem. Multicollinearity is not a problem because all variance inflation factors (VIFs) are low. Autocorrelation does not exist because the Durbin-Watson statistic is significant (D.W.= 2.4). The plot of the residuals shows that there is no evidence of heterosedasticity. Neither the Studentized Deleted Residuals Test identified influential outliers for the dependent variable, nor Diffits and the Cook's Test detected influential outliers for the independent variables. The plotted histogram of data depicted normal distribution of the data. The plot of the dependent variable against each of the independent variables showed a linear relationship between these perspective variables. The results of the multiple regression are presented in Table 1. The significant F-statistic (F-value= 5.77; P= .001) confirms a complete goodness-of-fit for the overall regression model.

Data analysis in Table 1 reveals that foreign aid does not have a direct influence on economic growth. Although this factor has a negative effect, it is not significantly different from zero. This finding supports the those of previous studies (e.g., Griffin & Enos, 1970; Clad & Stone, 1993; Islam, 1992; Johnson & Schaefe 1997; Villamil & Asiedu, 2001; Boone, 2002). This finding supports Johnson and Schaefe (1997) who found that the majority of the long-term recipients of foreign aid over 29 years (1965-1994) had achieved very low levels of economic growth (1%).

According to Schaefer and Schavey (2002), foreign aid and all efforts of existing institutions and structures have failed to solve the problem of underdevelopment. For example, the United States has spent more than $500 billion over the last 50 years on foreign assistance, yet standards of living have fallen in many LDCs during that time. Zambia, for instance, has received more than $1 billion in foreign aid since 1964, yet its per capita income has dropped from $664 then to $338 in 1999 (Schaefer & Schavey, 2002).

Even the United States' Agency for International Development itself admits that only a handful of countries that started receiving assistance in the 1950s and 1960s never graduated from dependent status. Despite massive amounts of international aid, the average annual increase in per capita GNP has declined steadily in LDCs since the 1960s, with many of the LDCs heaviest foreign aid recipients actually suffering negative economic growth.

As a result, Alex de Waal, president of the human rights group, Africa Rights, concluded that foreign aid is structurally bad because it undermines the incentive to take responsibility. The more aid a country receives, the less the government of that country has to answer to the people. If Americans truly want to help other countries, they can best do so, not through failed foreign aid programs, but by improving the United States' economy, so that American businesses have funds to invest abroad, and by pursuing free trade policies (Tanner, 2002).

With respect to control variables affecting economic growth, data analysis in Table 1 reveals that foreign loans (debts) do not have a direct influence on economic growth. Although this factor has a negative effect, it is not significantly different from zero. This finding supports Mishra, Mody, and Murshid's (2001) notion casting doubts on the ability of foreign loans to stimulate long-run growth in underdeveloped economies.

Even if many LDCs are in favor of capital inflows, Hausmann and Fernandez-Arias (2000) asserted that they view international debt flows (especially of the short-term variety) as bad cholesterol. This finding also supports those of Bosworth and Collins (1999) who provided evidence on the effect of capital inflows on the economic growth of 58 underdeveloped countries between 1978 and 1995. The authors found that the impact of loans on the economic growth fell below FDI and portfolios. Dadush, Dasgupta, and Ratha (2000), Lipsey (2001), and Loungani and Razin (2001) found similar results.

Table 1: Multiple Regression Results Concerning the Impact of Foreign Aid and Foreign Direct Investments on Economic Growth of Less-developed Countries

Independent Variables	Dependent Variable: Economic Growth		
Variables	Coefficient	T-value	Sig. level
Foreign aid	-.0746	1.10	.68
Foreign loans	-.0746	1.10	.68
Foreign direct investments	.9978	2.09	.05
Human capital	.1684	1.81	.10
Growth rate of population	.1463	1.12	.23
Growth rate of labor force	.7221	2.15	.05
Government spending	-.0685	-1.12	.38
Openness to international trade	.0217	1.11	.62
Trade openness indicator	.0625	1.09	.55
Economic freedom	.0617	1.02	.52
Business Climate	.0625	1.10	.43
Oil	.9978	2.89	.001
Inflation	-.0685	-2.18	.05
Political regime:			
a. political rights	.1174	1.12	.22
b. civil rights	.1048	1.11	.34
No political risk	.1073	1.15	.35
Initial GDP in U.S. $1988	-1.0285	-1.49	.10
R-square= .51 Adjusted R-square= .46 F= 5.27; Significant F= .001			

In contrast, foreign direct investment has a positive and a significant effect on the economic growth of LDCs. This finding supports those of recent studies (e.g., Dadush, Dasgupta & Ratha, 2000; Feldstein, 2000; Lipsey, 2001; Loungani & Razin, 2001). This finding also supports the assertion of Aitkens and Harrison (1999) who demonstrated that foreign direct investment increases productivity, which in turn promotes growth. But these authors confirm conditions (e.g., skilled labor force, well-developed structures, etc.) under which productivity benefits accrue. For example, some studies claim that foreign direct investment boosted productivity in Malaysia, Taiwan, and the southern provinces of China. In contrast, similar benefits were not found in Morocco, Tunisia, and Uruguay. Moreover, firms with greater research and development in LDCs were able to absorb the foreign direct investment benefits.

Human capital (represented by the proxy adult literacy) has a positive and significant effect on economic growth, which suggests a strong positive link between investment in education and economic growth. Education enhances productivity and promotes higher economic growth. This finding supports Borensztein, Gregorio, and Lee (1998) who asserted that FDI is more productive in countries with a better-educated labor force.

There is a negative and significant relationship between the initial level of per capita GDP and the economic growth in LDCs. This finding contradicts the prediction of the neoclassical theory and supports the results of Barro's (1991) study. The two findings suggest that an increase in the starting per capita real GDP that is accompanied by higher investment in human capital may offset each other and thus the initial GDP becomes unable to stimulate growth in the economy.

Growth rate of labor force has a positive and significant effect on economic growth. According to the neoclassical growth theory, labor force growth should have a positive effect on economic growth rate. Economic growth can be sustained through macroeconomic growth policies that curb inflation, high exchange rates of currency and improper government spending. Thus, the government should initiate economic reforms and must fulfill its commitment to improve the quality of the labor force by focusing on education and training programs (Kormendi & Meguire, 1985).

Growth rate of population has a positive and insignificant impact contradicting recent findings on the relationship between fertility and economic growth. It is important to note that bigger families with many children are part of the culture of LDCs. The insignificant coefficient of population growth indicates that either capital accumulation or labor force growth did not keep pace with population growth.

Chaliand (2002) suggests that no study of LDCs could hope to assess its future prospects without taking into account population growth. In 1980, the earth's population was estimated at 4.4 billion, 72 percent of it in LDCs, and it reached 6.2 billion at the close of the century, with 80 percent of it in LDCs. This population explosion in the third world will surely prevent any substantial improvements in their living standards and threaten people in stagnant economies with worsening poverty.

Government spending has negative and insignificant effects on economic growth. When we run the regression without the political freedom variable, government spending variable shows a large negative magnitude on economic growth. One possible reason is that governments lacking freedom feel insecure and spend more resources in order to stabilize their regimes rather than promoting productivity and hence economic growth.

In terms of openness to international trade and trade openness indicator, each finding reveals that openness to international trade and trade openness indicator have the expected positive effects although they are insignificant. It appears that trade in LDCs is not integrated with the world economy. Both findings support that of Johnson (1997) who found that most recipients of American foreign aid had the highest barriers to trade in the world. In Johnson's (1997) Index of Economic Freedom survey, 69 of 109 LDCs receiving foreign aid had high or very high marks for their levels of trade protectionism in the world. Trade restrictions are typically expected to have deleterious effects on economic growth due to the inability to exploit comparative advantages. On the contrary, non-recipients of foreign aid, like Australia, Canada, most of the European Union (EU), Japan, Hong Kong, and New Zealand had either very low or low levels of protectionism.

The insignificant relationship between economic freedom and GDP suggests that if LDCs want to achieve growth, they must embrace economic

freedom. That is, countries having high economic freedom achieve much higher per capita incomes. Conversely, countries lacking economic freedom do not experience sustained growth no matter how much assistance they receive. According to the economists Roll and Talbott (2002), such countries could not afford to clean their environment or raise labor standards. Lower tariffs, smaller barriers to foreign investment, and limited regulatory burdens account for as much as 80 percent of the difference in per-capita income between rich and poor countries.

Business climate has no significant effect on economic growth. This finding indicates that many LDCs are not providing a complete and healthy business environment for foreign investors. This means that corruption in some governments, complex bureaucracy, and the lack of law and order are deterring foreign investments. This finding supports that of Harms and Ursprung (2002) who attested that a healthy business climate enhances FDI, which in turn boosts economic growth in LDCs.

Because resource-abundant countries typically offer higher returns to foreign investors, many multinational enterprises would invest in countries that have oil. As expected, there is a positive relationship between the oil variable and economic growth. Unfortunately, Chaliand (2002) found that whatever economic development has occurred in LDCs, it has not been distributed fairly between nations or among population groups within nations. Most of the countries that have managed to achieve substantial economic growth are those that produce oil: Algeria, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Oman, Saudi Arabia, United Arab Emirates, and Venezuela. Since the nations of LDCs ns are collectively so weak, the so-called "new economic order" proposed by some of them will probably remain a phrase, and no more for the foreseeable future.

As expected, inflation has a negative impact on economic growth. It is safe to conclude that inflation deters FDI from investing in LDCs suffering high inflation. This finding supports the notion that macroeconomic mismanagement lowers aggregate productivity and deters foreign investors. Harms and Ursprung (2002) mentioned a striking example relative to Argentina whose inflation rate decreased from 3, 080 percent in 1989 to less than 1 percent in 1997. Despite this formidable improvement, Argentina's

inflation rate for the entire period was still very high (623%). However, Argentina attracted a huge volume of FDI in the mid-1990s.

With respect to the political regime (political rights and civil rights) in LDCs, free-political LDCs or partly free LDCs have a higher growth rate than those who are not free. This result tends to support those of Helliwell (1994) who claimed that mature democracies likely suffer a slow-down in growth because of a slow buildup in the powers of special interest groups whose successful claims for special treatment reduce the growth of the economy as a whole. In contrast, countries without political freedom have very low economic growth because governments (particularly in Africa) are often confronted with revolutions and military coups destroy economic plans.

Finally, political risk is based on the International Country Risk Guide of the likelihood of expropriation, exchange control, and default on host government contracts. The insignificant negative relationship between this variable and growth suggests the existence of this political risk, to certain extent, in a large number of these LDCs. Although foreign investors refrain from investing in countries having political risk, Harms and Ursprung (2002) refer to the most striking example of China. Despite repression in the Chinese political system, Chin has witnessed a huge increase of FDI in the 1990s. However, this finding is blurred by time-series analysis which our goal in the next study.

CONCLUSIONS

The principal goal of foreign aid is to offer positive incentives for LDCs to stabilize their institutions. Lack of institutional stability (due to corruption, civil war or authoritarian rule) is a leading cause of LDCs' defaults as well as poor economic growth. However, the results of this study conclude that foreign aid is little more than welfare for LDCs, with the same disastrous effects as domestic welfare programs. Foreign aid is structurally bad because it undermines the incentive of LDCs to take responsibility. We conclude that foreign direct investment can be a better alternative than foreign aid.

Foreign aid should go to LDCs that agree to open their economies, but more needs to be done to ensure that money is not squandered. If the U.S. truly wants to help LDCs, they can best do so not through failed foreign aid programs, but by improving the U.S. economy, so that U.S. businesses have funds to invest abroad, and by pursuing free trade policies. The broad policies (trade policies, budget deficits, growth rates, etc.) generally exert greater positive or negative influence on the economies of LDCs than does foreign aid.

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APPENDIX I: Official Development Assistance (ODA)

	ODA in USD			ODA as Percentage of GNP		
Country	1999	2000	2001	1999	2000	2001
1. Denmark	1,733	1,664	1,599	1.01	1.06	1.01
2. Norway	1,370	1,264	1,346	0.91	0.8	0.83
3. Netherlands	3,134	3,075	3,155	0.79	0.82	0.82
4. Luxembourg	119	116	142	0.66	0.7	0.8
5. Sweden	1,630	1,813	1,576	0.7	0.81	0.76
6. Belgium	760	812	866	0.3	0.36	0.37
7. Switzerland	969	888	908	0.35	0.34	0.34
8. France	5,637	4,221	4,293	0.39	0.33	0.34
9. Ireland	245	239	285	0.31	0.3	0.33
10. Finland	416	371	389	0.33	0.31	0.33
11. United Kingdom	3,401	4,458	4,659	0.23	0.31	0.32
12. Spain	1,363	1,321	1,748	0.23	0.24	0.30
13. Germany	5,515	5,034	4,879	0.26	0.27	0.27
14. Portugal	276	261	267	0.26	0.26	0.25
15. New Zealand	134	116	111	0.27	0.26	0.25
16. Austria	527	461	457	0.26	0.25	0.25
17. Australia	982	995	852	0.26	0.27	0.25
18. Japan	15,323	13,062	9.678	0.35	0.27	0.23
19. Canada	1,699	1,722	1,572	0.28	0.25	0.23
20. Greece	194	216	194	0.15	0.19	0.19
21. Italy	1,806	1,368	1,493	0.15	0.13	0.14
22. United State	9,145	9,581	10,884	0.1	0.1	0.11
Total	56.8	53.06	51.4USD Billion			

Sources:
" Net ODA flows in 2000, OECD (PDF Format)
" Net ODA flows 2001 , OECD (PDF Format)
Note: The U.N. ODA target set is 0.7 percent of GNP. Most nations do not meet that target

APPENDIX--II

COUNTRIES INCLUDED IN THE STUDY

Algeria, Angola, Argentina, Bangladesh, Belize, Benin, Bolivia, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Chile, China, Columbia, Congo, Costa Rica, Cote d'Ivoire, Dominican Republic, Ecuador, Egypt, El-Salvador, Ethiopia, Fiji, Gabon, Gambia, Ghana, Guatemala, Guinea-Bissau, Haiti, Honduras, Hungary, India, Indonesia, Iran, Ivory Coast, Jamaica, Jordan, Kenya, Lesotho, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Morocco, Mozambique, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Republic of Korea, Rwanda, Senegal, Sierra Leon, Somalia, Sri Lanka, Sudan, Syria, Tanzania, Thailand, Togo, Trinidad & Tobago, Tunisia, Turkey, Uganda, Uruguay, Venezuela, Zaire, Zambia, and Zimbabwe.

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