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EDITORIAL REVIEW BOARD

EDITORIAL REVIEW BOARD

TABLE OF CONTENTS

LETTER FROM THE EDITOR

It is with great sadness that we announce the death of Dr. Larry Dale, the founding Editor of the *Journal of Economics and Economic Education Research.* Dr. Dale served as Editor from the inception of the *Journal* until last year when ill health forced his retirement. It was largely through his efforts that the *JEEER* has become a well recognized outlet for economic and economic education research. Dr. Dale was extremely active in the Allied Academies, having founded the Academy of Economics and Economic Education, one of the affiliates which comprise the alliance. He was a well respected professor of economics at Arkansas State University and Director of its Center for Economic Education. A prolific author, and a great mentor to junior faculty, Dr. Dale was also a respected educator and extremely popular with the legions of students he taught over his long career.

To memorialize his contributions, the Allied Academies has established a scholarship in his name. If you are interested in making a tax deductible contribution, please visit our charitable foundation: www.carlandfoundation.org/dale.html. We will greatly appreciate your support, and we will communicate that support to Larry's family.

As you know, the *JEEER* is dedicated to the study, research and dissemination of information pertinent to the improvement of methodologies and effective teaching in the discipline of economics. The *Journal* bridges the gap between the theoretical discipline of economics and applied excellence relative to the teaching arts. The Academy is an affiliate of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world.

The Editorial Board considers two types of manuscripts: first is empirical research related to the discipline of economics. The other is research oriented toward effective teaching methods and technologies in economics. These manuscripts are blind reviewed by the Editorial Board members. The manuscripts published in this issue conform to our acceptance policy, and represent an acceptance rate of less than 25%.

We are inviting papers for future editions of the *Journal* and encourage you to submit your manuscripts according to the guidelines found on the Allied Academies webpage at www.alliedacademies.org.

Grady Perdue
University of Houston-Clear Lake

ECONOMIC IMPACT OF BASE REALIGNMENT AND CLOSING ON THE FORT BRAGG REGION AND THE LARGEST ARMY BASE IN THE UNITED STATES

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Pam Jackson, Fayetteville State University

ABSTRACT

The Base Realignment and Closure (BRAC) initiative is expected to change the landscape of the Fort Bragg Region which encompasses the largest army base in the United States. BRAC will add approximately 40,000 additional people, 8,554 jobs and $625 million in military construction expenditures to the region. This paper provides an analysis of the economic impact of recurring and non-recurring military expenditures on the economy of the Fort Bragg Region. The direct, indirect, and induced effects of these expenditures on output, employment, personal income, and indirect business taxes are presented here. It also identifies the major sectors that will be impacted by the increase in military expenditures.

INTRODUCTION

The Base Reassignment and Closure (BRAC) initiative will transform the economy of the region. Fort Bragg is located 50 miles south of Raleigh and 10 miles northwest of Fayetteville. It occupies an irregular-shaped parcel of land, covering approximately 160,700 acres, that stretches into four counties and its influence extends far beyond the 7 additional counties that are in close proximity to Fort Bragg (see Figure 1). According to Table 1, the Fort Bragg region represents approximately 13.6 percent of the land area within North Carolina and slightly over 10 percent of the population. Its population of almost 1 million generates $28,461,460,000 in total personal income, which represents 9.3 percent of the total personal income in North Carolina. BRAC expenditures and additional employment opportunities will have a far reaching impact on North Carolina.

The estimates provided in this paper account for only those expenditures and personnel changes which are expected to occur because of the Base Realignment and Closure. Fort Bragg is the largest army base in the United States. This military base exerts a powerful influence in Cumberland and surrounding counties. It generates over $2 billion in military pay, $409 million in civilian pay and over $400 million in government contracts. These expenditures directly or indirectly end up in the pockets of local employees of restaurants, grocery stores, local malls, hospitals, movie theaters, toy shops, car dealers, construction companies etc., which in turn induces further increases in demand when these employees spend their incomes. We would not,

however, study the impact of these expenditures which occur routinely and annually as a result of the military presence.

Figure 1
Fort Bragg Region

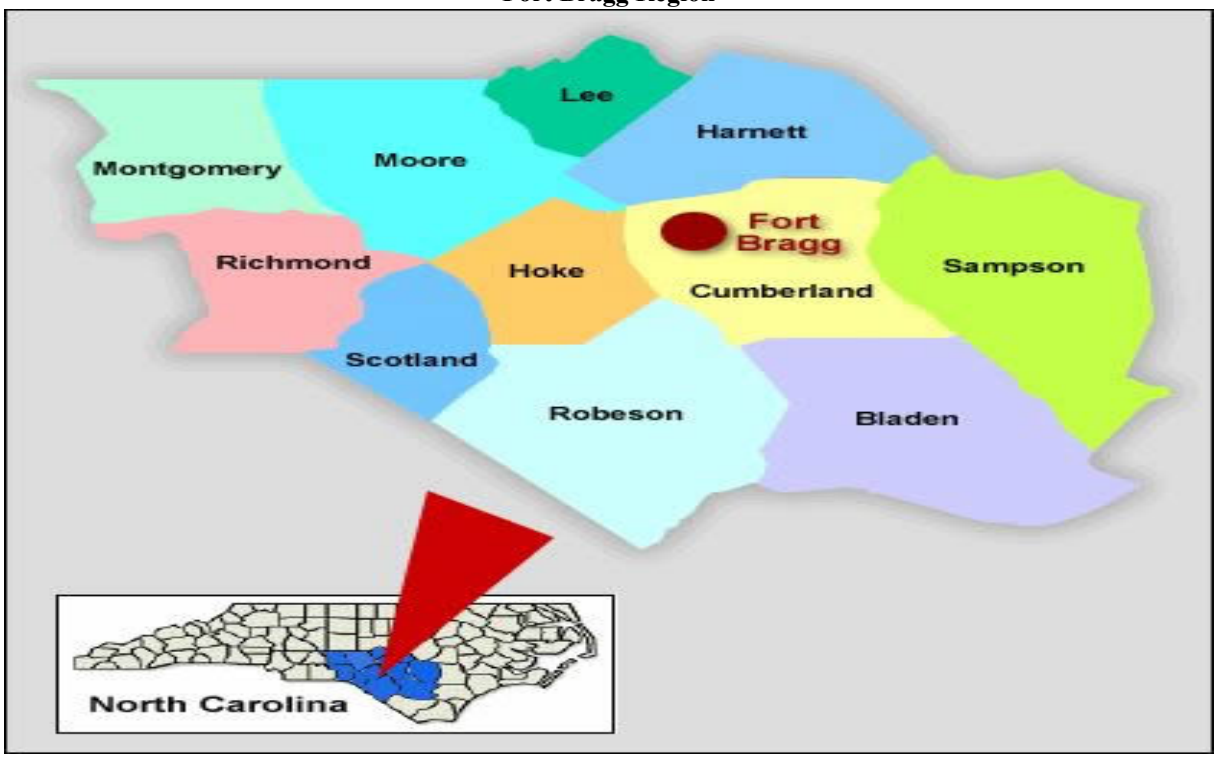


Table 1
Overview of the Fort Bragg Region, 2007

Fort Bragg		North Carolina (NC)	Ratio of Fort Bragg to NC
Population	933,960	9,061,032	10.3
Area(miles)	6,649 (sq. miles)	48,718 (sq. miles)	13.6
Employment	465,615	5,314,860	8.8
Number of Industries	321	420	76.4
Households	355,296	3,619,747	9.8
Income Per household	$80,160	$84,200	95.2
Total Personal Income	$28,461,460,000	304,781,200,000	9.3
Source: IMPLAN Data			

This paper does not attempt to quantify the BRAC impact on the quality of life which may be inevitable considering the fact that an increase in the presence of military is likely to increase traffic congestion, school crowding, crime, real estate prices, and contribute to

additional civic and cultural activities etc. Instead, attention is confined to the gross effects of military expenditures and jobs which will be created by BRAC.

LITERATURE REVIEW

There are numerous studies that analyze the impact of military expenditures on the economy. The North Carolina Department of Commerce's 2008 study estimates the anticipated effects of the military presence impact until 2013. Using the REMI input output model, it is expected that military expenditures will add to the North Carolina economy, 49,620 jobs, $2.85 billion and $1.93 billion to the Gross State Product and Personal Income respectively. Maguire Company (2008) study laments the fact that notwithstanding the enormous contributions of five major military installations to the Arizona economy, it is generally under-recognized. This may be partly because the military base is isolated from the rest of the county because of security reasons. The military impact, however, is significant in that it adds approximately $9 billion in output and 96,000 jobs to the Arizona economy. Apart from the military data furnished by the Department of Defense, the study used survey data to measure the total impact of military personnel and retirees. The San Antonio 2006 study uses the REMI model to estimate the impact of military on the San Antonio economy. The Base Realignment and Closure impact is measured separately. The NAHB study (2006) is more comprehensive than others in that it goes far beyond the usual impact of military expenditures on employment, income and output. It also includes the effect of military expenditures on the real estate market, education and social services. The NATO study (2000) is different from other studies in that it estimates the impact of military bases within a 200 kilometer radius of the base and throughout Europe. Row's study estimates by fiscal year the economic impact of Marine Corps and Navy on the economy of San Diego. The study emphasizes the point that the expertise supported by military can be easily transferred to civilian sectors. Sara Nienow et al's (2008) report updates the 2007 study of military economic impact on the North Carolina economy. It is reported that the military growth during 2010 – 2013 will add about $2.9 billion to the State Gross Product and create 49,000 additional jobs.

Our study differs from many of these studies in that it includes a 11 county region; it uses survey data to determine the exact local purchase content in the contracts; it includes civilian employees who support the military; it analyzes the employment effects by sectors and occupations; and provides an estimate of occupational gaps.

We begin by examining some essential characteristics of the Fort Bragg region. The Fort Bragg region educational level compares unfavorably with both the state and the nation when measured by the percentage of people holding bachelor and graduate degrees (see Figure 2). Only 18 percent of the population in the Fort Bragg region has a bachelor degree compared with 25 percent in the state and 28 percent in the nation. The percentage of the Fort Bragg regional population which failed to graduate from high school is 3 percent higher than the state and national average.

Apart from the quality of labor force (measured by education level), the quantity of labor force depends on the number of adults in the labor force and the number who are unemployed. Figure 3 below shows that for the past decade, the average unemployment rate in the Fort Bragg region has been 1.9 percent higher than the nation and 1.2 percent higher than the state.

Figure 2
Educational Attainment of Adults in the Fort Bragg Region Compared with State and the Nation.

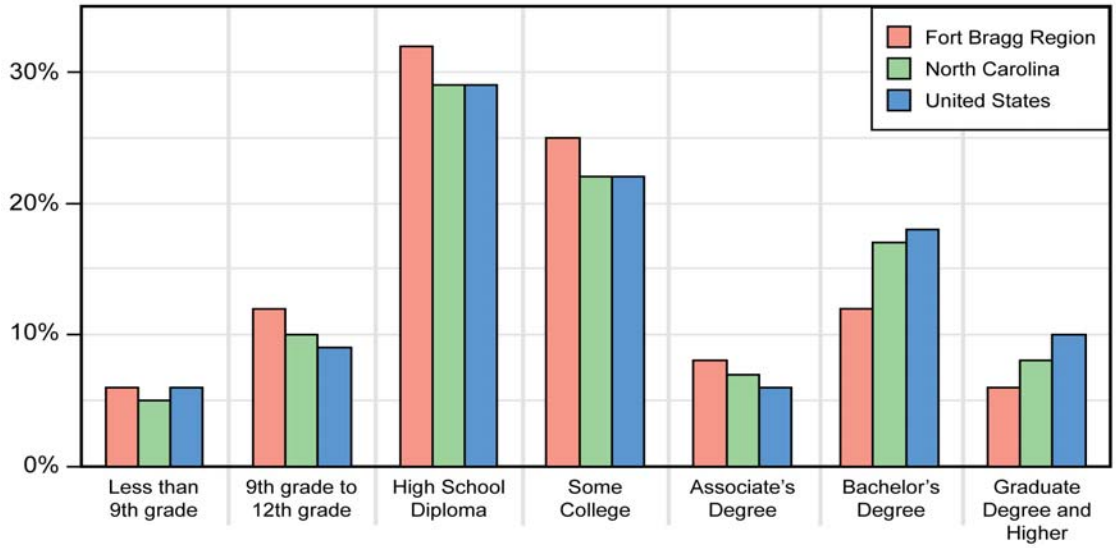
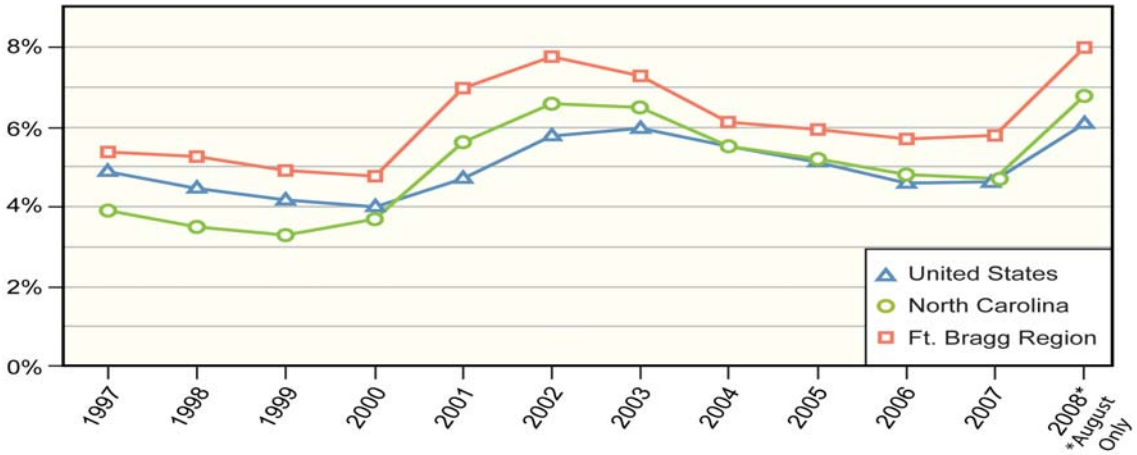


Figure 3
Unemployment Rates in the Fort Bragg Region from 1997 to 2008, Compared with Unemployment Rates in the State and the Nation

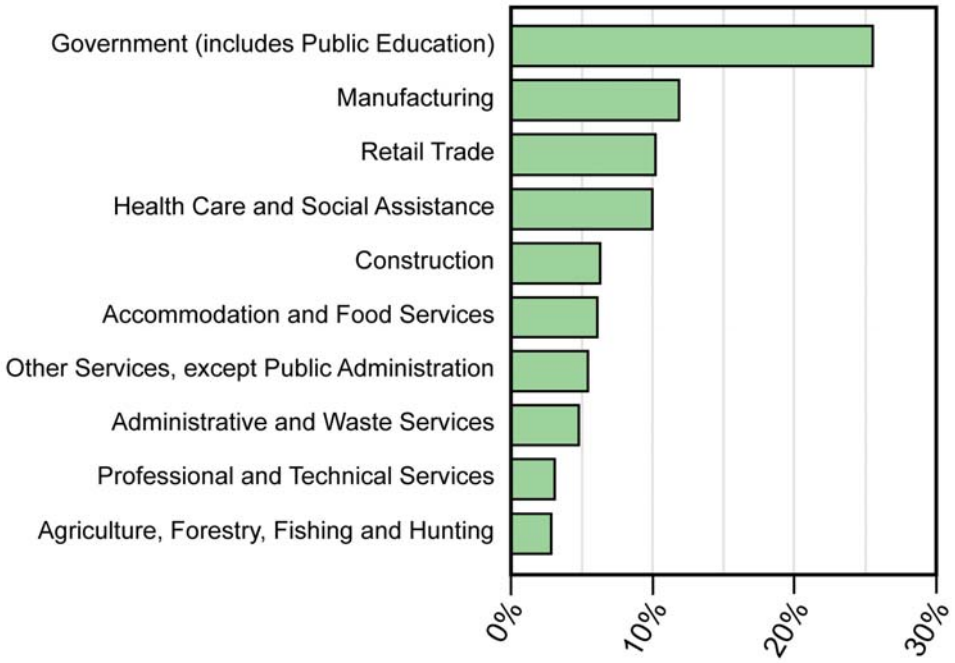


Source: U.S. Department of Labor, Bureau of Labor Statistics

Apart from the unemployed, there is a significant number of military retirees and spouses of soldiers who are available for work in the region. As many as 97 percent of military spouses have a high school diploma and as many as 87 percent want to pursue further education.

The distribution of industry employment provides an overview of the regional industrial structure in the Fort Bragg region. Figure 4 shows the occupational distribution of the existing labor force. The largest employer in the region is government: federal, state and local. To some extent these numbers are skewed because it includes military personnel. Manufacturing is the second highest employer and the average wage in the manufacturing sector is much higher ($43,404) compared with the average annual pay of $39,774. Unfortunately, for the past several years, there has been a steady decline in the number of manufacturing jobs. The next largest employer is retail, followed by health care which pays an average salary of $33,900 compared with $24,950 for retail. It is to be noted that most health care jobs pay significantly higher salaries but the inclusion of social assistance depresses the average wage rate.

Figure 4
Percentage of Jobs in the Largest Sectors in the Fort Bragg Region



Source: IMPLAN Report

BRAC is expected to add 40,815 new residents to the region. These will include active duty soldiers, civilian personnel employed by the Army, employees of private defense

contractors, dependents of Army personnel and private contractors, and economic migrants. Of course, since Pope Air Force Base will be closed, the region will lose 3,247 personnel. However, there will be a net increase in active-duty soldiers of 2,361 because the Army will add 5,608 soldiers. The civilian personnel attached to the Air Force and Army is expected to increase to 6,193 and the construction expenditure for residential quarters will increase by $336 million. The U.S Army Forces Command (FORSCOM) and the Army Reserve Command will transfer from Fort McPherson in Atlanta and will require new headquarters. This will necessitate an additional construction expenditure of $289 million. Since the Fort Bragg region has a small number of construction companies, it is highly unlikely that all of the construction demands will be met locally. Our survey of vendors shows that the local content of construction expenditure will be 40 percent for residential and 20 percent for the non-residential construction.

BRAC ECONOMIC IMPACT

We use the IMPLAN input- output software to construct a Fort Bragg Region model which encompasses 11 counties (see Figure 1). The IMPLAN (Impact Analysis for Planning) is the result of the joint efforts of the University of Minnesota and the United States Department of Agriculture's Forest Service. While the model is extensively used in economic impact analysis by the governmental agencies, Chambers of Commerce, academic institutions and economic development agencies, it is based on some key assumptions which are as follows:

Fixed technology. It is assumed that the technology used by the industry whose impact is being analyzed remains unchanged and will not be affected by the impact. In other words, resource –mix is unaffected.

Every firm within the industry uses the same resource mix or technology.

It is assumed that the industry is subject to constant returns to scale. There are no economies or diseconomies associated with the scale of production.

There are no supply constraints. The impact of an industry or an activity will not affect the resource prices. Even if prices are affected, the industry resource buying decisions are unaffected.

The product-mix in an industry remains constant.

The regional purchase coefficient (the amounts of inputs purchased from local vendors) does not change.

These assumptions may seem inordinately restrictive, but they are common to all input-output models. Most researchers (Perryman(2004) and Grimes, Fulton and Bernardelli 2004) conclude that the IMPLAN impact estimates are reasonably accurate so long (1) the scale of activity is not too large to significantly change the total demand for and supply of resources; (2) there is no radical change in technology; (3) regional purchase coefficient remains the same. The most serious error may occur if the regional purchase coefficient has changed and a researcher fails to make an adjustment for it in the model.

There is no evidence that the nature and scale of BRAC related activities are large enough to seriously violate the assumptions mentioned above. We did adjust for the regional purchase coefficient wherever appropriate.

An analysis of the BRAC impact requires the construction of a Fort Bragg Region model which consists of 11 counties (see Figure 1). The construction expenditures with appropriate local purchase content and employment data were entered into the IMPLAN regional input-output model to obtain the direct, indirect and induced effects of jobs and construction expenditures. The results of the IMPLAN impact model are shown in Table 2.

Table 2
Economic Impact of BRAC on the Fort Bragg Region

Impact	Direct	Indirect	Induced	Total
Output	$1,936,761,124	$73,657,288	$370,958,433	$2,381,376,848
Employment	8,158	682	3,822	12,664
Value Added	$ 940,884,822	$ 36,192,822	$205,489,682	$1,182,566,989
Indirect Business Taxes	$1,686,376	$3,817,405	$23,211,405	$28,715,282
Source: IMPLAN Report				

The impact of the BRAC in the Fort Bragg region is expected to be significant in that it will create 12, 662 new jobs and add $1.18 billion in personal income, $2.4 billion in output, and $29 million in indirect business taxes. The indirect and induced effects of initial job creation and construction expenditures are shown separately in Table 3.

Table 3
Indirect and Induced Impact of BRAC on the Fort Bragg Region 2009-2011

Impact	Direct	Indirect + Induced
Output	$1,936,761,124	$444,615,721
Employment	8,158	4,504
Value Added	$ 940,884,822	$444,620,225
Indirect Business Taxes	$1,686,376	$27,028.810
Source: Derived from Table 2		

The counties in close proximity to Fort Bragg (Cumberland, Harnett, Hoke, Moore and Robeson) are considered Tier 1 counties and are likely to receive the maximum impact of BRAC. The irony is that many of the outlying counties have a higher unemployment rate than the Tier 1 counties, but are likely to garner a limited number of the 12,664 jobs which BRAC is expected to bring to this region. Further, the types of jobs created by BRAC will require educational and skills levels which may not be available in Tier 2 counties. How much employment impact each county will receive will depend on the nature of jobs, required skills

and education, distance from the location of jobs, and the existing pattern of employment in each county.

An analysis of employment effects in Table 4 reveals that high levels of job creation will occur in the government sector (50 percent) followed by professional and technical services (17.5 percent), construction (15.7 percent), retail trade (8.4 percent), and food and accommodation sectors (5 percent). The remaining sectors will create less than 10 percent of BRAC jobs.

Table 4
Projected Number of Military–Related Jobs Added in Leading Growth Sectors

Sector	2009-2011
Government	6,382
Construction	1,781
Professional and Technical Services including health care	2,169
Retail Trade	1,064
Accommodation & Food Services	607
Source: Calculated from IMPLAN report	

JOB IMPACT OF BRAC IN THE FORT BRAGG REGION

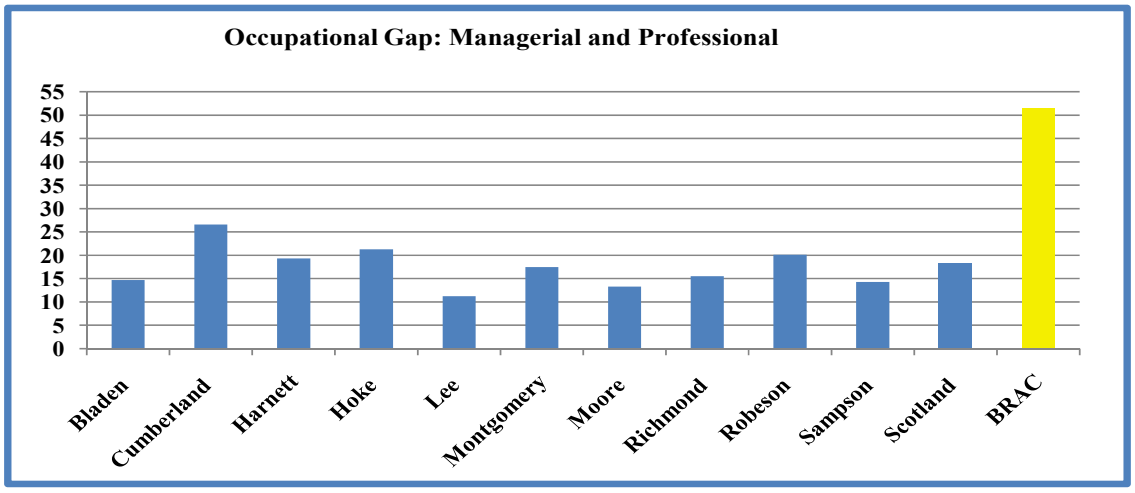
While over 12,000 jobs will be available in the Fort Bragg region, how many of these jobs will be filled by the unemployed workers? It is estimated that 60 percent of the BRAC jobs will require a college degree, 29 percent require a two-year degree with some experience, and the remaining require high school diploma with some relevant experience. To determine which of the counties will be best suited to fill these jobs, we developed an occupational gap model. The essentials of the model are as follows:

For each county, the existing occupational distribution of the region is compared with the upcoming distribution. The comparison shows how the existing distribution will fit the upcoming distribution of jobs. This comparison is indexed by the difference between each category of job for each group (see the following formula).

$$Y = De - Df$$

'Y' is the expected contribution to a category of employment, 'De' is the percentage of the employed labor force in the specific category, and 'Df' is the percentage of the labor force expected for future jobs. If 'Y' is positive, the group is able to contribute. If 'Y' is negative or zero, the group does not have the capacity to contribute at this time. Figure 5 shows that roughly 50 percent of BRAC jobs are expected to require managerial and professional skills. Cumberland, Hoke, and Robeson Counties have the greatest percentage of workers currently capable of performing managerial and professional work.

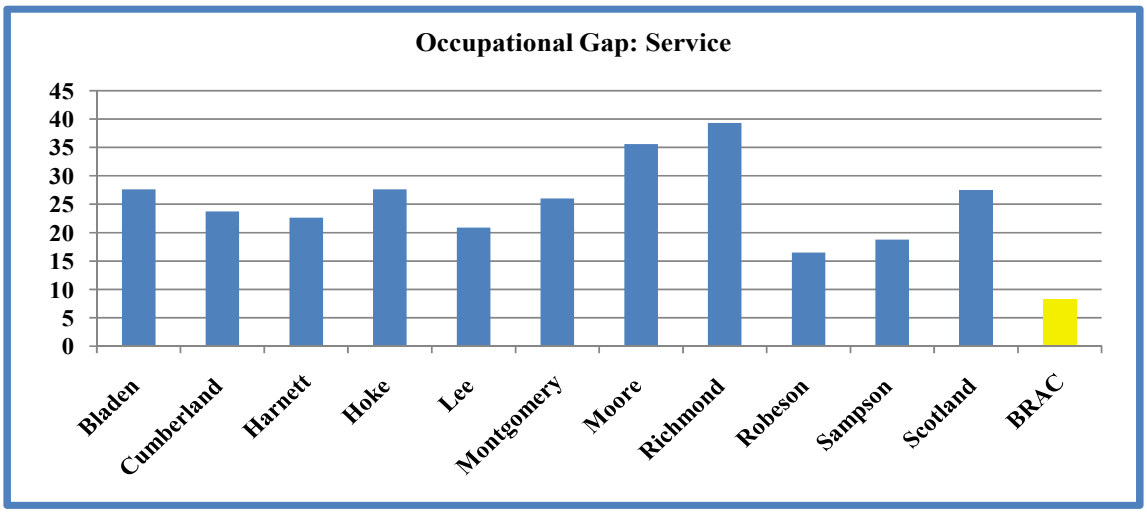
Figure 5: Occupational Gap - Managerial and Professional Service



Source: American Community Survey 2007

Figure 6 shows that across counties, the availability of workers currently capable of performing service related jobs exceeds the projected percentage of service positions that BRAC is expected to generate. Despite the fact that all counties have a labor force able to contribute to service related jobs, it is unlikely that large numbers of workers from surrounding counties will travel significant distances to obtain these jobs because of the depressed wage in most service sectors.

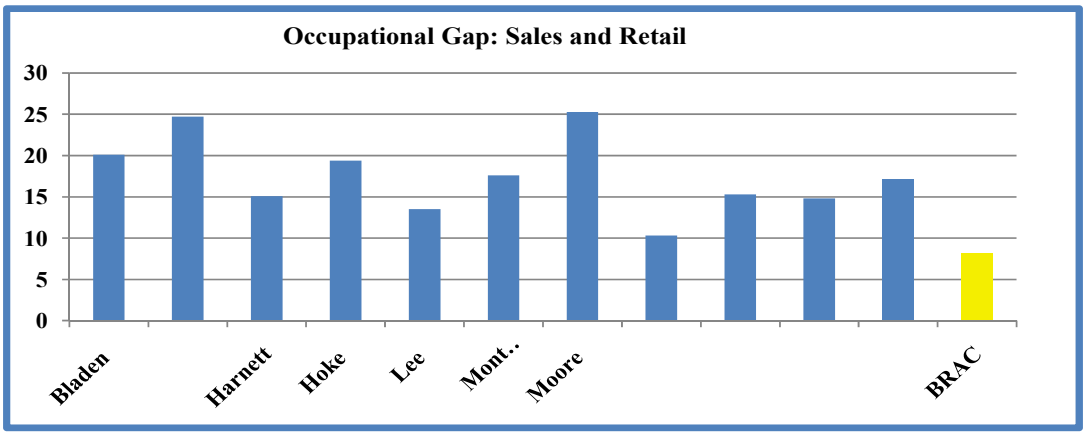
Figure 6: Occupational Gap - Service



Source: American Community Survey, 2007

Figure 7 shows that across counties, workers can easily qualify for the sales and retail jobs generated by BRAC. Again, it is unlikely that large numbers residing in outlying counties will travel to take advantage of the available positions because of the low wages in this industry.

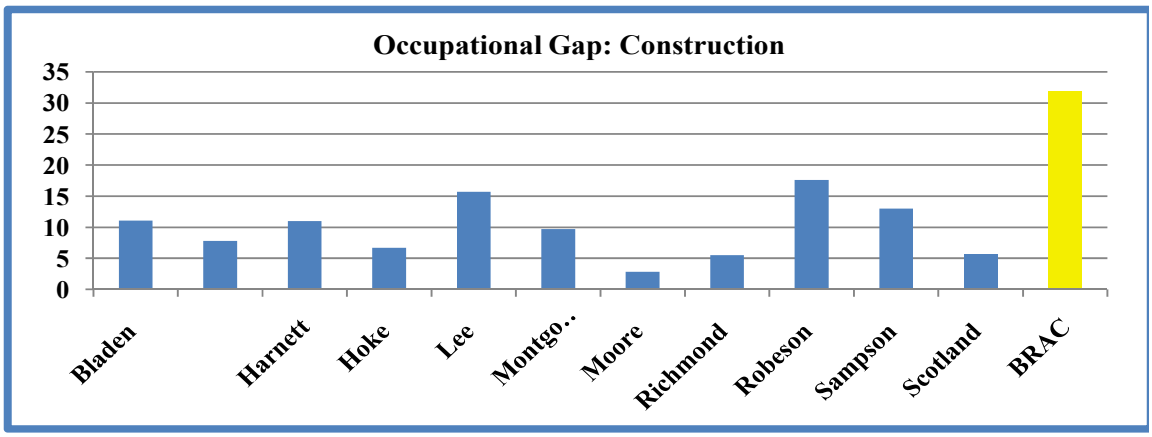
Figure 7: Occupational Gap – Sales and Retail



Source: American Community Survey 2007

More than 16 percent of the jobs generated by BRAC are expected to be in the construction industry (see Figure 8). It is worth noting that the supply of available construction jobs is expected to peak in 2011 and begin to fall. The percentage of the population currently capable of performing construction work is very limited. One strategy would be to retrain workers with production/manufacturing experience to enable them to pursue the available construction positions.

Figure 8: Occupational Gap - Construction



Source: American Community Survey, 2007

OTHER EFFECTS OF BRAC

When 40,000 people move into a region and billions of new investment is added to the economy of the region, its effects go far beyond the economic impact discussed in this paper. One can easily surmise that such a massive movement of people and money will impact demand for housing, social services, education, infrastructure, child care, health care, public safely and emergency services, water, sewer and waste, telecommunications and information technology, and transportation. While we acknowledge these consequences, its discussion is relegated to a sequel of this paper.

SUMMARY AND CONCLUSIONS

The impact of the BRAC in the Fort Bragg region is expected to be significant in that it will create 12,662 new jobs and add $1.18 billion in personal income, $2.4 billion in output, and $29 million in indirect business taxes.

Approximately 50 percent of BRAC related jobs are expected to require professional and technical skills. The findings in this paper demonstrate that the availability of workers in the Fort Bragg region currently capable of performing professional and technical services is, however, limited. There is no dearth of other service personnel. BRAC activities will, however, generate insufficient demand for these services. More than 16 percent of the jobs generated by BRAC are projected to be in the construction industry, which is expected to peak in 2011. However, the percentage of workers trained in construction work is far less than the BRAC projected needs. Since Fort Bragg region has had massive retrenchment in the textile industry, some of these workers could be easily trained for construction work.

END NOTE

The study in part was funded by the U.S Department of Labor's Employment and Training Administration. We gratefully acknowledge the contributions of all who were directly or indirectly involved in the study. Errors which remain are ours.

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AN APPRAISAL OF FISCAL DECENTRALIZATION IN PAKISTAN

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ABSTRACT

Fiscal federalism is a controversial issue in Pakistan. Because the major heads of the revenue collection are in the federal government control, from divisible pool, these resources are then distributed between federal government and provinces. Over time, federal government has taken most of the functions that were earlier assigned to provincial governments. This hunger of power has created the controversy between federal government and provincial governments and also among the provinces over distribution of resources. Present study analyzes this issue by using the provincial data of the revenue and expenditure. Study finds that Punjab the most populous province enjoys fiscal decentralization, followed by Sindh. However, the other two smaller provinces Khyber Pakhtoonkhwa and Balochistan are dependent on the central government because of their relatively small population and hence they get low revenue share from the divisible pool. It is suggested that smaller provinces should enhance their efforts to further stimulate the provincial revenue collection; moreover, the federal government should give more control over the natural resources to the provinces.

Key Words: Fiscal Decentralization, Revenue, Expenditure, Co-integration, Granger causality
JEL: H11; H71; H72; C22

Acknowledgement: The authors are highly indebted to Dr Syed Nawab Haider Naqvi for his encouragement and providing research oriented environment at the FSES, FUUAST Islamabad.

INTRODUCTION

Over the years in Pakistan, distribution of powers between the federation and provinces is the most controversial issue. Although the 1940 Lahore Resolution and 1973 Constitution give autonomy to the provinces, but due to political confusion created by military dictatorships and authoritarian democratic regimes it has not been implemented in its true spirit. Lack of provincial autonomy had caused dismemberment of the country in 1971 and latter on eroded the people's trust on the Federation. The distribution of the powers has many dimensions and the distribution of the federal resources is one of them. The eighteenth amendment, in the constitution of

Pakistan, approved by the parliament on April 19, 2010 is also another attempt to enhance the provincial autonomy. Eighteenth amendment enhances provincial autonomy by increasing provinces' fiscal authority, for example, collection of one of the most revenue generating tax i.e. sales tax is transferred from federal to provincial governments.

In any federation; fiscal federalism is a critical issue. Fiscal federalism is defined as "the understanding, which functions and instruments are best centralized and which are best placed in the sphere of decentralized levels of government" (Oates, 1999: 1120). The sub-central governments know better about the demands of voters, therefore, mostly the central government provides share of its revenue to provinces/states to meet their spending requirements. If the provincial authorities are able to arrange its spending requirements through their own resources and the share provided by the central government, it depicts the situation of fiscal decentralization. On the other hand, if they are unable to meet their revenue requirements and seek towards central government for funding of their spending requirements, such a situation would be referred as a situation of fiscal centralization.

Historically, in Pakistan, the only criterion for distribution of resources was population of the provinces. But in the seventh National Finance Commission (NFC) award (current), for the first time, other factors like revenue generation, poverty and inverse population density, are also accounted for, in the distribution of resources among the provincial governments. In Pakistan most of the revenue generating taxes are collected by federal government, while provincial governments besides collecting less revenue generating taxes, mostly rely on the federal government transfers through NFC award. As Ahmed et al (2007) noted that although in principle the federal government is responsible for some major subjects, like defense, communication, debt servicing and foreign policy, but overtime the federal government has also acquired many responsibilities that were falling in the provincial government's domain. These include among others, taking care of industrial development, irrigation, law and order and public welfare programs like health and education and so forth. This practice has resulted in an increase in the federal government size, forcing it to take major chunk of the resources, while provincial governments are left with meager resources. Given these difficulties, provincial governments usually remain under stress from their voters for their inefficiency in the services delivery.

The present study analyzes the centrality of provincial finance system in Pakistan. In this context the study also discusses the scenario of fiscal distribution among the provinces. It is hypothesized that provincial governments are facing demands from its voters to deliver best services. In order to cope with voters demands the provincial governments spend their resources accordingly. In simple words provincial expenditure requirements determines their revenue collection. But given provincial government's limitations in revenue collection, opposite may hold true as its revenue collection may cause its level of expenditure.

After this introductory section, the rest of the paper conducts a brief review of theoretical and empirical literature with a view to identify the research gaps. Next it gives an overview of

fiscal federalism in Pakistan. Then it presents estimation methodology and empirical findings. The last section gives a few plausible policy prescriptions that emerge from the present study.

LITERATURE REVIEW

Fiscal decentralization may increase economic efficiency. This view is exerted by Oates (1972), he further argued that fiscal decentralization will make the sub-national governments accountable as well as equip them with necessary resources to cope with ever increasing demands of local populace. One of the objectives of fiscal decentralization is to increase the allocative efficiency in the economy. This is because demand for services in various areas may differ considerably and local decisions regarding delivery of those services will allocate resources efficiently, than if those decisions were made at central level. Stein (1998) studied the decentralization process in the Latin America and concluded that decentralization can improve the resource allocation by bringing fiscal decisions in tune with the local demands. The heavy reliance on central government for resources may hamper the sub-national governments' ability.

Llanto (2009) argued in the context of the Philippines that heavy reliance of intergovernmental fiscal transfers by local governments is jeopardizing the sub-national governments' ability to deliver. It is also argued that the more decentralized, a locality is, the more likely it is to grow. Stansel (2005) observed that fiscal decentralization resulted in higher local economic growth in U.S. municipalities. Fiscal decentralization can improve the chances of increase in foreign direct investment (FDI) in a particular region of a country. It is argued that FDI flows to regions where good governance prevails. Thus sub-national governments within a country would try to compete in attracting FDI by provision of services through good governance (World Bank, 2005).

In the context of Pakistan there is scarcity of literature regarding fiscal federalism, two of those studies are discussed next. Shah (1997) considers Pakistan to be comparable to those of failed states in terms of services delivery at local level. Study criticized Pakistan over its high centralized structure of decision making, resulting in lack of fiscal discipline, overburdened private sector in provision of basic facilities like health and education, and lack of public sector accountability due to separation of tax collection and spending duty. However Mushtaq (2009) compared Pakistan with eighteen other countries in terms of degree of fiscal federalism and noted that Pakistan could be bracketed with states having minimum degree of decentralization.

FISCAL FEDERALISM IN PAKISTAN: AN OVERVIEW

Pakistan's Fiscal Structure

Pakistan is a federation, governed by 1973 constitution. Most of the revenue in Pakistan is collected by central (federal) government; latter on it is distributed between federal

government and sub-central (provincial) governments. Distribution of resources between the federal and provincial governments is defined in the Part VI of the constitution. According to the constitution, President of Pakistan constitutes National Finance Commission (NFC), which is responsible for making recommendations regarding distribution of resources between federal and provincial governments. National Finance Commission is responsible to make these recommendations after every five years. Besides, Schedule IV (Article 70(4)) of 1973 constitution defines functions of federal and provincial governments, which are stated in the federal and concurrent legislative lists. Federal legislative list provides details about the functions to be exclusively performed by Federal government while concurrent legislative list gives a list of functions which both federal and provincial governments can perform.

Federal legislative list defines federal government's functions, which include defense, external affairs, currency issue, public debt, shipping, banking and stock exchanges etc. Besides, this list empowers the federal government to collect the custom duties, income tax, corporation tax and sales tax. While, the concurrent list, include the population planning, electricity, social welfare, zakat, tourism, vocational and technical training, etc. Other functions that are not included both in federal and concurrent legislative list, are to be performed by provincial governments (Zaidi, 2005). These functions include highways and urban transport, agricultural extension and secondary and higher education etc. This list also empowers the provincial governments to collect land revenue, urban immovable property tax, stamp duty, excise and electricity duty etc.

Intergovernmental Fiscal Relations

Prior to the promulgation of 1973 constitution, revenue sharing arrangements were made in accordance with Niemeyer award, Raisman award, 1961 & 1964 NFC awards. While in 1970 NFC award was not passed unanimously therefore the NFC committee was constituted, and its recommendations regarding revenue sharing arrangements were followed. After promulgation of constitution in 1973, seven NFC awards were announced. Out of those, three NFC awards were adopted in 1974, 1991 and 1997. But other three NFC awards constituted in 1979, 1984 and 2000 failed to reach consensus and ended in a deadlock. While the seventh NFC award has been recently announced in 2010.

During 1979-1996 the share of the central government remained fixed at twenty percent while the provincial governments' share was eighty percent. It is because during that period, many revenue taxes and other non tax options were in the hands of the provinces. But over the time the central government took many additional assignments which resulted in hidden reduction in the provincial shares. For example, in the NFC award of 1997 the inclusion of custom duties in the divisible pool, previously that had been totally in the hands of federal government required an increase in the federal share. Consequently, the share of the federal government in divisible pool was enhanced from 20 percent to 62.5 per cent while the provincial

governments' share was reduced to 37.5 percent from 80 percent. After its expiry in 2002, it remained formally operative until 2009. The federal and inter-provincial revenue sharing arrangements, after promulgation of 1973 constitution are summarized in the table 1.

Table 1.
Inter-Provincial Revenue Distribution under various NFC Awards (Percentage)

Years	*Fed : Prov.*	*Punjab*	*Sindh*	*Khyber Pakhtoonkhwa*	*Balochistan*	*Total*
1974	20 : 80	60.25	22.50	13.39	3.86	100
1979	20 : 80	57.97	23.34	13.39	5.30	100
1984	Interim award					
1991	20:80	57.87	23.29	13.54	5.30	100
1997	62.5:37.5	57.88	23.28	13.54	5.30	100
2000	Interim award					
2010	56:44	51.74	24.55	14.62	9.09	100

Source: Ministry of Finance, Pakistan

Zaidi (2005) criticizes the provincial governments on their inability to finance themselves from their own tax sources. Pasha (1998) has also described that tax collection of the provinces are below their potential and if extended efforts are made then provinces can increase the revenues from their own resources. However, Bahl et al (2008) indicate the difficulties faced by provincial governments in increasing their tax efforts.

Table 2:
Provincial Tax Revenue and Federal Tax Assignments (Million Rs)

Years	*Provincial Tax Revenue*	*Federal Tax Assignments*
1995	9035	97721
1996	11255	120446
1997	14726	131556
1998	16712	114419
1999	19025	118659
2000	19460	143157
2001	20686	167838
2002	21607	174113
2003	23329	194039
2004	30365	212148
2005	32828	251218
2006	40600	298900
2007	49000	333100
2008	50900	392200
2009	63100	501900

Source: Annual Reports of State Bank of Pakistan (various issues)

The study depicts that provincial governments' tax base consists of hard to collect taxes and besides their tax collection machinery is inefficient. This can be easily seen from the table 2, which compares provincial tax receipts with federal tax assignments to the provinces. The heavy reliance on the federal tax transfers constrains provinces ability to provide much needed services according to their people wishes as they cannot raise needed resources on their own. Political tension arises, as each province tries to get those necessary funds to finance their expenditure requirements according to their voters' demands. Resultantly provincial governments demand those funds from federal government according to the criteria which best suit them. For example, out of all the four provinces of Pakistan; Punjab requires distribution on the basis of population, Sindh considers that base to be revenue collection capacity, Khyber Pakhtoonkhwa demands that poverty and backwardness should also be taken into account and Balochistan considers area or inverse population density to be the base of revenue distribution in NFC award.

These factors led provincial governments to rely more on their shares in federal tax revenue as provided in the NFC award. However political pressure from each of the province along with increased size of federal government level spoils the achievement of consensus on the NFC award. In the current NFC award (2010), besides making population as one of the basis for revenue distribution among provinces, other factors were also taken into consideration to pacify the concerns of provincial governments. According to the seventh NFC award the criteria of population gets eighty two percent weightage, while other basis for revenue distribution i.e. poverty, revenue generation, revenue collection and inverse population density get 10.3, 2.5, 2.5, and 2.7 percent share respectively.

DATA AND METHODOLOGY

This study analyzes fiscal situation of each province of Pakistan (i.e. Punjab, Sindh, Balochistan and Khyber Pakhtoonkhwa) to seek the situation of each province, separately. Time series analysis is conducted because of the fiscal dissimilarities of the provinces. Data for period 1982-2009 of total spending and total revenue of the provinces of Pakistan have been taken from the annual reports of State Bank of Pakistan and Handbook of Statistics on Pakistan Economy 2005.

For fiscal decentralization there should be a long run relationship between the revenue and spending of the provinces. Presence of such relationship would indicate the presence of fiscal decentralization or otherwise. But the existence of such relationship does not show which variable is causing the other. For this purpose causality analysis is performed. There are four competing hypotheses regarding the relationship between tax and spending, i.e. the tax-and-spend hypothesis (Friedman (1978)), the spend-and-tax hypothesis (Roberts (1978) and Peacock and Wiseman (1979)), the fiscal synchronization hypothesis or bidirectional causality (Musgrave (1966) and Meltzer and Richard (1981)) and the institutional separation hypothesis or no causality (Wildavsky (1988)). The case of causality from revenue to spending implies that the

financing system is mostly under the control of the central government. However, in the situation of causality from spending to revenue means that the provinces have more fiscal autonomy. The bidirectional causality between the two means that there is fiscal synchronization between the central and provincial governments and the decisions are made jointly. While if there is no causality between spending and revenue it suggests that the decisions are made independently by the two.

To check the situation of fiscal decentralization in Pakistan, this study seeks the long run relationship between the revenue and expenditure of the provinces. For this purpose co-integration analysis is most commonly used in the literature and present study will also apply the Johansen Co-integration test. However, for the co-integration, the variables should be integrated and be of the same order. To check the order of integration present study conducts Augmented Dicky Fuller (ADF) unit root tests. The variables used in the present analysis are total revenue and total spending of the four provinces of Pakistan.

ESTIMATION RESULTS:

The ADF unit root test results indicate that both revenue and expenditure series are non-stationary at level and first difference. The study finds stationarity in revenue and spending at second difference. Since both types of variables are integrated of order two therefore the co-integration analysis can be conducted for analysis. (Detailed results are presented in Appendix – II)

The Johansen co-integration test results indicate that there is long run relationship between revenue and expenditure for Punjab, Sindh, and Khyber Pakhtoonkhwa. However, no long run relationship is found for the revenue and expenditure of Balochistan. After the co-integration analysis, Granger causality test is performed to check the direction of causality.

Table 1: Johansen Co-Integration Test Results

Province	*Punjab*	*Sindh*	*Balochistan*	*Khyber Pakhtoonkhwa*
Rank Test	cointegrating eqn(s)	cointegrating eqn(s)	cointegrating eqn(s)	cointegrating eqn(s)
Trace	2	2	No	2
Max. Eigen value	2	2	No	2

Table 2: Normalized Co-Integrating Coefficients *(Standard error in parentheses)*

Punjab	Sindh	Balochistan	Khyber Pakhtoonkhwa
$TE = 0.73TR + e_t$ (0.065)	$TE = 0.92TR + e_t$ (0.066)	$TE = 1.16TR + e_t$ (0.185)	$TE = 0.97TR + e_t$ (0.051)

The study conducts the Granger causality test individually for data on each of the provinces. The causality analysis for the Punjab shows that only spending causes the revenue.

This designates that the spending requirements of the Punjab are being fulfilled through its own resources and funding from the central government. Such a situation favors the strong fiscal decentralization. The situation of the Sindh is different from Punjab. The analysis shows that both revenue and spending cause each other. Such results indicate the fiscal synchronization behavior. This illustrates that the spending and revenue decisions are made jointly by Sindh and the central government and both regard the limitations of each other. Such a situation connotes the weak fiscal decentralization.

The cases of Balochistan and Khyber Pakhtoonkhwa are different from the other two provinces. The causality analyses for these two provinces show that both spending and revenue do not cause each other. The situation indicates the independence of fiscal decisions between the provincial requirements and the provision of funds by the central government… revealing the non existence of fiscal decentralization. These two provinces have very limited own revenue collection; therefore, they have to rely on the federal government for financing of their expenditures. However, the central government is not providing the resources to these governments according to their requirements. It is worthwhile to mention here that Punjab and Sindh enjoys their greater revenue generation capacities as compared to the rest of two provinces that is why fiscal decentralization is happening in the Punjab and Sindh. But due to lack of revenue generation capacities fiscal decentralization is not taking place in Khyber Pakhtoonkhwa and Balochistan.

CONCLUSION AND POLICY IMPLICATIONS

The main objective of the study was to analyze the existence of the fiscal decentralization in Pakistan. It briefly described the resource distribution between federal and provincial governments in Pakistan through NFC award mechanism, indicating the heavy reliance of provincial governments on federal government. In the analysis the co-integration and causality tests were applied by using the Pakistan's provincial data for the period 1982-2009.

The time series analysis shows the existence of fiscal decentralization in Punjab and Sindh. However, Balochistan and Khyber Pakhtoonkhwa are facing more central control over finances. The plausible explanation may lie in the higher provincial revenue collection by Punjab and Sindh as compared to Balochistan and Khyber Pakhtoonkhwa. Moreover, Punjab and Sindh also get greater shares from the central government due the formula laid down in NFC awards, because, till the seventh NFC award, distribution of funds was solely based on their population. Punjab is the most populous province, followed by Sindh, Khyber Pukhtoonkhwa and Balochistan, respectively.

The two most backward provinces i.e. Khyber Pakhtoonkhwa and Balochistan although have hard working labor force. But most of the labor force is illiterate. Due to unavailability of trained labor force, investors hesitate to invest in these provinces. The low investment, results in lower tax collection in both the provinces. Similarly the services sector----the major source of the

provincial revenue, is also comparatively underdeveloped in these provinces. Both these provinces are rich in physical resources, for example Balochistan and Khyber Pakhtoonkhwa have most of oil and gas reservoirs along with other mineral resources in the country, but since most of the revenue of these resources is collected by central government, therefore provincial governments are left with little incentive to enhance their interest and investment in development of oil and gas resources, thus little tax revenue is collected. It is also worthwhile to point out that insurgency in both of these provinces has halted the developmental activities that has also reduced the revenue collection in the provinces.

It is suggested that Balochistan and Khyber Pakhtoonkhwa should enhance their fiscal effort. In this regard a key role would be of federal government which may give more control to the provinces over their natural resources. Greater fiscal responsibility would give more incentive to extend their efforts in extraction of the mineral resources. Besides decentralized decision making over resource exploration may result in greater efficiency. Major share of the tax revenue is collected at federal level. It is because federal government has control over major tax bases. It is therefore suggested that distribution of tax bases between federal and provincial governments should be rationalized.

The study has found fiscal decentralization in Punjab and Sindh over time but its level is not clear; whether it is optimal or not. However this analysis is beyond the scope of present paper and needs further investigation. It is worth mentioning here that in all of the provinces few districts are relatively more developed and they also reap the major shares in the revenues so it is also suggested that fiscal decentralization in the context of the districts may also be analyzed. The focus of the present was just to analyze whether the fiscal decentralization is taking place in the provinces of Pakistan or not. However, the consequences of the fiscal decentralization for the poverty reduction, inclusive economic growth and social development in Pakistan remain unexplored. Therefore, it is suggested that a comprehensive study may also be conducted that may analyze the role of fiscal decentralization in the economic development of the country.

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Appendix -I
Empirical Time Series Methodology
Co-integration:

In order to test co-integration among variables, the procedure developed by Johansen (1988) is used. This technique depends on direct investigation of co-integration in the vector autoregressive (VAR) representation. It yields maximum likelihood estimators of the unconstrained co-integration vectors and it allows one to explicitly test for number of co-integration vectors.

If there is a VAR of order p

$$y_t = \alpha_1 y_{t-1} + \alpha_2 y_{t-2} \ldots\ldots\ldots\ldots \alpha_p y_{t-p} + \beta x_t + \epsilon_t$$

Where y_t is a k-vector of non-stationary I(1) variables, is a x_t is a d-vector of deterministic variables, and ϵ_t is a vector of innovations. We may rewrite this VAR as,

$$\Delta y_t = \prod y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i[]} + \beta x_t + \epsilon_t$$

Where

$$U = \sum_{i=1}^{p} A_i - I$$

$$V_i = -\sum_{j=i+1}^{p} A_j$$

Granger's representation theorem asserts that if the coefficient matrix U has reduced rank r,k then there exists k×r matrices α and β each with rank r such that $U= \alpha\beta'$ and $\beta' y_t$ is I(0). r is the number of cointegrating relations (the cointegrating rank) and each column of β is the cointegrating vector. The elements of are α known as the adjustment parameters. Johansen's method is to estimate the matrix from an unrestricted VAR and to test whether we can reject the restrictions implied by the reduced rank of U.

There are four different steps involved while testing cointegration, in the first step order of stationarity is determined and variable must be stationary at same level. We have already found that variables are stationary at first difference i.e. series of the model are I (1). Therefore, the cointegration can be determined between the variables. Second step involves choosing the optimal lag length. To determine the lag length VAR model is used. According to AIC criteria, we determine the lag length of one for the model. Next step deals with determining the number of cointegrating vectors. In the study, both trace statistic and eigenvalue statistic are used.

Granger Causality:

Bivariate regression regarding the granger causality test will get the following form:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \alpha_2 y_{t-2} \ldots\ldots\ldots\ldots \alpha_p y_{t-p} + \beta_1 x_{t-1} + \beta_2 x_{t-2} \ldots\ldots + \beta_p x_{t-p} + \epsilon_t$$

$$x_t = \alpha_0 + \alpha_1 x_{t-1} + \alpha_2 x_{t-2} \ldots\ldots\ldots\ldots \alpha_p x_{t-p} + \beta_1 x_{t-1} + \beta_2 x_{t-2} \ldots\ldots + \beta_p x_{t-p} + \mu_t$$

This equation is for all possible pairs of series in the group. The reported *F*-statistics are the Wald statistics for the joint hypothesis:

$$\beta_1 = \beta_2 = \beta_3 \ldots\ldots\ldots \beta_p = 0$$

for each equation. The null hypothesis is that x does not Granger-cause y in the first regression and that y does not Granger-cause x in the second regression.

Appendix-II

Table A-1: ADF Test Results

	Test at	*Exogenous*	*Punjab*	*Sindh*	*Balochistan*	*Khyber Pakhtoonkhwa*
Revenue	*Level*	Constant	9.27407	6.3623	3.6282	2.8454
		Constant & Trend	5.53473	2.5980	0.9806	0.4576
		None	11.8931	9.0275	6.1318	3.5995
	First Difference	Constant	3.20318	0.5050	-2.4851	0.6962
		Constant & Trend	1.71812	-4.2099	-4.0465	-3.2756
		None	3.71215	1.3986	-0.7418	1.5834
	Second Difference	Constant	-8.4782*	-7.0106*	-10.205*	-7.3372*
		Constant & Trend	-9.1083*	-7.3611*	-10.001*	-7.7275*
		None	-8.0237*	-6.6377*	-10.331*	-2.2982
Spending	*Level*	Constant	6.3328	4.5874	2.0117	2.9400
		Constant & Trend	2.5794	0.9371	-0.6851	0.9533
		None	9.1144	2.1035	4.1419	4.4371
	First Difference	Constant	-1.4470	0.9113	-2.7087	-3.5682
		Constant & Trend	-2.6528	-0.6962	-3.7549	-2.8355
		None	-0.7433	1.8606	-2.2199	0.6735
	Second Difference	Constant	-5.6544*	-9.1059*	-3.8646*	-4.8751*
		Constant & Trend	-5.8400*	-9.6876*	-3.4702*	-4.8987*
		None	-5.4015*	-8.5229*	-3.8856*	-4.7916*

Critical values for constant, constant and trend and none are -3.769597, -4.440739 and -2.674290 respectively. * indicates the stationarity of the series.

Table A-2: Granger Causality Test Results

	Null Hypothesis:	F-test
Punjab	Revenue does not Granger Cause Spending	4.478
	Spending does not Granger Cause Revenue	10.105*
Sindh	Revenue does not Granger Cause Spending	6.977*
	Spending does not Granger Cause Revenue	4.895*
Balochistan	Revenue does not Granger Cause Spending	0.845
	Spending does not Granger Cause Revenue	4.027
Khyber Pakhtoonkhwa	Revenue does not Granger Cause Spending	2.808
	Spending does not Granger Cause Revenue	1.111
* Indicates the significance at 1% level.		

EVALUATION OF FINANCIAL FITNESS FOR LIFE PROGRAM AND FUTURE OUTLOOK IN THE MISSISSIPPI DELTA

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ABSTRACT

In Fall 2008 the College Access Challenge Grant, sponsored by the U.S. Department of Education, chose 13 school districts in Mississippi's Delta and Southwest regions to receive the Financial Fitness for Life (FFL) curriculum. The Mississippi Council on Economic Education was asked to implement the training and evaluate the program. Superintendents recruited counselors and teachers to participate in a train-the-trainer program. We used a subset of the FFL theme tests and a survey of questions on student self perception on future perspective, identity development, perception of opportunities, and school performance. We hypothesized that learning the FFL material could positively influence the long term goals of increasing college attendance for disadvantaged youth. We find that the students surveyed did increase their knowledge, especially on Themes 1, 4, and 5. However, their self-perceptions did not improve and we find no correlation between the behavior variables and the improvement in test scores. The experiment was less than ideal in a few areas, so improving the design and carrying out the experiment under more ideal conditions may yield different conclusions.

This project was made possible by the Council on Economic Education.

In 2008-2009, 13 school districts in Mississippi were chosen to participate in a pilot program that is part of the College Access Challenge Grant sponsored by the U.S. Department of Education and administered through the Institutions of Higher Learning in Mississippi. The Mississippi Council on Economic Education was asked to offer financial literacy opportunities for teachers and students as one way of achieving the goal of assisting low-income students and families learn about, prepare for, and finance postsecondary education. Approximately 7,000 middle school students in Mississippi's Delta were chosen to receive the middle school Financial Fitness for Life (FFL) materials as well as teacher training and support. This provided a unique opportunity to assess teacher and student financial literacy, teacher training, and other significant factors that affect the attitudes towards college of disadvantaged youth.

Our original research agenda included studying the change in student behavior as well as the change in knowledge of teachers and students. We are interested in exploring how the FFL

program affects the future perspective, identity development, perception of opportunities, and school performance of youth from low-resource communities. Based on the extant literature on youth development, each of these are plausible mediators that could explain how the FFL program can help achieve the long term goals of increasing college attendance for these youth. However, due to the difficulties of studying students and miscommunication with teachers, this research is unable to study the link between the curriculum and potential behavioral changes. We are able to shed light on students, teachers, and schools in the Mississippi Delta area, the overall effectiveness of FFL curriculum on knowledge for low-resource communities, and the correlation of self-reported attitude measures and performance on FFL theme tests.

REVIEW OF THE LITERATURE

Financial Literacy Education. The effectiveness of the FFL curriculum has been recently studied only by a handful of previous researchers (Lyons et al., 2006; Harter & Harter, 2007; Swinton, et al., 2007). Lyons, Scherpf, and Roberts (2006) find that the FFL parent's curriculum was valued as an effective vehicle to improve communication between parents and children on financial matters.

Swinton, et al (2007) used data collected by the Georgia Department of Education to test whether teacher participation in FFL training workshops by the Georgia Council on Economic Education affected the high-stakes test scores of students in economics classes. They find that having a teacher who participated in a FFL workshop was statistically significant in explaining expected end of course economics test scores. However, the effect was not large, but an increase of 3.4 points or half a percentage point. They point out that even though the measured benefit is low, the relative cost of providing the workshops is likely to be much lower than what the state of Georgia spends on economic education, making the training a viable strategy for increasing economic literacy.

Harter and Harter (2007) study elementary, middle- and high-school students in grades 5, 8, and 11 from an economically disadvantaged area in Kentucky. The students in these grades are tested on the personal finance concepts using standardized tests which provided additional motivation for teachers of these grades to show improvement on test scores. They report that the FFL curriculum does increase student scores. They also report that 93 percent of teachers were satisfied or very satisfied with the curriculum. Additionally, 72 percent of their middle school students liked the curriculum or liked it very much and 69 percent thought the lessons were useful or very useful.

Future Orientation. During adolescence, youth begin to become more oriented to their futures (Erikson, 1968; Nurmi, 1991). Developing a sense of the future involves such tasks as thinking about future possibilities, having positive expectations for the future, developing specific goals and interests for the future, and developing strategies to accomplish those goals (Nurmi). Research has documented significant associations between aspects of adolescents'

future perspective and motivation (Bandura, 1986; Nurmi), reductions in delinquency and substance use (Keough, Zimbardo, & Boyd, 1999; Kogan, Luo, Murry, & Brody, 2005), and positive adaptation in adolescence and early adulthood (Clausen, 1991; Masten et al., 2004; Werner & Smith, 1992; Wyman, Cowen, Work, & Kerley, 1993). Although future oriented thinking plays an important role in preparing youth to transition into adult roles, little is known about what factors influence how adolescents think about, feel about, and prepare for their futures. Although the extant literature suggests that future oriented thinking plays a critical role in adolescent motivation, adaptation, behavior, and preparation for adulthood, we know very little about what individual and contextual factors influence adolescent future perspective. Studies suggest that adolescents will be more likely to exhibit future oriented thinking when they have a developed sense of identity (Dunkel & Anthis, 2001; Kerpelman & Mosher, 2004), a supportive family environment (Pulkkinen, 1984; Trommsdorff, Burger, Fuchsle, & Lamm, 1978), parents who encourage future thinking (McCabe & Barnett, 2000), and access to resources and opportunities (Nurmi et al., 1996; Trommsdorff et al., 1982).

The material in FFL has the potential to give students confidence in their future by providing access to resources and opportunities in the home and community, provides tools to think about future possibilities and form positive expectations for the future, and help develop strategies to accomplish building good habits and practical skills that pay-off in both the short-run and long-run.

METHODOLOGY

Research Design. Trainers were chosen by the superintendents of the chosen schools. Trainers were made up of both counselors who would train classroom teachers and the classroom teachers themselves. The Mississippi Council on Economic Education hired Evelyn Edwards, a Vice President for BancorpSouth to train the trainers. Ms. Edwards specializes in banking for low income clients and has 17 years of experience in financial education and has led thousands of individuals in financial education using the *Financial Fitness for Life* curriculum as well as other curriculum. Ms. Edwards trained 33 trainers in five sessions in seven locations. The trainers were given .5 continuing education units, a nice lunch, and the FFL materials. The 5 hour workshop agenda included the following: Test of Economic Literacy; the middle school Financial Fitness for Life theme tests (used for both pre- and post-tests), and broad introductory lessons to the FFL themes. Each lesson in the theme was briefly explained but none were actually conducted. The Millionaire Game and the other games on the CD were used in the workshop. Teachers were asked to assess the financial literacy of their students using the FFL theme tests for both the pre- and post-test and report their results.

In addition to the workshop, Ms. Edwards followed up with calls and e-mails and she held site visits to classrooms in 21 of the sites. At those visits, which included one class period for a total of 30 hours, she observed the teacher teaching the lessons and the student

involvement. The trainers pre-tested the students then taught lessons from FFL and then post-tested the students. The teachers were under no obligation to teach all the lessons. Ms. Edwards followed up with the teachers through email and phone communication to offer encouragement and answer questions. Teachers were given $100 once they sent the tests to Ms. Edwards who scored the tests. The Mississippi Council on Economic Education provided $50 to the 100 top scoring students on the post tests to students with top scores. Staff of the College Access Challenge Grant visited the schools and presented the checks and certificates of achievement to all students who participated in the program.

Control groups were intended, but we did not understand that all the kids in every chosen school would be receiving the curriculum. Once this became known, we attempted to find control groups, but were unable too. We closely followed Institutional Review Board (IRB) to ensure that all human subject protocols were met.

Data. During Fall 2008 the trainers were pre and post tested using the TEL and the FFL theme tests. The TEL is a standardized test designed specifically for studies involving high school students. Its properties are well known and national norms are available for comparisons with local samples (Walstad & Rebek, 2001). The FFL is the Council on Economic Education's flagship personal finance curriculum for kindergarten through high school students and parents. FFL includes tests for each theme, e.g., income, budgeting, etc. Additionally, trainers completed a survey which included information on courses, training, and demographics.

During Spring 2009 the students were pre- and posttested using the FFL middle school theme tests and an additional assessment which measures future perspectives, attitudes, and motivation. Student attitudes about the future were measured by choosing the most relevant questions from the combination of the following: *Future Perspective Questionnaire* (Sharp and Coatsworth, 2008), the *Personally Expressive Activity Questionanaire* (Waterman, 1993), the *Limited Access to Opportunity Scale* (Wall, Covell, and MacIntyre, 1999), *How do I do in School?* (NICHD Study of Early Child Care and Youth Development, 2002), and *What My School is Like* (NICHD Study of Early Child Care and Youth Development, 2002). The questions can be found in Appendix One.

EVALUATION OF TRAINERS

Education. All trainers had bachelor's degrees from regional institutions: Six from Alcorn State University in Lorman, MS; one from Belhaven College in Jackson, MS; six from Delta State University in Cleveland, MS; two from Jackson State University in Jackson, MS; five from Mississippi Valley State in Itta Bena, MS. Ten from comprehensive institutions: two from the University of Mississippi in Oxford, MS; two from Mississippi State University in Starkville, MS; and six from the University of Southern Mississippi in Hattiesburg, MS. Two trainers had gone to schools outside of Mississippi: Cal State and Xavier in Louisiana. Sixteen had master's degrees, one from a comprehensive institution and the rest from regional institutions.

Major. Trainers listed a variety of majors, including biology (2), business, chemistry, communication, computer science (4), criminal justice (2), elementary education (6), English, guidance (3), health (2), history, math, physiology, political science (5), psychology, social science (3), sociology, Spanish, and special education.

Economics Course Background. 20 trainers had taken at least one economics class in college. Seven had taken two classes, four had taken three classes, and one had taken four classes. Four trainers had taken one or two graduate courses in economics.

Experience. On average, the trainers had taught for 10 ½ years, ranging from a minimum of 1 year to a maximum of 32 years. Of the 33 trainers, only four reported that they had taught any economics for more than one year. One trainer had 20 years of teaching economics, one with eight, one with two, and one with one year. None taught economics as a subject. Six of the 33 trainers were teaching economics as part of another course, including U.S. history, world history, geography, and math. Of the six teachers that teach economics as a strand, three evaluated their skill level in teaching economics as "good" and the other three evaluated themselves as "fair."

Workshop Attendance. Nine trainers reported attending one economics education professional development program. One had attended a JumpStart workshop, one reported a workshop at a teacher conference, and seven had been to a workshop sponsored by the Mississippi Council on Economic Education.

Employment. On average, trainers had been employed for 8.7 years in their current school system, with a minimum of 1 year, a maximum of 32 years, and a standard deviation of 8.8. 13 trainers reported teaching as their second career. The variety of first careers included work in retail, post office, paper mill, public library, correction officer, social worker, phone operator, software engineer, and system analyst.

Parents' Educational Attainment. Nine trainers had fathers who did not complete high school, 17 who had completed high school, four had some college, one had an associate's degree, one had a bachelor's degree, and one had a master's degree. Six trainers had mothers who did not complete high school, 14 had mothers who completed high school, 10 had some college, two had associate's degrees, and one had a master's degree.

Income. 15 were single –income households and 18 were dual-income. Three trainers reported household income lower than $30,000; 21 reported household income between $30,000 and $60,000; 7 reported household income between $60,000 and $90,000; and two reported household income over $90,000.

Age and Gender. The average age of the trainers was 41 with a maximum age of 58, a minimum age of 22, and a standard deviation of 11 years. There were 31 African American trainers and two white trainers. 29 of the trainers were female.

TEL. The Test of Economic Literacy 3rd Edition assesses the understanding of basic economic concepts by high school students. The average score of the 33 trainers on the TEL3 Form A was 20.76 with a maximum of 37, a minimum of 3, and a standard deviation of 9.16. The mean score for the nationally normed sample of high school students is 23.85 (Walstad and

Rebek, 2001). If we drop the four trainers who scored below the 25% pure chance score due to possible systematic errors in test marking, scoring, or administration, the mean increases to 22.79, which brings our trainers closer to the national student mean. The nationally normed sample average for low income students with an economics course is 22.75 and 15.58 for students without an economics course.

Whether a teacher reported having taken an economics course did not significantly improve the average. This supports the finding that it may take several courses in economics to see an improvement on the TEL (Lynch, 1990).

The Financial Fitness for Life Theme Tests Middle School was used for the pretest and posttest. The average score on the pretest was 30.39 (60.8%) with a maximum of 45, a minimum of 7, and a standard deviation of 9.42. The average posttest score was 40.39 (80.8%) with a maximum of 46, a minimum of 31, and a standard deviation of 4.08. This is a statistically significant improvement using a pair-wise t-test. As expected, most of the gains came from trainers who scored relatively low on the pretest. Comparisons of teacher scores to national averages for the FFL Middle School tests could not be made because of a lack of data.

EVALUATION OF THE STUDENTS

Model and Results. 1,200 pre-tests were given to the trainers. The final sample includes 342 middle-school students from the Mississippi Delta and Mississippi Southwest regions. This sample is 52% female, 82% African American (10% Caucasian, 4% Hispanic, 3% Asian American, and 2% other race/ethnicity). Only 168 students completed the post-test assessment. We did not have complete data on all variables for 8 of these students, so our final sample consists of 160 students.

The variables of interest and their definitions are given in Table 1. Table 2 gives summary statistics.

Participant reported school performance, "Grades," was obtained at pre-test and the results for the 160 students in the final sample were as follows: 21% reported being "very good" students, 55% reported being "good" students, 21% reported being "not too good" and 4% reported being "poor" students.

Student Performance on the Financial Fitness for Life pretest and posttest. In order to allow students enough time to take the financial component and the future orientation component of the survey in one class period, we were only able to use 25 of the questions from the FFL theme tests. The percentage of content coverage over each theme was preserved. However, that is not the case with cognitive level coverage. The instrument we used had 2% fewer knowledge questions, 6% fewer comprehension questions, and 8% more application questions. Our instrument is obviously skewed in the higher order cognitive level, making for a more difficult test.

Table 1. Variable Definitions	
Variable	Definition
Prescore	Score on FFL pretest
Postscore	Score on FFL posttest
Change	Postscore – Prescore
Female	Dummy equal to 1 for female student; 0 otherwise
African-American	Dummy equal to 1 for African-American student; 0 otherwise
Other race	Dummy equal to 1 for race other than African-American or Caucasian
Grades	Self reported; 4 = very good student, 3 = good, 2 = not too good, 1 =
Teacher#	Dummy equal to 1 for teacher# (1-5); 0 otherwise
Ident	Student identity composite (Questions 29-48)
Plifch	Student perceived life chances (Questions 49-51)
Peropp	Student perception of future opportunities (Questions 65-80)
Totalfp	Student future perspective (Questions 52-61)
Note: Theme#Prescore, Theme#Postscore, and Change# are defined the same as prescore, postscore, and	

Table 2. Summary Statistics				
Variable	Mean	Std Dev	Min	Max
Prescore	9.719	3.241	2	17
Postscore	11.094	4.284	2	21
Change	1.375	4.558	-13	13
Female	0.488	0.501	0	1
African-American	0.806	0.396	0	1
Other race	0.063	0.243	0	1
Grades	2.925	0.749	1	4
Teacher1	0.119	0.325	0	1
Teacher2	0.175	0.381	0	1
Teacher3	0.281	0.451	0	1
Teacher4	0.300	0.460	0	1
Teacher5	0.125	0.332	0	1
Ident	3.586	0.720	1	4.875
Plifch	4.573	0.842	1	5
Peropp	3.783	0.585	2.50	5
Totalfp	4.293	0.666	1.70	5
Note: Summary statistics for theme scores are not reported. These data are available on request from authors.				

Out of 25 financial questions, the mean number of items correct on the FFL pretest was 9.20 (37%, SD = 3.40). Comparing these scores with the national normed sample (Walstad & Rebeck 2001) reveals that the 364 students in our research sample scored approximately 5 percent above the national average for the category of greater than 50 percent receiving free lunch.

For the sample of students in our research project, the scores improved only slightly on the posttest (M = 10.96, 43.84%, SD = 4.37). The average change in score from pretest to posttest was 2.52 points (SD = 3.08). The national normed mean posttest score for students who attend schools with more than 50 percent free lunches is 51.6%. So, while we find that our students did approximately 5% relatively better than the nationally normed students without FFL

lessons on the pretest, we find that our students did approximately 8% relatively worse on the posttest than the nationally normed students with FFL lessons. While it is surprising to find that our students would test above the national average on the pre-test, it is not surprising to find that they would lose ground on the posttest given that the teachers' economic literacy was well below national averages.

Table 3 below, provides the mean score pretest and posttest, the correlation between pretest and posttest score, average change in score from pretest to posttest, and t-statistic for difference in means from pretest to posttest. For the five themes, all variables are defined in terms of percentages rather than number correct. Theme 1 is "The Economic Way of Thinking," Theme 2 is "Earning Income," Theme 3 is "Saving," Theme 4 is "Spending and Using Credit," and Theme 5 is "Money Management."

Table 3. Pre- vs. Post Test Score Comparisons

Variable	Mean Pre	Mean Post	Correlation	Mean Change	T-Statistic
Overall	9.719	11.094	0.2909***	1.375	3.82***
			(.0002)		(.0002)
Theme1	49.0%	56.1%	0.2336***	7.1%	2.94***
			(.0029)		(.0037)
Theme2	39.7%	40.3%	0.1334*	0.6%	0.23
			(.0927)		(.8164)
Theme 3	26.3%	27.6%	-0.1121	1.4%	0.61
			(.1583)		(.5409)
Theme 4	30.3%	41.1%	0.2108***	10.9%	4.27***
			(.0075)		(<.0001)
Theme 5	47.7%	54.2%	.3000***	6.5%	2.78***
			(.0001)		(.0062)

Note: P-values in parentheses. *** indicates change is significance at 1% level,
** indicates significance at 5% level, and * indicates significance at 10% level.

The results indicate a significant correlation between pretest and posttest score with the exception of Theme 3. In addition, there is a positive and significant difference between pretest and posttest score for the overall score, and for Themes 1, 4 and 5. Thus, student financial knowledge improved significantly with the exception of Themes 2 and 3.

We next conduct regression analysis to examine which factors affect the student pretest, posttest and change in scores. In the regression models, we include three broad types of variables. First, we have student characteristics which include race, gender, and grades (self-reported student quality). Second, since the teacher is likely to have an important impact on student learning, we include dummy variables for the teachers in our sample. Finally, we include student developmental characteristics, which include the identity, life chances, optimism and preparation for the future composites. We run the following three regressions:

$$\text{Prescore} = \alpha + \beta \cdot student + \delta \cdot teacher + \gamma \cdot development + e$$
$$\text{Postscore} = \alpha + \beta \cdot student + \delta \cdot teacher + \gamma \cdot development + e$$
$$\text{Change} = \alpha + \theta \cdot prescore + \beta \cdot student + \delta \cdot teacher + \gamma \cdot development + e$$

where *student* is the vector of student characteristics, *teacher* is the vector of teacher dummies, and *developmental* is the vector of developmental characteristics. We include *prescore* in the *change* equation to examine the impact of initial score on improvement. The OLS regression results are given in Tables 4-6. In each table, model 1 includes just student characteristics, model 2 include student and teacher characteristics and model 3 include student, teacher, and developmental characteristics.

Table 4. Regression Results: Dependent Variable = Prescore

Variable	Model 1	Model 2	Model 3
Intercept	5.849***	4.838***	0.414
	(1.243)	(1.322)	(2.072)
Female	0.258	0.243	0.005
	(.479)	(.471)	(0.460)
Afr-Amer	-0.602	-0.782	-1.020
	(.711)	(.718)	(.697)
Other Race	-2.582**	-2.570**	-2.214*
	(1.174)	(1.157)	(1.127)
Grades	1.501***	1.368***	0.842**
	(.325)	(.325)	(.338)
Teacher 2		2.178**	2.083**
		(.876)	(.846)
Teacher 3		1.086	1.041
		(.822)	(.811)
Teacher 4		1.938**	1.868**
		(.809)	(.780)
Teacher 5		2.283**	1.850*
		(.977)	(.955)
Ident			-0.447
			(.360)
Plifch			-0.256
			(.332)
Peropp			1.891***
			(.480)
Totalfp			0.460
			(.448)
Observations	160	160	160
F-value	8.14	5.41	5.70
R-squared	0.174	0.223	0.317
Adjusted R-squared	0.152	0.182	0.262

Note: Std errors in parentheses. *** indicates change is significance at 1% level,
** indicates significance at 5% level, and * indicates significance at 10% level.

Table 5. Regression Results: Dependent Variable = Postscore			
Variable	Model 1	Model 2	Model 3
Intercept	6.028***	6.496***	6.787***
	(1.716)	(1.480)	(1.520)
Female	0.645	0.574	0.603
	(.661)	(.528)	(.533)
Afr-Amer	0.194	-0.954	-1.143
	(.982)	(.803)	(.839)
Other Race	-1.275	-1.389	-1.622
	(1.621)	(1.295)	(1.328)
Grades	1.598*** 8*	1.107***	1.065***
	(.449)	(.364)	(.368)
Teacher 2		0.724	0.629
		(.980)	(.996)
Teacher 3		0.332	0.312
		(.920)	(.944)
Teacher 4		2.246**	2.202**
		(.906)	(.919)
Teacher 5		8.340***	8.269***
		(1.094)	(1.109)
Ident_p			0.020
			(.028)
Peropp_p			0.024
			(.033)
Totalfp_p			-0.022
			(.041)
Observations	160	160	160
F-value	4.24	14.99	10.90
R-squared	0.099	0.443	0.447
Adjusted R-squared	0.075	0.413	0.406

Note: Std errors in parentheses. *** indicates change is significance at 1% level,
** indicates significance at 5% level, and * indicates significance at 10% level.

Model 1 in the prescore regression, indicates that races other than African-American or Caucasian perform significantly worse on the FFL. As expected, Grades is positive and significant. Thus, students who perceive themselves as being good students perform better, on average, than do students who perceive themselves as being poorer students.

These results are not affected by the addition of teacher dummies in model 2. However, the results seem to support the view that teachers do influence student learning. Students with Teachers 2, 4, and 5 perform better than Teacher 1's class (the control group).

Finally, we add the developmental variables. With regard to the pretest results, the students' perception of future opportunities has a positive and significant impact. This could be

due to more optimistic students being more interested in learning or it could be that students who do well tend to have a more optimistic outlook.

Table 6. Regression Results: Dependent Variable = Change (Postscore – Prescore)			
Variable	Model 1	Model 2	Model 3
Intercept	4.487**	5.732***	5.556**
	(1.807)	(1.533)	(2.432)
Female	0.578	0.535	0.560
	(.652)	(.525)	(0.540)
Afr-Amer	0.353	-0.830	-0.760
	(.970)	(.801)	(.824)
Other Race	-0.595	-0.983	-0.951
	(1.621)	(1.308)	(1.340)
Grades	1.203**	0.891**	0.806**
	(.471)	(.382)	(0.405)
Teacher 2		0.379	0.219
		(.994)	(1.013)
Teacher 3		0.161	0.075
		(.919)	(.957)
Teacher 4		1.939**	1.912**
		(.917)	(.933)
Teacher 5		7.979***	7.816***
		(1.106)	(1.134)
Ident			-0.117
			(.425)
Plifch			-0.508
			(.390)
Peropp			0.883
			(.593)
Totalfp			0.058
			(.527)
Prescore	-0.737***	-0.842***	-0.884
	(.109)	(.090)	(.097)
Observations	160	160	
F-value	9.35	17.88	
R-squared	0.233	0.518	
Adjusted R-squared	0.208	0.489	

Note: Std errors in parentheses. *** indicates change is significance at 1% level,
** indicates significance at 5% level, and * indicates significance at 10% level.

The postscore regression results are similar to the prescore results. Again, we see that Grades is positive and significant. However, the teacher results are somewhat different. In the prescore model, students of Teachers 2-5 all averaged about 1.5 to 2 points more than students of Teacher 1. In the postscore model, we see that students of Teacher 4 are expected to score 2.2

points higher, but students of Teacher 5 are expected to score more than 8 points higher. It may be that Teacher 5 spent an extraordinary amount of time teaching this material; it is not possible to say from the data we have exactly what might have caused this large increase in scores. Teacher 5 scored just above the mean on the TEL and scored a 37 on the FFL pretest (compared to the teacher mean of 30) and scored a 39 on the FFL posttest (compared to the teacher mean of 40). Finally, the developmental factors in the posttest model are not significantly different from zero.

The "change in score" regression results are somewhat similar to the previous model results. We again observe that Grades is positive and significant, and we again see the extremely high change in scores associated with Teacher 5. In this model, none of the developmental effects are significantly different from zero.

We included *prescore* in this model to control for the starting point. A student who scores high initially has less room for improvement given the finite number of questions on the test. Thus, we expect a negative coefficient for *prescore*. The regression results indicate a 1 point increase in *prescore* leads to roughly a 0.8 point decrease in the change in score.

Lastly, Table 7 shows the correlations between the change in students' behavioral indices and the change in pretest and posttest scores. The only change that is significant is between a [hmmmm….this is first time using prep]

Table 7.
Correlations Between Change in Behavior Variables and Change in Test Score

Variable	Correlation
indentΔ	0.15875
	(.0758)
preoppΔ	0.12659
	(.1578)
totalfpΔ	-0.11185
	(.2124)

Note: P-values in parentheses. *** indicates change is significance at 1% level, ** indicates significance at 5% level, and * indicates significance at 10% level.

CONCLUSIONS

While we do find that our students demonstrated a significant improvement in knowledge, we find that the students in our research study scored approximately 5% higher on the pretests than the nationally normed sample without the FFL lessons and scored approximately 8% lower on the posttests than the nationally normed sample. While it is surprising to find that our students would test above the national average on the pre-test, it is not surprising to find that they would lose ground on the posttest given that the teachers' economic

literacy was well below national averages. We find that most of the gains in knowledge are in Themes 1, 4 and 5.

We also find that Hispanic and Asian students had the lowest performance on the FFL. Given that, the curriculum and assessment measures might need to be revised to address potentially meaningful cultural differences of students participating in the program (e.g., consider issues of language, cultural values, etc.).

We consistently find that teachers make a difference in student scores. Exploring the reasons for this finding is an obvious extension of the work. For example, studying the change on the pretest and posttests, analyzing specific questions teachers improved on the pretest and posttests, and knowing which lessons were taught and in what ways would shed light on the findings of teacher impacts.

We consistently find that students who perceive themselves as being good students perform better, on average, than do students who perceive themselves as being poorer students. Developmental variables were found to be explanatory in only one case: With regard to the pretest results, the students' perception of future opportunities has a positive and significant impact. The developmental variables have no explanatory power in other regressions.

We find no correlation between the change in behavior variables and the change in knowledge. This is primarily due to the fact that the behavior variables do not change much from pre- to post-test. In one case, student future perspective even diminishes at the posttest compared to the pretest. It is possible that if the research design and implementation were improved, the relationship between knowledge and future outlook could be captured and examined. If we find that the middle school FFL is an effective way to give low-income students confidence toward their future, we should find more students staying in school longer, even through college. Finding middle school FFL as an effective tool for low-resource students would provide a relatively inexpensive, practical solution to combat, in part, Mississippi's low graduation rate.

FUTURE RESEARCH

An obvious first step to future research would be to redo the survey using a control group, assisting the teachers in giving the pretests and posttests, use the full FFL test (or keep the percentage of knowledge, comprehension, and application questions similar in order to make meaningful comparisons), use an exit survey for students and teachers, have the teachers teach specific lessons, and have the student's performance on the test figure into their grade so that students had a greater incentive to study the material seriously.

EDITORS' NOTE

Do to space limitations the editors have omitted the original questionnaire used in this research. Interested readers should contact the authors for a copy of the questionnaire.

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IS THE SIZE OF GOVERNMENT OPTIMAL IN PAKISTAN?

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ABSTRACT

This study, assuming balanced budget, attempts to determine the optimal size of government in Pakistan using the Scully (1994) model for the period 1975-2008. The time series analysis reveals that government size is optimized when public expenditures stand at 21.48% of GDP. The estimated threshold size is lower than the current size of government in Pakistan. However, the difference between current and optimal size is very small. This suggests that enhancing efficiency of public sector is the better option than large fiscal adjustments to improve level of economic growth as average tax burden does not far exceed the optimum level.

INTRODUCTION

Historical evidence reveals that no society gained high level of economic prosperity without the role of government. Societies without proper governments faced different kinds of anarchy that halted their growth over time. The emergence of governments in these societies ensured the rule of law and protected property rights leading to high level of economic development. Thus, the role of governments remains important for the economic prosperity of the nations.

On the other hand, societies where all economic decisions were made by the governments witnessed relatively low level of economic affluence because large governments stifled the spirit of private agent, which resulted in low level of economic development. Put differently, the economic prosperity is limited both at zero and hundred percent level of government. Thus, question arises; how large should be the size of government?

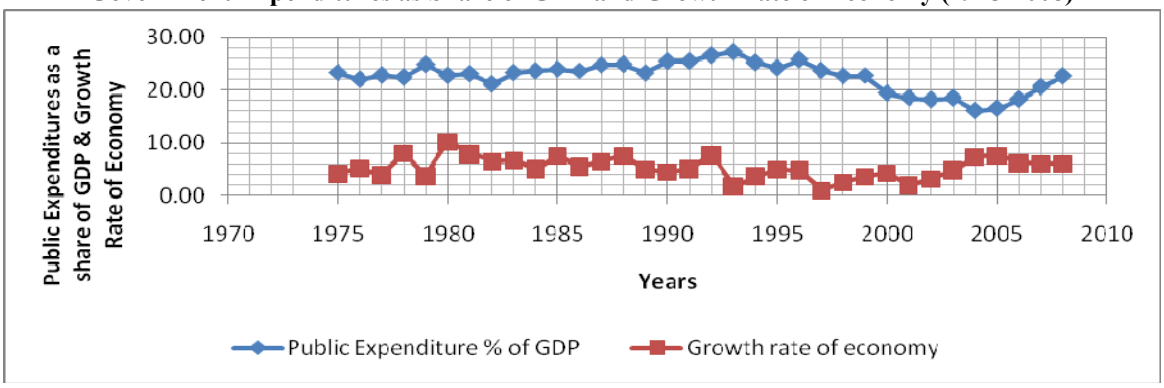
Empirical as well as theoretical literature has focused on this issue with conflicting results in recent decades. A group of economists believes that large government size stimulates economic growth (Ram, 1986, 1989; Rubinson, 1977) among others. On the other hand some economists deny this phenomenon and conclude that as the size of government increases in relative term it reduces the growth of per capita income (Landau 1983, 1986; Barro, 1991). Bairam (1990) and Grossman (1990) conclude that government can affect growth positively as well as negatively. However, within this diversity of explanations a consensus emerges that up to a certain level, government activities are pro growth but beyond this point the size of government may reduce economic well-being. The debate concentrates the question that at what point the public expenditures become counterproductive.

Only a handful of studies have attempted to determine the optimal level of public expenditures for developed countries whereas, up to best of my knowledge, no study can be found in case of developing countries on the issue. This study attempts to determine the optimum level of government expenditures/taxes in Pakistan using data for the period 1975-2008. This will help the policy makers to increase/decrease public expenditures, as a percent of GDP, to bring the government size closer to the optimal level. The rest of the study has been structured as under: Section 2 shows public expenditures and growth scenarios in Pakistan over time. Section 3 & 4 describe data and analytical framework respectively. Section 5 presents estimation and results. The last section, 6, concludes the paper with some policy implications.

GROWTH AND PUBLIC EXPENDITURES SCENARIOS IN PAKISTAN (1975-2008)

The growth path of Pakistan economy fluctuates over time. In some decades it showed an impressive growth while in other decades this momentum was lost. From mid 1970s to mid 1980s, Pakistan economy grew at an impressive average percentage growth rate of 6.25. The decade from 1985 to 1995 witnessed an average growth rate of 5 percent. From 1996 to 2002, growth rate paints a dismal picture. Growth rate declined from 5% in 1996 to 1.6% in 2002. This happened mainly due to the imposition of economic sanctions by international community following the atomic explosion on May 28, 1998. It affected growth adversely in Pakistan and left the economy reeling at just more than 2 percent average growth rate in this period. Since 2003 economy has regained its momentum and it is growing at an impressive rate of more than 5 percent per annum.

Figure 1
Government Expenditures as Share of GDP and Growth Rate of Economy (1975-2008)



Source: GFS various issues and WDI CD-ROM 2009.

In Pakistan, public expenditures to GDP ratio was 23.11 percent between 1975 and 1985 fueled by several agendas. The major determinants of this high level of public expenditures were nationalization of institutions and government's efforts to increase level of employment in the

economy. Higher level of defense expenditures and interest payments can also be accounted for this larger size of government in Pakistan in this period. Public expenditures rose from 23.11percent to 25.78 percent of GDP from 1985 to 1995 showing greater involvement of government in economic activity. The next ten years (1996-2006) may be called the era of less government involvement as the public sector squeezed significantly. Public expenditures shrunk from 26 percent of GDP in 1996 to 18 percent of GDP in 2005, a decrease of substantial 30 percent. However, since 2006 public expenditures in Pakistan are showing an upward trend.

Figure 1 clearly shows that both public expenditures and economic growth have been volatile over the years in Pakistan. It can be noticed that low level of government expenditures are associated with relatively high growth rate and vice versa.

DATA

The consolidated central government expenditures as a share of GDP are used as a proxy for the size of government. This variable comes from Government Finance Statistics (GFS), a publication of the International Monetary Fund (IMF). GDP at current prices is obtained from World Development Indicators (WDI 2009), published by the World Bank (WB). Time period of the study ranges from 1975 to 2008. Accordingly, 34 observations are available for the analysis.

ANALYTICAL FRAMEWORK

The analysis employs the methodology of Scully (1994 & 2006) and Heerden et al (2008) to find the threshold level of government expenditures in Pakistan. The mathematical formulation is based on a non linear Cobb-Douglas production function with a government sector and a private sector. The public sector provides goods financed with tax revenues i.e. $\frac{G}{Y} = \tau$ and 1-τ is the share retained by private agents after taxation. Both public and private goods contribute to output.

$$Y = \gamma\, (G/Y)^{\alpha}(1-\tau)^{\beta} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where

Y= Gross Domestic Product

G= Government Expenditures

τ = Tax to GDP Ratio

γ = Total Factor Productivity

α = Relative Share of Government Sector in Total Output

β = Relative Share of Private Sector in Total Output

In logarithmic form equation (1) can be written as;

$$\ln Y = \ln\gamma + \alpha \ln\left({}^{G}/_{Y}\right) + \beta \ln(1-\tau) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

The equation (2) is differentiated twice with respect to G to show that an increase in government expenditures affect growth positively but at a diminishing rate.

$$\partial lnY/_{\partial G} = \left[\left\{\partial lnY/_{\partial \ln\left(\frac{G}{Y}\right)}\right\}\left\{\partial \ln\left(\frac{G}{Y}\right)/_{\partial\left(\frac{G}{Y}\right)}\right\}\left\{\partial\left(\frac{G}{Y}\right)/_{\partial G}\right\}\right]$$

$$= \alpha\left(\frac{Y}{G}\right)\left(\frac{1}{Y}\right)$$

$$= \alpha G^{-1}$$

$$\frac{\partial^2 lnY}{\partial G^2} = -\alpha G^{-2}$$

The first derivative is positive while second derivative is negative which verifies that public expenditures positively affect growth but at diminishing rate.

By definition $\frac{G}{Y} = \tau$, therefore, substitution into equation (1) yields;

$$lnY = lny + \alpha \ln\tau + \beta \ln(1-\tau) \quad \ldots\ldots\ldots (3)$$

To find growth maximizing tax rate, we differentiate equation (3) with respect to τ and set it equal to zero.

$$\partial lnY/_{\partial\tau} = \alpha/_{\tau} - \beta/_{1-\tau} = 0$$

Rearranging terms; $\alpha/_{\tau} = \beta/_{1-\tau}$

$$\beta\tau = \alpha(1-\tau)$$

$$\beta\tau = \alpha - \alpha\tau$$

$$\alpha\tau + \beta\tau = \alpha$$

$$\tau(\alpha+\beta) = \alpha$$

$$\tau^* = \frac{\alpha}{(\alpha+\beta)} \quad \ldots\ldots\ldots (4)$$

ESTIMATION AND RESULTS

We estimate equation (3) to find values of the parameters, α & β. Empirical evidence reveals that economic variables are mostly non stationary. Thus the regression of non stationary variables may lead to spurious results. Therefore, we start our empirical analysis by testing the stationarity of the variables. Augmented Dickey Fuller (ADF) unit root test has been employed for this purpose. The results are reported in table 1.

Table 1 **ADF Unit Root Test** **Null Hypothesis: The series has a unit root**						
Variables	Level			First Difference		
	C	C &T	None	C	C &T	None
LnY	-0.32	-3.15	7.64	-4.70*	-4.56*	-1.92***
Lnτ	0.07	-2.08	3.37	-3.97*	-3.78**	-2.09**
Ln(1-τ)	-0.35	-3.03	4.84	-5.15*	-4.98*	-1.88***
C and T denote Constant and Trend respectively., **, *** mean significant at 1%, 5% and 10% respectively.*						

Table 1 brings out that the variables are integrated of order one i.e., non stationary. Therefore, variables are first differenced to make them stationary before applying OLS to estimate the regression coefficients. The OLS results are presented in table 2. It is clear from table 2 that all the coefficients are highly significant.

Table 2 **Dependent variable is Δ LnY**			
Variables	Coefficients	Standard Error	T-Values
C	0.002	0.002	1.179
ΔLnτ	0.212	0.026	4.760
	0.775	0.008	3.227
		R-Square: 0.976	DW: 2.08
Note: Δ is first difference operator. Ln denotes natural log while Y, τ and (1- τ) represent GDP, government share in output and share retained by private agent after tax.			

Calculation of Optimal Level of Public Expenditures/Taxes

To measure the threshold government size, the values of regression coefficients are substituted in equation 4.

$$\tau^* = \frac{0.212}{(0.212 + 0.775)} * 100 = \quad 21.48\%$$

Our calculation shows that the optimal level of public spending/taxes in Pakistan is 21.48% of GDP as against the 22.7% level in 2008. Therefore, it is concluded that current size of government in Pakistan is above the threshold size and there is a scope of 5.4 percent to decrease public expenditures to attain the optimal size of government.

The comparison of optimal size of governments in developing and developed countries seems useful. In table 3, we present international evidence on the optimal size of governments in developed countries.

Table 3
Optimal level of public expenditure in developed countries

Country	Size of government (% of GDP,1996)	Optimum size (% of GDP)	Percentage change in spending as a share of GDP
Italy	44.90	37.09	-17.39
France	54.73	42.90	-21.62
Finland	58.74	38.98	-33.64
Sweden	65.02	45.95	-29.31
Germany	48.72	38.45	-21.08
Ireland	39.60	42.28	+6.77
Netherlands	51.97	44.86	-13.68
Belgium	52.97	41.91	-20.88
Average percentage change			-18.85

Reproduced From Pevcin (2004)

Table 3 shows that the estimated optimal size of government is larger in industrialized countries as compare to Pakistan. The high optimal level of public expenditures/taxes in industrialized countries is due to the efficiency of these governments that keep the functioning of downward sloping phase of the Scully curve away for a longer time. Contrary to this in developing countries, like Pakistan, due to many factors like bad governance, corruption and political use of scarce public resources efficiency of government remains low and the negative effect of public expenditures start earlier than the developed countries.

Our estimate of optimal size of government is in line with the findings of Freedman (1997) who states that the optimal size of governments ranges from 15 percent to 50 percent of gross domestic product. Similarly our results match the findings of Scully et al (2008) who find the level of tax rate that maximizes economic growth in US about 19.3 percent of GDP. The findings are also supported by Vedder et al (1998) and Mavrov (2007).

Reliability Analysis

Auto-correlation is a common phenomenon in time series analysis. The Durban Watson statistics reported in table 2 reveals that residuals are uncorrelated. Further, some more tests are applied to check whether the results are reliable or not. The outcomes of these tests are reported in table 4.

It is clear from table 4 that our model has no specification error and residuals are not correlated. No Hetroskasdicity is found and on the basis of Jarque-Bera test it is concluded that residuals are normally distributed. In the presence of above tests results, it can be concluded that our estimates of regression coefficients are reliable and need not to be adjusted.

Table 4
Selected Diagnostic Test Results of the Model

Test	Null hypothesis	Test - Statistics	P-value	Conclusion
Ramsey RESET F Test	Model is stable with no specification error	1.21	0.314	Can not reject null hypothesis and conclude that model is stable with no specification error.
Normality Test (Jarque- Bera)	Residual are normally distributed	JB = 3.53	0.171	Null hypothesis cannot be rejected and conclude that residuals are normally distributed.
Breusch-Godfrey LM F Statistics	No serial correlation in the residuals up to the 2nd order	1.79	0.186	Can not reject null hypothesis and conclude that residuals are not correlated up to 2nd order.
ARCH F Test	No auto regressive conditional hetroskedasticity up to the 1st order	0.160	0.692	Null hypothesis cannot be rejected. Hence there is no auto regressive conditional hetroskedasticity up to the 1st order.

CONCLUSION AND POLICY IMPLICATIONS

We use time series data from 1975 to 2008 to estimate optimal size of government in Pakistan under the assumption of balanced budget. The analysis suggests that the optimal size of government is lower than the current size of government (21.48 < 22.7) and there is a scope of 5.4% reduction in public expenditures. International comparison reveals that both current and optimal sizes of public expenditures are high in developed nations when compare to Pakistan. This shows that government expenditures become counterproductive at earlier stage and the downward phase of the Scully curve starts functioning at comparatively low level of public spending in a country like Pakistan.

Some interesting policy implications emerge from the analysis. Firstly, as the optimal size of government is lower than the current size, hence there is a scope to decrease government expenditures in Pakistan. Low tax burden will encourage the private sector that in turn can stimulate economic growth in the country. Secondly, as the current and optimal levels of public spending have merged recently in Pakistan, the only issue is to enhance efficiency of the public sector as it is already closer to the optimal level. Lastly, the current increasing trend in public spending in the country needs to be checked as it may hurt the economy in future. Fiscal discipline through cuts in public expenditures can help achieve this objective.

Future research may focus to measure the gains that can be made by reducing the size of government to the optimal level. In addition the dead weight loss can be measured for the years in which government size remained beyond the optimal level. The finding of optimal level of different categories of public expenditures such as defense, education and health can also be an interesting topic for the researchers.

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GROWTH IN THE NUMBER OF FIRMS AND THE ECONOMIC FREEDOM INDEX IN A DYNAMIC MODEL OF THE U.S. STATES

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ABSTRACT

The Economic Freedom of North America index (EFNA) is positively and significantly related to state economic attainment variables. Using Arrelano-Bond (Arellano and Bond, 1991) estimation, we relate the economic freedom index to growth in the number of businesses within the states. Our results are consistent with the literature: the EFNA is positively related to growth in the number of businesses.

INTRODUCTION

Freedom indices of the world have established themselves as fixtures in the social sciences literature, especially in the economic growth literature. (e.g., Atukeren, 2005; Berggren and Jordahl, 2005; Gwartney, Lawson and Clark, 2005; Powell, 2005; Gwartney, Holcombe and Lawson, 2004; Nieswiadomy and Strazichich, 2004; Cole, 2003; Gwartney and Lawson, 2003; Gwartney, Block and Lawson, 1996) Across the literature, the consistent finding is that economic freedom, as measured by the various indices, is significantly and positively related to economic well-being. Citizens of nations with more economic freedom enjoy higher incomes, and as an economy becomes freer, incomes rise. Of course, some may object that the term "economic freedom" is not value neutral. Though true, the advocacy component of the indices creators does not alter the indices' proven research usefulness in summarizing a broad variety of government activities. One could choose to think of the indices in terms of "market liberalism," or "government economic non-interventionism."

Karabegovic, Samida, Schlegel and McMahon (2003) introduced a conceptually similar index, the Economic Freedom of North America index (EFNA) featuring economic freedom differences among U.S. states and Canadian provinces. Karabegovic, et al, used their index to explain income differences among the states, offering evidence that the EFNA is significantly, positively related to state levels and growth of economic activity.

Various researchers have used the EFNA (e.g., Ashby, 2005; Kreft and Sobel, 2005; Wang, 2005) to address questions of income differentials between states, income growth, entrepreneurship, and other research questions. Similar to Kreft and Sobel (2005), Gohmann,

Hobbs & McCrickard (2008), Sobel (2008), and others, we apply the EFNA to questions of entrepreneurship. Specifically, we ask whether the political outcomes summarized by the EFNA are significantly related to growth in the number of businesses. Karabegovic, et al, argue that the EFNA measures economic freedom in states; furthermore, they argued that greater economic freedom results in higher income levels for state residents because greater economic freedom consists of greater opportunity to seek and exploit economic opportunities; that is, to pursue entrepreneurial activity. Freedom to exploit economic opportunities is also the freedom to create new businesses, so economic freedom should lead to more business births. However, such freedom is a double-edged sword. The freedom to start a business is also the freedom for that business to fail. Indeed, it is business births that create the "raw material" for business failures. Therefore, the impact of economic freedom on growth in the number of businesses is ambiguous, although the impact on society—higher incomes—is not.

This paper contains two innovations not found elsewhere in this stream of the literature. The first is the dependent variable, the measure of businesses. We use the annual growth rate in the number of firms, approximated by the annual difference in the natural log of the number of firms. Therefore, this measure implicitly includes firm births and firm deaths, and captures the full range of firm launches, whether partnership, corporation, etc. The second innovation is the use of a particular dynamic panel data estimator (Arellano and Bond, 1991) not found in this literature outside of a working paper.[1]

ENTREPRENEURSHIP, ECONOMIC FREEDOM, AND ECONOMIC PERFORMANCE

Promoting entrepreneurship has emerged as a significant policy tool for regional economic growth and job creation. The relevant policy question becomes which policies best promote entrepreneurship. A literature has developed around the concept that the appropriate policies are those will increase economic freedom. "Economic freedom" may be conceptualized as:

> "Policies are consistent with economic freedom when they provide an infrastructure for voluntary exchange, and protect individuals and their property from aggressors seeking to use violence, coercion, and fraud to seize things that do not belong to them. However, economic freedom also requires governments to refrain actions that interfere with personal choice, voluntary exchange, and the freedom to enter and compete in labor and product markets." (Gwartney and Lawson, 2002 Annual Report, 5)

The missing link in the argument is the one that ties together economic freedom and entrepreneurship:

> "…underlying economic freedoms generate growth primarily *because* they promote underlying entrepreneurial activity, which is then the source of economic growth. …. In areas with institutions providing secure property rights, a fair and balanced judicial system, contract

> enforcement, and effective limits on government's ability to transfer wealth through taxation and regulation, creative individuals are more likely to engage in the creation of new wealth through productive market entrepreneurship." (Kreft and Sobel, 2005, 9)

Neither the literature nor policy makers have consistently defined either the differences or the overlap between entrepreneurship and business formation. Indeed, in popular parlance, entrepreneurship and business formation are used nearly synonymously. We choose to focus on business creation and business destruction—measured as the growth rate in the number of firms—as the proxy for entrepreneurship.

ECONOMIC FREEDOM OF NORTH AMERICA

The EFNA is constructed from ten variables clustered into three categories: size of government; takings and discriminatory taxation; and labor market freedom. For *size of government*, the EFNA considers general consumption expenditures by government as a percentage of GDP, transfers and subsidies as a percentage of GDP, and Social Security expenditures as a percentage of GDP. For *takings and discriminatory taxation*, the EFNA considers total government revenue from own sources as a percentage of GDP; top marginal income tax rate and the income threshold at which it applies; indirect tax revenue as a percentage of GSP; and sales taxes collected as a percentage of GSP. For *labor market freedom*, the EFNA considers minimum wage legislation, government employment as a percentage of total state employment, and union density.

The EFNA is constructed on a scale from zero to 10 to represent the underlying distribution of the 10 variables in the index, with higher values indicating higher levels of "economic freedom." In the final construction each area was equally weighted and each variable within each area was equally weighted. The freedom index is a relative ranking of economic freedom across jurisdictions and across time. The EFNA is available in two variants, one which includes local, regional and national government outcomes, and one which considers only sub-national governments.

FIRM BIRTHS, FIRM DEATHS AND PANEL DATA WITH LAGGED DEPENDENT VARIABLES AS INDEPENDENT VARIABLES

Johnson and Parker (1994, 1996) discussed the need to scale the dependent variable to account for differences in the economies of the cross-sectional units. For example, directly comparing the number of firms formed in North Dakota with the number of firms formed in California would be inappropriate due the vast size differences of these states' economies. To control for differences in size, we use the growth rate in the number of firms as the dependent variable. Johnson and Parker demonstrate that researchers cannot study firm births and firm deaths in isolation. Although not separately estimating (with lags) the impact of firm births and

deaths on firm births—as Johnson and Parker did—the annual growth rate of the number of firms in a state implicitly captures firm births and firm deaths. (Moreover, the variable we collected is the total number of firms by year by state, and does not separate annual observations by firm births and firm deaths.) Lags of this variable will allow previous values of firm births and deaths to affect current values of firm births and deaths.

Though some of the literature focuses on sole proprietorships, we chose to focus on new businesses regardless of organizational structure. Many small businesses may be formed as S-corporations to provide their owners with the limited liability benefits of the corporate form while allowing for the preferential tax treatment of the sole proprietorship. Wong, Ho, and Autio (2005) and Friar and Meyer (2003), among others, demonstrated that new growth ventures stimulate economies; but new ventures in general do not. Many new growth ventures tend to form around an entrepreneurial *team* with significant industry experience (Friar and Meyer, 2003; Bygrave, 1997; Timmons and Spinelli, 2006). Counting only sole proprietorships may miss the most economically significant entrepreneurship.

As Johnson and Parker demonstrated, the impact of contemporaneous births (or deaths) on future births and deaths is highly persistent. Accordingly, they used vector autoregressive models applied to panel data—an application of the approach used by Holtz-Eakin, Newey, and Rosen (1988). Our data set is a panel of the U.S. states from 1988 through 2005. Besides Holtz-Eakin, Newey, and Rosen (1988), the standard reference for panel data models with lagged dependent variables as independent variables is Arellano and Bond (1991). Arellano and Bond consider estimating the following equation using a panel data set:

$$y_{it} = \sum_{j=1}^{p} \alpha_j y_{i,t-j} + \mathbf{x}_{it}\beta_1 + \mathbf{w}_{it}\beta_2 + v_i + \varepsilon_{it}; i = 1,...N; t = 1,...T_i \qquad (1)$$

Alpha, rho, and the betas are parameters to be estimated. The vector, x, is composed of strictly exogenous covariates, while the vector, w, is composed of pre-determined covariates. Arellano and Bond first-difference the equation to remove the *v* and produce an equation that can be estimated using instrumental variables and a generalized method of moments estimator. This estimator allows the use of lagged independent variables and lagged values of exogenous variables as regressors in a panel data setting. For our purposes, this allows us to exploit the panel nature of our data set while including lags of growth rates in the number of firms. Arellano and Bover (1995) and Blundell and Bond (1998) further extend and refine these estimators. Consistent with much of the literature on growth in the number of firms, we opted to estimate models with three lags of the appropriate variables.

In addition to the EFNA, the other independent variables are real GDP per capita, the sum of agriculture's and manufacturing's percentages of real GDP, the annual state unemployment rate, population density, the percentage of the population with at least a

baccalaureate degree, the number of employees per firm, and the volume of commercial and industrial loans. When appropriate, all variables are in natural log form.

We included per capita real GDP is indicative of firms' abilities to survive and the attractiveness of launching a new venture. Wealthier customers are likely to consume more goods and services, buoying a struggling firm or providing incentive to launch new ones (see e.g., Chen and Williams, 1999; Liu, 2004). The strongest result across all of the "economic freedom" research is that income growth and/or levels are dependent upon economic freedom. To include income and the EFNA in the same model as independent variables is to court multicolinearity problems. We followed the economic freedom literature's common practice of "purging" income of the effects of the EFNA. Our ultimate solution was to take our cue from the literature; that the ultimate source of income growth was the pro-income institutions (Friedman 1962, North 1980); therefore institutions cause growth. We regressed income on EFNA and year and time effects and retained the income residuals. In Table 2 we estimated our model using real GDP per capita, while in Table 3 we used these "purged" residuals as the income variable.

High population densities indicate "thick markets," potentially attracting more entrepreneurial entry and exposing existing firms to more competition. By the same token, a high population density may mean less volatility in firm demand. Research has related education levels to firm formation and failure rates.

Acs and Armington (2004b) found a positive relationship between the share of adults with college degrees and firm formation rates. Lussier found a positive, but weak relationship between education and the failure of a firm (Lussier, 1995). Like Lussier, Chen and Williams (1999) also found a weak relationship in their study. Brown, Lambert, and Florax (2009) found that counties with a higher percentage of the population with associate's degrees increased both firm births and firm deaths.

The agriculture-manufacturing percentage of state GDP measures the agricultural and manufacturing firms are likely to have higher entry and exit costs, so states more reliant on agriculture and manufacturing may experience less volatility in the growth rate of the number of firms.

We measure the availability of capital to launch and to sustain firms with the volume of commercial and industrial (C&I) loans per capita. Much research has linked access to capital to firm launch and survivability (for example, see Platt and Platt, 1994; Chen and Willams, 1994; Liu, 2004 among others).

Unemployment has been established in the literature on firm failure as a proxy for the general "health of the economy" (Everett and Watson, 1998; Platt and Platt, 1994; Chen and Williams, 1999). Thus, one would anticipate that unemployment in a state might be related to both firm launches and firm survivability.

Audrestsch and Fritsch (1994) state that using the "ecological" method to study firm launches and survivability across regions biases results upward in regions with a relatively high

mean establishment size and downward in regions with a relatively low mean establishment size. In order to control for such bias, they suggest incorporating a measure of the mean establishment size along with other explanatory variables in one's estimates. Moreover, larger firms frequently offer better wages and more labor force "inertia than smaller firms, potentially reducing the attractiveness of self-employment. On the other hand, for new firms serving established businesses, bigger firms are likely to be better customers.

We draw our data from a variety of sources. EFNA data are from the Fraser Institute, lending data is from the FDIC, and all other data are from the U.S. Census Bureau or the U.S. Bureau of Economic Analysis. We construct a panel using the U.S. states as our cross-sectional element, covering the years 1988 through 2005. Please see Table 1 for a description of our variables.

Table 1
VARIABLE DEFINITIONS

gFirms	Annual growth rate in the number of firms
Income	Natural log of real GDP per capita
Ag MfgPct	Sum of agriculture and manufacturing percentages in real GDP
Unemply	Annual unemployment rate
Pop Den	Natural log of population density
Educatn	Population percentage with at least a baccalaureate degree
Emp/Firm	Natural log of number of employees per firm
C & I	Natural log of per capita C&I loan volume
EFNA	Natural log of EFNA

THE EMPIRICAL RESULTS

We offer our interpretation of the regression results with the caveat that inferring causality from the Arellano-Bond model is problematic, although Arellano-Bond and related estimators tend to work well with "wide but shallow" data sets such as ours. Using an Arellano-Bover and Blundell-Bond estimator could ameliorate the difficulties associated with Arellano-Bond. However, in this instance, the number of instruments approached too closely to the number of observations. When instruments are many, they tend to over-fit the instrumented variables and bias the results. The results among the various classes of estimators are qualitatively similar, but, in a judgment call, we opted to use Arellano-Bond estimators. All of our reported estimates are robust to heteroskedasticity, and reported with a correction for small sample size.

Table 2 presents our estimates using the natural log of real GDP per capita. We cannot reject the hypothesis of no AR(2) correlation in the residuals, indicating that the estimates are likely to be consistent. The F-statistic indicates a solid fit, overall. Lagged values of the growth

rate in the number of firms are significant predictors of the current growth rate in the number of firms. The first two lags have positive coefficients, indicating that more new firm launches and/or fewer firm exits in the previous two years yields a higher growth rate of new firms in the current period. The third lag is negative and significant. We speculate that this indicates that a state's economy is exhausting a semi-finite supply of entrepreneurs, as only some people will be willing to launch a new business and relatively few will launch multiple businesses within a three-year period. As more businesses are launched, some succeed and other take time to fail, be sold, or otherwise disposed of, thereby "freeing" an entrepreneur for another venture.

Current income is positively related to the current growth rate of the number of firms, while the first lag is negatively related to the current growth rate. High current income keeps firms afloat, while lower incomes in previous periods motivate more people to look for income replacement/extra income business venture opportunities. Agriculture and manufacturing's share of GDP has a negative coefficient in the current period, but a positive coefficient with one lag. Service firms and firms catering to final consumers may be easier to launch compared to firms associated with an agriculture or manufacturing economic base, so states relying on agriculture and manufacturing will appear to have a slower current number-of-firms growth rate. However, an increase in a state's manufacturing base, for example, stimulates the launch of new ventures selling services and intermediate products to the manufacturing base, but more time is required to launch those firms.

The unemployment rate has a negative and significant current coefficient, and positive and significant coefficients with a two- and three-year lag. High current unemployment makes for reduced current demand for products and services, increasing the difficulty in keeping existing firms afloat. Similar to income's effects, higher unemployment in previous periods motivate more people to look for self-employment business venture opportunities. Population density is positive in the current period and negative in the two- and three-year lags. We hypothesized that population density is a proxy for "thick markets." In the current period, thick markets help firms remain in operation and provide incentive to open new businesses. However, historically thick markets attract strong, efficient competitors from other markets, which suppress current number-of-firm growth rates.

Contrary to expectation, education had no significant effect on the growth rate of the number o firms. The average number of employees per firm has a powerful negative effect in current period, but has a powerful positive effect with a one-year lag. We speculate that the negative effect has to do with the benefits of employment in larger firms—better pay and benefits and stability—relative to the benefits of self-employment. However, large firms make good customers, so new ventures will be launched to service that markets demands. With a two-year lag, C&I lending has a positive effect on the number-of-firms growth rate. It seems reasonable to expect that C&I loan volume would "lead" growth in the number of firms, but we have no strong explanation for why the lead time would be as long as two years.

Table 2
ARELLANO-BOND DYNAMIC PANEL-DATA ESTIMATION
Robust one-step result

D.V.: gFirms

		Coef.	t-stat				Coef.	t-stat	
gFirms					Educatn		-0.02	-1.29	
	t-1	0.29	3.93	***		t-1	0.02	1.16	
	t-2	0.11	1.93	*		t-2	0.02	1.05	
	t-3	-0.08	-1.7	*		t-3	0.01	0.86	
Income		3.06	1.69	*	Emp/Firm		-16.87	-3.66	***
	t-1	-3.83	-1.92	*		t-1	20.74	4.66	***
	t-2	-1.69	-0.98			t-2	-1.94	-0.66	
	t-3	0.52	0.5			t-3	-1.80	-0.63	
Ag MfgPct		-0.07	-2.41	**	C & I		-0.11	-1.54	
	t-1	0.05	1.8	*		t-1	0.06	0.78	
	t-2	-0.03	-0.83			t-2	0.18	3.08	***
	t-3	0.00	-0.14			t-3	-0.12	-1.26	
Unemply		-0.14	-2.1	**	EFNA		4.87	2.42	**
	t-1	-0.07	-0.83			t-1	-2.28	-0.91	
	t-2	0.14	1.81	*		t-2	2.01	1.5	
	t-3	0.17	2.18	**		t-3	-1.81	-1.14	
Pop Den		12.26	2.13	**	Constant		0.12	2.51	**
	t-1	-12.15	-1.83	*	*	Significant at 90%			
	t-2	11.17	1.18		**	Significant at 95%			
	t-3	-13.96	-3.19	***	***	Significant at 99%			

H0: no autocorrelation of order 1 in residuals
z = -4.66 Pr > z = 0
H0: no autocorrelation of order 2 in residuals
z = 0.45 Pr > z = 0.6517
F-stat= 613.57

Turning to the EFNA, current "economic freedom" has a positive and relatively large effect on the current number-of-firms growth rate. That is, states whose governments currently spend less on current consumption and transfers, tax incomes and sales less, and employee less of the work force, etc., experience more current firm launches and/or fewer current firm failures. Although the direction of economic freedom's effect was ambiguous, *a priori*, we expected the policies summarized by the EFNA to have some significant impact. In this model, economic freedom significantly influences entrepreneurship and the number-of-firms growth rate.

In Table 3 we re-estimated the model using the income residuals described previously in place of real GDP per capita. Although the results in Table 3 are similar to those of Table 2, there are several differences. The F-statistic is rather smaller, and the hypothesis of no AR(2) in the residuals is rejected by a much narrower margin. However, the constant term is no longer significant. The somewhat unexpected negative coefficient on the third lag of the dependent variable is no longer significant. None of the coefficients for agriculture-manufacturing are

significant. The coefficients on current and single-lagged population density are no longer significant. The second lag of unemployment is no longer significant and the first lag of unemployment switches sign to negative.

Table 3
ARELLANO-BOND DYNAMIC PANEL-DATA ESTIMATION
Robust one-step result

D.V.: gFirms

	Coef.	t-stat			Coef.	t-stat	
gFirms	…	…		Educatn	-0.03	-1.24	
t-1	0.16	1.72	*	t-1	0.00	0.13	
t-2	0.15	1.77	*	t-2	0.01	0.34	
t-3	0.00	-0.06		t-3	0.01	0.53	
Inc Resid	-0.61	-0.29		Emp/Firm	-19.37	-3.64	***
t-1	-2.19	-1.39		t-1	23.39	4.86	***
t-2	-0.65	-0.33		t-2	-3.00	-0.84	
t-3	-0.70	-0.32		t-3	4.36	1.55	
Ag MfgPct	-0.01	-0.25		C & I	-0.12	-1.03	
t-1	-0.02	-0.57		t-1	0.10	1.34	
t-2	-0.02	-0.53		t-2	0.16	2.79	***
t-3	0.01	0.26		t-3	-0.04	-0.41	
Unemply	-0.20	-3.09	***	EFNA	4.08	1.86	*
t-1	-0.23	-2.33	**	t-1	1.43	0.7	
t-2	0.13	1.41		t-2	1.10	0.57	
t-3	0.22	3.02	***	t-3	-5.61	-2.64	***
Pop Den	0.93	0.15		Constant	0.01	0.16	
t-1	-2.59	-0.47		*	Significant at 90%		
t-2	13.45	1.31		**	Significant at 95%		
t-3	-15.37	-2.75	***	***	Significant at 99%		
H0: no autocorrelation of order 1 in residuals							
z =	-4.2		Pr > z =	0			
H0: no autocorrelation of order 2 in residuals							
z =	-1.53		Pr > z =	0.1252			
F-stat=	170.81						

Most interesting are the results for the income residuals and EFNA. The income residuals are not significant in any time period; however, the third lag of EFNA is now negative and significant. The EFNA effects are quantitatively large, although this result should be taken with a grain of salt. EFNA values have been rather stable across time, especially within states. Accordingly, this result is of more consequence to spatial variations in the number-of-firms growth rates than to variations in the rate through time. Nonetheless, Table 3 implies that the income effects estimated in Table 2are actually due to economic freedom; particularly, EFNA with a three-year lag. With a three-year lag, economic freedom exerts a large and strongly

significant *negative* effect on the number-of-firms growth rate, while current economic freedom exerts a slightly smaller *positive* effect on the growth rate.

Given that the EFNA tends to be stable through time within a state, it makes sense to interpret this result by comparing states. Consider two states that are similar in every way, except that one state has been and remains more "economically free" than the other state. Table 3 implies the economically freer state should experience *slower* growth in the number of firms in the state. This result is not unexpected, though. The freedom to launch new businesses is also the freedom for businesses to fail.

CONCLUSIONS

Similar to the world freedom indices, the EFNA is positively and significantly related to a variety of economic attainment variables. As measured by the EFNA, economic freedom in the states leads to economic attainment in the states. Researchers have also related the EFNA to measures of entrepreneurship. This step in the research seems natural, if "economic freedoms generate growth primarily *because* they promote underlying entrepreneurial activity, which is then the source of economic growth," as Kreft & Sobel (2005, 9) state. Most commonly, these studies have related the EFNA to some measure of one particular aspect of entrepreneurship, firm creation. We extend this literature by relating the EFNA to the annual growth rate in the number of firms, within a dynamic panel data model that incorporates lagged values of the independent and dependent variables as explanatory factors.

Although the effect of economic freedom on income levels or growth is not in question, (Doucouliagos and Ulubasoglu, 2006) its specific impact on launches and failures of businesses is ambiguous, *a priori*. Governments that maintain a limited "footprint" upon, and intervention in, their economies leave potential entrepreneurs with the freedom to launch businesses to pursue a wide variety and great number of perceived profit opportunities. Over time many of these perceived opportunities will be revealed as mirages, and many of the new firms will be revealed as undercapitalized, poorly managed, or possessing some other defect. In the ordinary course of the economic process, these firms will fail. A limited, small government that allows entrepreneurs to launch new firms is unlikely to intervene in markets to prevent those firms from failing. Accordingly, economic freedom's effect on the *net* number of firms or the number-of-firms growth rate is unclear.

Our results offer some evidence that economically freer states may experience growth rates in the number of firms that are little different or *slower* than other, less free states, *ceteris paribus*. This result is reminiscent of Gohmann, Hobbs & McCrickard (2008) who found that increases in economic freedom lead to growth in the number of firms in some service industries, but that the reverse is true in other service industries.

The idea that pursuing more economic freedom yields more firm deaths may be alarming to some. In fact, some researchers suggest government's role might include intervention to

reduce the failure rate (Strotmann, 2007). However, firm births and firm deaths are inevitably intertwined in an economy that is largely free from government intervention, and this process of firms being born and other firms dying is integral to markets' ability to create wealth. Recall that the strongest result in this literature is that policies increasing economic freedom increase the level and growth rate of income, independent of their effects on firm births or firm deaths. As Lane and Schary (1991) state: "…business failures are one method by which the economy retools or redistributes resources … (Lane and Schary, 1991, p. 104)." Strotmann (2007) also argues that failures are a sign of a healthy economy. Struggling businesses that are artificially propped up by government may tie up resources, such as financial capital (credit), physical capital (e.g., retail space), for instance, that might otherwise be available to entrepreneurs seeking to start a new business. Thus, their failure or death is actually a positive outcome in general—though it may be very stressful at a personal level—because it frees up resources in the competitive environment for others to utilize. Simply put, "not all types of corporate failures are undesirable (Liu, p. 2004, 944)."

END NOTE

1. Parker and Robson (2004) study self-employment using a panel of OECD nations, however, their empirical work focuses on panel data tests for cointegration, not on the Arellano-Bond (1991) estimator as this paper does. Wang's (2005) working paper employs the Arellano-Bond estimator, among others. However, a literature review failed to uncover publication of Wang's working paper.

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COMPARING PERSPECTIVES ABOUT THE GLOBAL ECONOMIC CRISIS: A CROSS-CULTURAL STUDY

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ABSTRACT

Individuals' perceptions about global events are often influenced by their culture and history. This paper examines and compares the views of German and American university students about the global economics crisis. Germans tend to be more risk averse, less individualistic, and more socialist than Americans. The paper finds that Germans were more likely to agree that the government should bail out firms and help poor countries. Nonetheless, there was no statistically significant difference between Americans and Germans in half of the answers. Additionally, both groups agreed that banks and their practices were largely to blame for the crisis.

INTRODUCTION

Individuals' perceptions about global events are often influenced by their historical, social, and cultural backgrounds. This paper investigates the perceptions of university students about the current global economic crisis and compares the perceptions of American and German students. The research surveyed students at Coastal Carolina University in Conway, South Carolina and in Fachhochschule Mainz in Mainz, Germany to examine their perceptions and beliefs about what caused the crisis, how severe the crisis is, and how their government should respond to the crisis.

This research is important for two reasons. First, it investigates the opinions of young people about the current global economic crisis. People's perceptions play a pivotal role during economic recoveries. Individuals who think that the economy is unlikely to recover soon are likely to consume and invest less, which slows the recovery. Secondly, this research provides insight as to how people's cultural and historical backgrounds influence their perceptions about global issues. The global economic crisis is a perfect issue to utilize in order to investigate differences in perceptions across cultures because it is a prominent, complex issue that affects most people in the world.

McClelland and Scher (1974) emphasize that culture includes all the material and non-material things that are passed across generations. Several studies show that cultural differences lead to different perceptions about important global issues. For example, Burkink et al (2007) find that American students are more likely to accept Genetically Modified Organism than French students. American and European also differ in their perspectives about how the Internet

should be designed and regulated. According to May, Chen, & Kuang-Wei (2004), Europeans have a stronger desire for government regulations and protection of intellectual property rights than Americans. They also place more importance on national identity than consumer choices when utilizing the Internet.

Hofstede (1980 & 1983) finds that Americans are very individualistic, have a somewhat low power-distance, have weak uncertainty avoidance, and are moderately masculine. By comparison, Germans are moderately individualistic, have an even smaller power distance, have a strong aversion to risk, and exhibit a greater degree of masculinity. Additionally, Germany is a more socialist culture where firms are regulated more heavily and workers have more rights. Consequently, I hypothesize that since Germans are more risk averse and live in a more socialist society they are more likely to support the notion that their national government should help bail out banks and other failing businesses. Similarly, I hypothesize that Germans are more likely to support additional government spending to help stimulate the economy.

Smith, Peterson, and Schwartz (2002) show that workers and mid-level managers in different countries have different perspectives on the structure of organizations and the role of the management. Germans tend to place greater ethical standards on their upper management. Consequently, I hypothesize that since Germans have a lower power structure and have a more socialist outlook, they are more likely to think that bank executives are responsible for the crisis and should not be allowed to receive any bonuses or salary increases.

As McClelland and Scher (1974) discuss, history has a major influence on people's perceptions. For example, a study by Kustin (2006) finds that people in Belarus have a preference for autocratic rule despite their strong sense of individualism because they experienced autocratic rule under the Soviet Union. Germany was heavily bombed in World War II and then split into two republics. Following reunification in 1990, West Germany funneled trillions of dollars to East Germany in order to help build its infrastructure and modernize its economy. The reunification and labor market rigidities caused high unemployment and sluggish economic growth in post-unification Germany. By contrast, save for a few short and mild recessions, the U.S. experienced a period of economic prosperity and low unemployment since World War II. Bulmahn (2000) finds that Germans tend to be more pessimistic about the future than Americans. Consequently, I hypothesize that Americans are more likely than Germans to believe that the global economy will recover soon.

Germany's and the United State's economies differ in other important ways. The U.S. is the world's largest importer and, therefore, can potentially benefit from imposing new tariffs. In fact, the U.S. has a history of imposing tariffs and trying to isolate itself during times of economic hardship. For instance, the U.S. government passed the Smoot–Hawley Tariff Act in 1930 during the Great Depression. By contrast, Germany is the world's second largest exporter and, therefore, is likely to suffer from a tariff war. Therefore, I hypothesize that Americans are more likely to advocate imposing new tariffs to support domestic industries.

In general, Germans seem to have a more cooperative outlook than Americans. Germany, for instance, has been a key proponent of the European Union, which led to economic and political integration amongst countries in Europe. Germany also contributes a larger share of its national income to foreign aid than the U.S. Therefore, I hypothesize that Germans are more likely to call for more global cooperation in order to deal with the crisis. Furthermore, I predict that Germans are more likely to support providing more aid to poor countries to help them recover from the economic crisis. I test these hypotheses by analyzing the results of a survey.

METHODOLOGY

This paper compares and contrasts the perceptions of American and German university students about what caused the global economic crisis, how severe the crisis is, and how their national government should respond to the crisis? I utilize a three-part survey to investigate students' perceptions. The first part consisted of 26 Likert psychometric questions with a scale from 1 (strongly agree) to 7 (strongly disagree). The second part required students to rank eight institutions from the one that is most to the one that is least responsible for the crisis and then rank the causes of the crisis from the most important to the least important. The last part asked students for personal information such as their age, gender, and academic major. The survey is presented in Appendix A.

108 students at Coastal Carolina University in Conway, South Carolina and 139 students at Fachhochschule Mainz in Mainz, Germany took an identical survey in English. The German students were enrolled in the International Business Program, where they are required to take most of their courses in English and, therefore, are proficient in English. The mean age of the American students was 21.0 and the mean age of the German students was 24.3, which is not surprising considering that Germans typically work on an apprenticeship before attending a university. 135 of the students were males and 110 were females (two students did not reveal their gender).

41.7% of American students identified themselves as moderately or very conservative compared to just 9.4% of German students. By contrast, 30.9% of the German students identified themselves as moderately or very liberals compared to 24.1% of the American students (other students did not answer the question, were neutral or identified with another political ideology). As expected, Americans are more conservative in their political outlook while Germans, like most Europeans, are more liberal and, consequently, are more likely to support government intervention. As discussed earlier, this difference is likely due to differences in the sociopolitical environments of the two countries.

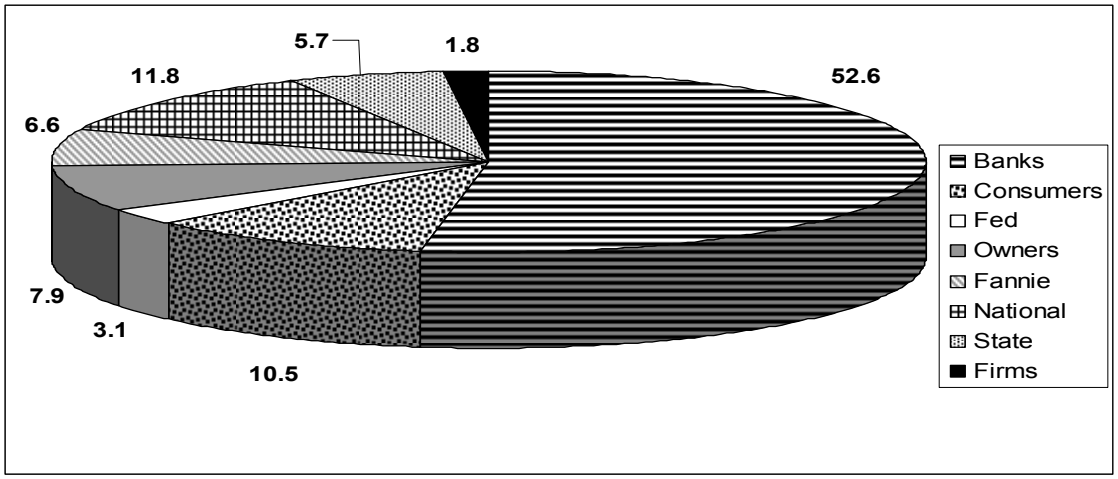
The survey was conducted in various business and economics classes and the subjects were all undergraduate business students. I did not survey my own students to make sure not to bias the results. Both American and German students took the survey in early May of 2009 and all the surveys were conducted anonymously.

I organized the data from the survey in an Excel spreadsheet and conducted t-tests to see if there were any statistically significant difference in the means of the answers between the two groups (Americans and Germans) and F-tests to see if there is any difference between the variances of the answers between the two groups. The survey's results are presented in Appendix B and are interpreted in the following section.

RESULTS

The objectives of this research are to investigate the views of university students about the current global economic crisis and to compare and contrast the perceptions of German and American students. In 13 out of the 26 Likert psychometric questions there was no statistically significant difference between the two groups and in the other 13 question there was a significant difference between the two groups at the .05 level of significance. Overall, the students surveyed agreed that "banks around the world engaged in irresponsible lending in the past couple of years" (with an overall mean of 2.44) and that "excessive spending by Americans led to the current global economic crisis" (2.83).

Figure 1
Who Is to Blame for the Crisis?



When asked to rank the institutions that were most responsible for the crisis, 52.6% of the students thought than banks are most responsible for the crisis. When asked to rank the main causes of the crisis, 28.4% thought that "banks investing in risky assets" and 20.2% thought that "banks lending too much money" were the main causes of the crisis (It should be noted that 20 of the students did not complete Part II of the survey or did not complete it correctly and, therefore, were not included when calculating these numbers). Thus, a plurality of students blamed banks and their unsustainable practices for the crisis, but they also recognized other trends such as excessive spending by American consumers and the U.S. federal government borrowing too

much money as contributing to the crisis. Figure 1 shows the percent of respondents that selected a given organization is being the most responsible for the crisis.

Students had a fairly neutral response to the statement that "the world is currently experiencing an economic depression similar to the Great Depression of 1930-1933" (3.82) and that "housing markets around the globe are likely to begin recovering in 2009" (4.17). Students somewhat disagreed that "the world economy can recover without government intervention" (4.74). Hence, students were somewhat ambivalent about the severity of the crisis, but most felt that there was a need for some government intervention to help the economy recover.

When asked about the response to the crisis, there was an overall agreement that "Executives in banks and firms that received bailout money should not be allowed to receive any bonuses or wage raises" (2.47) and that "There is a need for more global cooperation in order to help the world recover from the current financial crisis" (2.51). However, the students were somewhat ambivalent whether their national government should spend more money helping the economy recover (4.37), whether their government should help bail out troubled banks (4.43), or whether the U.S. government should help bail out corporations like General Motors (4.29).

There were several significant differences between the groups. Not surprisingly, Americans (where the saving rate was negative prior to the crisis) agreed that people in their country did not save enough before the crisis (with a group mean of 2.03), whereas Germans (where the savings rate hovered around 10%) slightly disagreed with this statement (with a group mean of 4.45). As predicted, Americans (4.77) disagreed more strongly than Germans (4.17) that their national government should help bail out banks that are likely to fail without government support (with p-value of .008). Americans (4.83) also disagreed more strongly than Germans (3.86) that "The U.S. government should help bailout failing firms like General Motors and Chevrolet" (p-value < .000). This difference might be because of the differences in the views on the role of government between the two countries or because German tax payers did not have to pay for GM's bailout. Also, Americans (2.49) were more likely than Germans (4.66) to agree that their "professors frequently talked about the global economic crisis and about other global issues in class." In general, class discussions are more common in the U.S. than in Germany where professors are less likely to deviate from the curriculum.

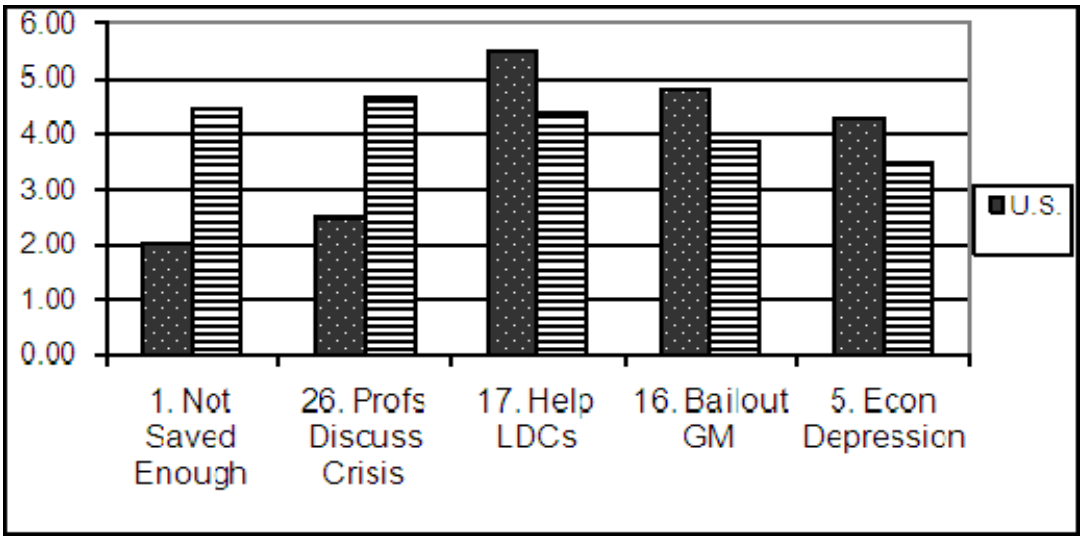
There was no statistically significance difference between the response of Americans (4.32) and Germans (4.40) regarding the statement "My national government should spend more money to help the economy recover from this economic crisis," despite my prediction that Germans would be more inclined to support public spending to stimulate the economy. In contrast to my prediction, Americans (2.06) were far more inclined than Germans (2.80) to agree that "Executives in banks and firms that received bailout money should not be allowed to receive any bonuses or wage raises" (p-value of .002). This result is not be too surprising considering that even though Americans tend to be more market-oriented, the U.S. government used American taxpayers' money to bail out banks.

As expected, Americans (3.69) were slightly more optimistic than Germans (4.09) that "The global economy will begin growing again by the end of 2009" (p-value of .043). On the other hand, there was no statistically significant difference between Americans (4.06) and Germans (4.25) in their response to the statement that the "Housing markets around the globe are likely to begin recovering in 2009." Moreover, Germans (4.21) were more likely than Americans (4.64) to agree that "Stocks markets around the world are likely to recover before the end of 2009." Therefore, it is not clear whether Germans or Americans are more pessimistic about the recovery from the crisis.

As predicted, Germans seemed to have a more global outlook than Americans. Germans (2.35) agreed more strongly than Americans (2.70) that "There is a need for more global cooperation in order to help the world recover from the current financial crisis;" although, the difference was only significant at the 10% level (p-value of .069). Also, more Germans (4.38) than Americans (5.52) agreed with the statement that "My national government should spend more money helping poor countries recover from the global economic crisis" (p-value < .000). Although, both groups were somewhat reluctant to support more foreign aid for poor countries. Nonetheless, despite my predictions, there was no statistically significant difference between Americans (4.08) and Germans (4.23) on whether their country "should increase tariffs in order to increase the sell of domestically produced products."

Figure 2 highlights the question that had the largest difference between the mean responses of American and German students. The questions' numbers are indicated on the graph and the full statements are available in Appendix A.

Figure 2
Differences in Perspectives between Americans and Germans



CONCLUSION AND DISCUSSION

This research examines and compares the views of American and German university students regarding the causes of, severity of, and government response to the global economic crisis. The research is based on a survey that was distributed in May of 2009 to business students in an American university and a German university. The survey included 26 Likert psychometric questions, a question that required students to rank the organizations that were most responsible for the crisis, and another question that required students to rank the main causes of the crisis.

There was a general consensus amongst the students surveyed that banks engaged in excessive lending and that Americans spent excessively before the crisis occurred. A plurality of survey takers in both countries ranked banks as the main culprit for the crisis; although, more Germans thought that the main cause of the crisis was risky investment by banks and more Americans thought that the main cause was excessive lending by banks. Additionally, students were neutral about whether this crisis is similar to the Great Depression; although, a majority of the students did not think that the economy would recover without government intervention.

In general, Germans were more pessimistic than Americans about the recovery of the global economy, but more optimistic than Americans about stocks. As hypothesized, Germans were more supportive of using public funds to help bail out failing banks and firms. However, in contrast to my predictions, Americans were more inclined to think that executives of banks who received government support should not receive bonuses and equally inclined to think that their government should spend more money to help the economy. As predicted, Germans were more likely to agree that there is a need for more global cooperation to deal with the crisis and that their national government should help poor countries. However, there was no statistically significant difference between the groups over the question of whether their government should raise tariffs.

It is possible that the recent bailout of Greece's economy, which occurred after this survey was conducted, may have further influenced Germans' opinions about the role that their government should play. In 2010, Germany's parliament voted to contribute around $30 billion to bail out Greece's troubled economy. According to the New York Times, "German taxpayers, most of whom oppose any kind of bailout, were dragged unwillingly into helping their southern neighbor (Kulish, 2010)." Thus, although Germans are more likely than Americans to agree that their government should help the economy recover and help other countries, their opinion could be influenced by circumstances. In this case, according to the media many Germans believed that they should not be financially penalized for the questionable decisions of another European Union member.

The discrepancies between my hypotheses and the results for the survey can be explained by recent events. For instance, although Americans are generally more optimistic than Germans, the stagnation of the stock market between 2001 and 2009 probably made them more pessimistic about stocks. Similarly, although Americans have a more market-oriented philosophy, more

Americans agreed that executives of banks who received bailout money should not receive bonuses or wage increases probably because the government used American taxpayers' money to bail out these institutions. This demonstrates that recent events may sometimes trump long-seeded cultural differences in influencing people's perspectives on global issues.

Although this research attempted to utilize similar populations from the United States and Germany, namely university business students, these populations are not identical. In particular, as noted earlier, the German students are slightly older on average and probably more career oriented (many of them already started their career). It is difficult to ascertain how these small differences affected the students' responses, if it all.

Hofstede (1986) shows that cultural differences affect the nature of interaction amongst teachers and students. Therefore, this research can help instructors better understand how to communicate to students from different cultures about global issues. Based on this research, educators should recognize that students from different cultures would tend to perceive global issues differently, but also that these perceptions are partly colored by recent historical events and circumstances. Educators should address these cultural and historical differences in order to help students recognize their own biases and help them develop a more objective perspective.

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Appendix A: Survey about the Global Economic Crisis

Please answer all of the following survey questions and turn in your survey to the instructor. These questions seek to find your perspectives about the current global economic crisis.

Please indicate on a scale from 1 (strongly agree) to 7 (strongly disagree) your response to the following statements. **Use the following scale: 1 (strongly agree), 2 (agree), 3 (slightly agree), 4 (neutral), 5 (slightly disagree), 6 (disagree), or 7 (strongly disagree).**

Statement	Rank from 1 7
(1) People in my country did not save enough money before the financial crisis started	
(2) Banks around the world engaged in irresponsible lending in the past couple of years	
(3) The George W. Bush Administration is largely responsible for starting this global economic crisis	
(4) Excessive spending by Americans led to the current global economic crisis	
(5) The world is currently experiencing an economic depression similar to the Great Depression of 1930-1933	
(6) Stocks markets around the world are likely to recover before the end of 2009	
(7) This is a good time to buy stocks	
(8) This is a good time to buy a house in my country	
(9) Europe will recover from the crisis before the United States does	
(10) The global economy will begin growing again by the end of 2009	
(11) China will become more powerful in the world as a result of this global economic crisis	
(12) The United States will loose a lot of its political power as a result of this global economic crisis	
(13) Housing markets around the globe are likely to begin recovering in 2009	
(14) My national government should spend more money to help the economy recover from this economic crisis	
(15) My national government should help bailout banks that are likely to fail without government support	
(16) The U.S. government should help bailout failing firms like General Motors and Chevrolet	
(17) My national government should spend more money helping poor countries recover from the global economic crisis	
(18) Executives in banks and firms that received bailout money should not be allowed to receive any bonuses or wage raises	
(19) The stimulus package that was passed by President Barack Obama was well designed to help the economy recover	
(20) There is a need for more global cooperation in order to help the world recover from the current financial crisis	
(21) President Barack Obama has the skills and wisdom necessary to pull the U.S. out of an economic recession	
(22) My country should increase tariffs in order to increase the sell of domestically produced products	
(23) The world economy can recover without government intervention	
(24) I understand the causes of the global economic crisis well	
(25) I read regularly about the global economic crisis	
(26) My professors frequently talk about the global economic crisis and about other global issues in class	

In your opinion, which of these organizations/groups is/are responsible for causing the current economic crisis? Please rank the following organizations/groups from 1 (most responsible for the crisis) to 8 (least responsible for the crisis).

Organization or Group	Rank from 1 to 8
Banks and Other Financial Institutions	
Consumers	
The Federal Reserve Board (Fed)	
Homeowners Who Have a Mortgage	
U.S. Government Sponsored Organizations like Fannie Mae	
The U.S. Federal Government	
U.S. State Governments	
Corporations like General Motors	

In your opinion, what are the main causes of the current global economic crisis? Please rank the following from 1 (the most important cause) to 8 (the least important cause).

Cause	Rank from 1 to 8
Bad government policies	
Banks investing in risky assets	
Banks lending too much money	
The U.S. federal government borrowing too much money	
People borrowing too much money	
People not saving enough money	
Poor government regulations of the financial sector (banks)	
Corporation like General Motors not being responsible	

A Bit about You

The university where I took this survey: _____
Which class did you take this survey in? _____
Gender (male or female): _____
Age: _____
Nationality: _____
My Major or Main Area of Concentration: _____
How would you describe your political views (circle the best answer)?
(a) Very conservative (b) Moderately Conservative (c) Middle-of-the-road
(d) Moderately Liberal (e) Very Liberal (f) Libertarian
(g) Other. Please specify _____

Appendix B: Survey Results

Table 1 provides the overall mean, the mean for each group and the probability that the difference in mean scores between the group is a random occurrence (p-value) for the 26 Likert psychometric questions in the survey (provided in Appendix A) with a scale from 1 (strongly agree) to 7 (strongly disagree).

Table 1 Mean Score for Part I of survey				
Question	Overall Mean	U.S. Mean	German Mean	P-Value
1	3.38	2.03	4.45	7.17E-34
2	2.24	2.22	2.62	.0284
3	3.67	3.63	3.71	.705
4	2.83	4.28	3.46	.322
5	3.82	4.28	3.46	.000225
6	4.40	4.64	4.21	.0379
7	3.29	3.22	3.34	.620
8	2.95	2.52	3.29	.000632
9	3.32	3.56	3.12	.0204
10	3.91	3.69	4.09	.0430
11	3.42	3.29	3.53	.267
12	3.96	4.17	3.80	.0852
13	4.17	4.06	4.25	.284
14	4.37	4.32	4.40	.751
15	4.43	4.77	4.17	.00768
16	4.29	4.83	3.86	4.39E-05
17	4.88	5.52	4.38	2.28E-07
18	2.47	2.06	2.80	.00154
19	3.41	3.69	3.19	.0160
20	2.51	2.70	2.35	.0692
21	3.31	3.44	3.21	.300
22	4.16	4.08	4.23	.494
23	4.74	4.59	4.85	.291
24	3.11	3.27	2.99	.126
25	3.37	3.54	3.24	.178
26	3.70	2.49	4.66	1.61E-23

Table 2 provides the average overall ranking and ranking by each group for organizations from 1 (most responsible for the crisis) to 8 (least responsible for the crisis) as well as the percent of survey takers who ranked each organization as most responsible.

Table 2 **Mean Ranking for responsible organization**						
Organization	Average Ranking	U.S. Average Ranking	German Average Ranking	Percent Selecting 1st	U.S. Percent Selecting 1st	German Percent Selecting 1st
Banks	2.22	2.48	2.00	52.6	35.2	67.5
Consumers	5.13	4.28	5.87	10.5	20.0	2.4
The Fed	4.55	4.65	4.47	3.1	2.9	3.3
Homeowners	5.04	5.05	5.03	7.9	6.7	8.9
Fannie Mae	4.59	4.80	4.40	6.6	8.6	4.9
Nat. Government	4.02	3.78	4.23	11.8	19.0	5.7
State Gov.	4.79	5.11	4.51	5.7	6.7	4.9
Corporations	5.57	5.79	5.39	1.8	1.0	2.4

Table 3 provides the average overall ranking and ranking by each group for causes from 1 (the most important cause) to 8 (the least important cause) as well as the percent of survey takers who ranked each cause as the most important.

Table 3
Mean Ranking for causes of the crisis

Reason for Crisis	Average Ranking	U.S. Average Ranking	German Average Ranking	Percent Selecting 1st	U.S. Percent Selecting 1st	German Percent Selecting 1st
Public Policies	4.81	5.44	4.31	6.4	4.1	8.3
Risky Assets	3.24	3.77	2.82	28.4	14.4	40.0
Excessive Lending	3.01	2.90	3.11	20.2	23.7	17.5
National Debt	4.32	3.97	4.60	14.7	23.7	7.5
Personal Debt	4.28	3.55	4.88	10.6	13.4	8.3
Lack of Savings	5.18	4.60	5.65	7.3	10.3	5.0
Poor Regulations	4.76	5.09	4.50	8.7	6.2	10.8
Irresponsible Firms	6.28	6.37	6.21	3.7	5.2	2.5

IMPORTANT, AND OFTEN OVERLOOKED, ASPECTS OF MARKET EQUILIBRIUM

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ABSTRACT

This paper considers an explicitly normative aspect of market equilibrium often overlooked in principles-level instruction: the notion that market equilibrium makes more people "better off" than market disequilibrium. Students are taught the similarities between market equilibrium and the equilibrium of physical science, but usually not the crucial differences. Unlike the equilibrium of a pendulum at rest, which is the result of physical forces acting upon it, market equilibrium is the result of individuals acting with purpose, in mutually beneficial cooperation. The result is that market participants can be said to make themselves "better off" in a way that finds no useful analogue in comparisons with physical equilibrium.

INTRODUCTION

> *"It is only the implicit value judgments underlying positive theories which make these theories important."*
> L.E. Hill, 1968:264

Gary Becker specifies *market equilibrium* as one of the three foundational assumptions of economic analysis. (The other two being maximizing behavior and stability of preferences. See Becker, 1976.) Most economists would agree with Becker, and would expect the topic of equilibrium to be adequately covered in the principles-level class. We contend that, while the typical textbook presentation of this important topic is not incorrect, important insights regarding the nature of equilibrium are usually omitted. The purpose of this brief essay is to suggest additional content for standard textbook discussions of equilibrium. We are not claiming to add to what economists already understand about market equilibrium. Rather, we intend to highlight characteristics of this equilibrium that textbooks – and perhaps instructors – sometimes ignore.

THE TYPICAL PRESENTATION

A sampling of principles of economics textbooks (see Table 1) reveals a high degree of homogeneity among their presentations of market equilibrium. Typically, the presentation begins with a thorough discussion of the characteristics of supply and demand, including the

determinants of each, the distinction between shifts in each and changes in quantity brought about by changes in price, and so on. Authors then turn their attention to defining markets and market equilibrium. Most books correctly point out that markets have a tendency to self-correct. That is, if the supply and demand curves are static, prices will gravitate towards and come to rest at the point of equilibrium. The mechanisms that bring about this result are presented in simple, intuitive terms, generally appropriate to introductory-level courses. (For a more sophisticated analysis of the market clearing process, see Heath and Foshee, 2003.)

Table 1 **SAMPLED ECONOMICS TEXTBOOKS** **(See References for full citation.)**
Arnold (2008)
Boyes and Melvin (2009)
Frank and Bernanke (2011)
Gwartney, Stroup, Sobel, and Macpherson (2006)
O'Sullivan, Sheffrin, and Perez (2010)
Bade and Parkin (2011)
Case, Fare, and Oster (2009)
Hubbard and O'brien (2010)
Mankiw (2007)
McConnell, Brue, and Flynn (2009)
McEachern (2006)
Miller (2011)
Slavin (2011)
Stiglitz and Walsh (2006)
Tucker (2006)

The usual narrative starts with a description of the market out of equilibrium: When price is above equilibrium, a surplus or excess supply ensues. Such a surplus sends information (and provides an incentive) to the seller to lower price. Likewise, a price below equilibrium results in a shortage or excess demand. A seller realizes that raising the price diminishes the severity of the shortage. Thus, every price other than the equilibrium price encourages the seller to adjust price towards the equilibrium price. Upon arrival at this price, the market clears and all pressure to change price disappears.

Such a narrative is typically supplemented with graphs and/or tables which enumerate the severity of the surplus or shortage when the seller charges a price outside of equilibrium. For example, Table 2 indicates that at a price of $3, the quantity supplied is 40 units and the quantity demanded is 100 units. Thus, the resulting shortage of 60 units is said to frustrate buyers and puts upward pressure on price. At a price of $7 the quantity supplied is 130 units and the quantity demanded is 55. The surplus of 75 units pressures sellers to lower price. Again, all textbooks we examined contain a presentation such as this. Differences across the books we

sampled were limited to issues of phrasing and usage of "excess supply/demand" or "surplus/shortage."

Table 2		
Price	**Quantity Supplied**	**Quantity Demanded**
$ 0	0	1000
$ 1	20	270
$ 2	30	160
$ 3	40	100
$ 4	60	90
$ 5	80	80
$ 6	100	70
$ 7	130	55
$ 8	170	20

The notion of equilibrium as a situation to which a system tends to move, and from which there are no forces for further movement, is common to many sciences. In the typical economics discussion, the market achieves equilibrium by a process that is analogous to the action of a pendulum. The law of gravity dictates that a pendulum will tend to hang vertically in a stable equilibrium. If someone nudges the pendulum to one side or the other, it swings back. Likewise, if the price of a good or service is above or below equilibrium, market forces move it in the direction of equilibrium. Both the pendulum and the market tend to move to a stable equilibrium.

WHAT'S MISSING

The concept of equilibrium as described above is useful as far as it goes, but it does not go far enough. The pendulum analogy is incomplete, for there is no sense in which the pendulum is "better off" in equilibrium. But we can describe participants in economic markets as being "better off " when markets are in equilibrium. Economists are well aware of the welfare implications of the market clearing solution; particularly, that the sum of consumer and producer surplus is maximized at the point of market equilibrium. While some textbooks get into a discussion of consumer and producer surplus when discussing equilibrium, most assign the topic to a different section or chapter. Consequently, students fail to see the connection between equilibrium and consumer/producer surplus. Moreover, many students will find this concept of surplus so abstract that it has little meaning for them in the real world of market exchange.

Instructors can cast the discussion in very concrete terms, and begin to explain how market participants are "better off" at equilibrium, by emphasizing a simple truth: *At the equilibrium price, the quantity of the good or service that changes hands from seller to buyer is maximized.* When students see that trade is maximized at the equilibrium price, they can then

begin to understand the sense in which participants are "better off." Instructors should point out that because trade comprises a series of voluntary transactions among rational and informed individuals, we may presume that each transaction results in a welfare improvement for both the buyer and the seller. The most improvement occurs when the number of these voluntary transactions is maximized; and that occurs at the equilibrium price. Referring again to Table 2, at the equilibrium price of $5, 80 units change hands from sellers to buyers. Prices below or above $5 decreases the amount of voluntary – and therefore welfare enhancing – exchange.

It is easy to demonstrate that the self-adjusting market will yield the maximum number of voluntary transactions, which results in social welfare being maximized. Yet, *none* of the textbooks we sampled make this point. We believe this should be corrected given the relative ease of doing so, and the fact that this point provides the foundation of the superiority – in one importance sense – of market outcomes.

OBJECTIONS

Thoughtful students might question the presumption that voluntary trade leaves market participants "better off." If trade is good, then why do governments deliberately restrict trade in a variety of situations, from minimum wages to rent control to laws forbidding trade in drugs and more? Such questions should not be dismissed out of hand, but neither should they lead the discussion too far afield. The introductory principles class is hardly the place for a lengthy foray into the literature of welfare economics. Based on years of classroom experience, we offer the following suggestions.

First, it is helpful to review the underlying analytical (as opposed to moral) assumptions. The typical textbook discussion of equilibrium *implicitly* assumes that individuals are able to acquire useful information, to act rationally on that information, and to do so without generating significant externalities. Instructors should state these assumptions *explicitly*, and point out that when they are seriously compromised, interventionist policies might be warranted to achieve efficiency. Further discussion of corrective policies is usually better left for a separate discussion. A few addition remarks are germane at this point, however.

Regarding information and rationality, instructors should emphasize that the process of achieving equilibrium is a process of *learning*. Buyers and sellers do not initially possess complete information; they *acquire and exchange* information. They then act rationally on the basis of what they have learned, and in the process they discover mutually advantageous terms of trade. Instructors should also point out that intervention based on the inadequacy of information, or the inability to act rationally, implies that the regulatory authorities have superior knowledge or are more rational than individuals in the market – implications that college students (being college students) will typically resist.

Externalities present a somewhat different kind of issue. Students are increasingly aware of the existence of externalities in the context of environmental issues, and this awareness

sometimes engenders a generalized skepticism about "the free market." Instructors need not go deeply into the issue of externalities in the simple analysis of equilibrium, especially if the topic is covered elsewhere, as is typical among the textbooks we reviewed. We suggest that instructors acknowledge the validity of the spillover problem, and then point out that in all cases the costs (bureaucratic and other) of interventionist policies must be compared with the cost of the externalities for an accurate overall assessment of efficiency.

Finally, some students – especially those who have been taught the importance of distinguishing between positive and normative statements – will point out that "better off" is a value-laden term. It is a valid point. Clearing away ethically neutral points of analysis does lay bare fundamental value premises. The conclusion that maximizing trade maximizes welfare rests on the premise that individuals should be allowed to define for themselves what makes them "better off," and to pursue their own ends through voluntary exchange, mindful of others' right to do the same. (Students may agree with this premise or not; in our experience, most do accept it.) Instructors should be willing to identify underlying value judgments, including those that support the conclusion that free trade promotes wellbeing. But it is neither necessary nor appropriate, in a simple discussion of equilibrium, to undertake a lengthy discussion of values. The relevant point, for those who are concerned with the imposition of value judgments, is that regulatory market intervention (minimum wages, blue laws, rent control, among others) implies that market regulators have the right to impose *their* values on others – hardly a values-neutral position, either.

CONCLUSION

In conclusion, we believe that students should be taught not just the similarities between market equilibrium and the equilibrium of physical science, but also the crucial differences. Unlike the equilibrium of a pendulum at rest, which is the result of physical forces acting upon it, market equilibrium is the result of individuals acting with purpose, in mutually beneficial cooperation. The result is that market participants can be said to make themselves "better off" in a way that finds no useful analogue in comparisons with physical equilibrium. Presenting a fuller discussion of market equilibrium along these lines would cost little in terms of pages in a textbook and time in a classroom. Students, and their instructors, deserve no less.

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DOLLARS VERSUS THE EURO: WILL DOLLAR BE THE DOMINANT CURRENCY IN TEN YEARS' TIME?

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ABSTRACT

The purpose of this article is to figure out which between the euro and the US dollar is more likely to be the dominant currency in ten years' time. There are a lot of criteria to take into consideration so as to answer this question. Leaning on relevant literature, we found three main reasons why the US dollar should remain the leading international currency. First, in asymmetrical shock situation, it seems that the American economy is better prepared to react than the Eurozone due to the mobility of the workforce from state to state and to the absence of diverging and specific individual interests present in the European Union. The on-going crisis in many EU nations is a result of the many economic differences in these nations. Second, the US economy is present in international business for a longer time compared to the euro which has been introduced in 1999. This longevity linked with a first-class reputation allows the USA to make more seignoriage benefits than the Eurozone does and to allow many developing countries to favor the US dollar utilization over their own currency. On the other hand, the euro cannot be used outside Europe. Third, by looking at both shares of reserve currencies, US dollar is still the unavoidable reserve currency and China as well as other big trading partners seems not likely to get rid of their USD dollars due to their own interests.

At the same time, we gathered two main arguments in favor of the euro. First, the US dollar current value compared to other international currencies shows that it is not as strong as it used to. We think that further US economy downfall in the future would lead to US dollar depreciation which in turn might lead to the US dollar to be gradually replaced by euros in foreign currency reserves and also as a trading currency (although at present time that is almost seems impossible). Second, although the current crisis is not handled well by the European Central Bank (ECB), but given its severity, we believe that they will find a solution (even it is means that some nations may need to exit Euro in the short run). Hence in the long run, there is hope the Euro will play an important role as an international currency.

Taking all these arguments into account, we think that the US dollar should remain a strong international currency but at the same time, the euro, which is taking advantage of a gradual decrease in the confidence of the US dollar should be more and more challenging this position. But in ten years' time, we think that the US dollar will still be the dominant player in

the global market with Euro is a distant second. The on-going crisis in Europe will not let Euro to play the dominant role in the near future.

INTRODUCTION

In the current tougher business environment, international trade is getting more and more present and therefore important, due to a fast growing globalization. The use of international currencies has become unavoidable and this, for many purposes, ranging from hedging to transaction costs.

This paper will focus on two currencies, the euro and the US dollar and try to figure out whether one of those will be the dominant currency in ten years' time. To do so, we will first look at both currencies' past information and explain their most important characteristics. Secondly, we will compare these two currencies, leaning on recent relevant articles, explain their advantages and drawbacks and imagine a couple of scenarios which might take place in the following years. Finally, we will try to make a prevision about the role of both currencies in the future world of international trade.

LITERATURE REVIEW

After the euro zone creation in 1999, the role of central banks, the advantages and drawbacks of a single currency systems and comparisons between the US and the European case have interested many researchers. Alesina and Barro (2001) explained the dollarization phenomenon and highlighted that the current globalization is the main reason why multi-country currency unions are and will become more and more important in the future international economy. This article was followed by many interesting papers focusing on monetary unions, such as Salvatore (2002) who focused on the benefits and costs of the euro and compared the strengths and weaknesses of single currency systems. He highlighted the crucial function of the ECB on the functioning of the euro monetary system. One year later, Cooper and Kempf (2003) leaned on a complex quantitative model to identify that reduced transactions costs and lower inflation were that most relevant benefits from monetary unions. By solely comparing the currencies in terms of their role as reserve currencies, Chinn and Frankel (2005) said that the euro might increase its share of foreign reserve currency and eventually go beyond the share of the dollar as a reserve currency if the U.K. were to adopt the euro and if the depreciation trend of the dollar would last. Finally, Dominguez (2006) said that it is commonly agreed to say that the US economy can overpass important crisis due to the longevity of the US dollar. However, the euro aptitude to go through an important crisis has still to be proved.

EURO VERSUS DOLLAR

Most of the non-expert people believe that every country has its own currency. Historically, it was relatively correct. But nowadays, partly due to the explosion of the international trade, several strong monetary unions have emerged and the number of currencies is decreasing. Indeed, many countries use other country's currency as their official currency. This transition process from a local currency to a foreign country's currency has first taken place in US dollar and is therefore named dollarization. This term can also be applied to other currencies than the US dollar. We will assume in this paper that this term is applied to one country's utilization of another country's currency. According to Alesina and Barro (2001), globalization as well as the increasing number of independent countries explain why the world is not in a "one-country/one-currency model" anymore and has shift toward multi-country currency unions.

To refer to several dominant currencies being used by more than one country; the members of the EU use the euro, the members of the African Financial Community form the franc zone, seven Caribbean countries form the Eastern Caribbean Currency Area, the US dollar is also used by Panama as well as several other smaller countries and the British Pound is used in almost a dozen different countries. In this regard, why choosing euros and US dollars as candidates for the future dominant currency?

Among these currency unions, one currency has historically always been the dominant currency in international trading and is still considered as the dominant currency in the market place; the US dollar. Another has emerged about ten years ago and is a serious challenger; the euro. This is why the euro versus US dollar trade-off is currently very relevant. The question arising from the latter is which from the euro or the US dollar currencies is the more likely to be the future dominant currency in ten years' time.

The overall population of the Euro Zone has reached 500 million, which is significantly larger than the one of the US with about 305 million; while the American gross domestic product per capita is thereabouts one and a half times that of the European Union. United stated has 50 federal stated whereas the Euro Zone has recently expanded to 22 countries. Let's have a closer look at both zones under study.

The euro is the official currency of the European Union and it is the unique currency commonly used by sixteen countries which together represent the euro zone. Euros are also used by several other countries such as Kosovo or Montenegro in the eastern part of Europe even if it is not their official currency.

The first euros have been introduced and used in 1999. Since then, the Euro has become an important currency in international trade, being the second currency in the world in terms of transactions, behind the US dollar and the first currency in term of quantity of bills in circulation with 610 billion euros.

The Central Bank of Europe is the bank in charge of the euro currency. Its major mission is to maintain the prices within the euro zone stable and therefore to preserve the buying power

of the euro. Nevertheless, the real governance power comes from the Euro system at least until all European Union countries have introduced the euro. Indeed, the Euro system is a sub-set of the ECB which governs the policy decisions, such as monetary policy. And, because the Eurosystem applies only to the EU area countries, in reality, this is the Euro system which carries out the central bank functions for the euro area (www.ecb.int).

On the other hand, US dollar is the national currency of the United States. US dollars are also used as an official currency in nine territories such as El Salvador and the Marshall Islands. Created in 1913, the Federal Reserve System is the pivotal banking structure of the United States. Similarly to the ECB, the Federal Reserve's main purposes are to maintain the stability of the financial system, stabilize prices, chasten long run interest rates and guarantee the safety of the nation's banking. In other words, its most important task is to keep the economy healthy through the proper application of monetary policy.

It is also interesting to know that another independent entity, the United States Department of Treasury is responsible for printing and minting all dollar bills and coins. This is a unique characteristic in central banking systems around the world.

It should be noted that even though this paper focuses on the US dollar versus euro as a future dominant currency question. However, one should be aware that plenty of other currencies are used in financial markets and are strong reserve or investment currencies. They could therefore be the successor of the US Dollar as the world dominant currency in ten years' time. However, having looked at other strong economies, we think that Japan has too much volatility in term of the currency itself, India and China have not a good enough banking infrastructure and finally the Great British Pound, the Australian dollar and the Swiss franc cannot lean on a powerful enough economy to pretend to challenge the dollar as the leading international currency.

ANALYSIS OF THE COMPARISON

Knowing the basics of both currencies and why we will exclusively keep focused on those, let's have a look at the reasons why these two currencies are so unavoidable in the international market by analyzing the two structures. We will first compare these two currencies and figure out whether some differences might be decisive factors towards the adoption of one or another currency.

As highlighted by Cooper and Kempf (2003), both the euro and the US dollar zones share commonly agreed advantages of having a common currency among several countries. First, the use of either the euro or the US dollar as a common currency eliminates the need to exchange currencies between the different countries that share the same currency. This obviously reduces the transaction costs in foreign commerce. Second, it is a mean to moderate the volatility among these countries because fluctuations which previously occurred between each currency no longer take place thanks to the unique currency. Indeed, only fluctuations between the common

currencies can be observed. Third, it reduces the cost of borrowing in other international financial markets. And finally, the unique central bank influence usually helps to sustain a lower inflation.

By looking at the most interesting problems found in the recent literature that may be caused by the presence of a unique currency in the Euro zone or in the US, we can notice several important distinctions between the American and the European case. We will use these reasons to assess the likelihood that the Euro will surpass the dollar as the international leading currency in ten years' time.

According to Salvatore (2002), a unique currency system is successful in the United States because if one of its states suffers from a shock that only hit this particular state, a rapid shift of the workforce would take place from this state toward other US states that would be able to provide better employment possibilities at that time. This is an automatic regulatory mechanism that is not available in Europe or at least not available to the same extent. Indeed, mostly due to the difference across borders in terms of language, immigration laws, and housing markets, the mobility of the labor factor is not optimal in Europe and slightly reduces this regulatory mechanism.

A second important difference might also be observed in an asymmetric shock situation. Indeed, if one single country within the Euro zone suffers from a shock while the others remain unaffected, this country will be very likely to care first about its own interests and to disregard the Euro zone policies. This might cause serious damages to the entire Euro zone situation. According to Dominguez (2006), it is very probable that a country suffering from an asymmetric shock would want to take care about its own interests, letting the ECB on the sidelines. Clearly, if the Slovakia was about to suffer from an important economic crisis, it would not have a significant impact on the euro economy taken as a whole. But one can imagine the effect of such a shock if Germany or France was this specific country, which is not an impossible scenario. In the United States, this kind of problem is very unlikely to happen as far as the fifty states belong to the same country.

Third, one obvious point to look at is the amount of each currency held in reserve by banks worldwide. According to Dominguez (2006) who exclusively focused on this aspect, the role of the euro as a reserve currency is still evolving and the euro may become the leading international reserve currency. But by looking at the second trimester official statistics on the currency composition of foreign currency reserves, even ten years after the introduction of the euro, we can see that the Euro represents 17.2% of the foreign reserves whereas the share of the US dollar represents 80% (https://www.imf.org/external/np/sta/cofer/eng/cofer.pdf). Looking at these data shows that the dollar clearly remains the most used currency for all the non-American central banks in term of reserve currency. The euro is still far behind and seems to be mostly used in Europe's bordering countries. In addition, according to Dominguez (2006), the part of the foreign exchange trading taking place in euros has not augmented if we compare it to the share of all the currencies that were used before EU taken as a whole. Regarding these

arguments, the US dollar should remain the unavoidable reserve currency in the marketplace for a while.

Finally, the number of years since the euro has been introduced compared to the ones spent by the US dollar is one of the most evident differences between the two currencies. The US dollar longevity, linked with its notoriety has in our view, three main impacts.

First, it clearly shows that the American system is able to go through important economic downturns. Speaking about the euro, Dominguez (2006) said three years ago that the true test of the power of the ECB and the durability of the euro still had to take place. The question was therefore to know whether the ECB would be successful as the US Federal Reserve to tranquilize and stabilize financial markets so as to preserve the euro zone economy if facing severe financial market instability. This question was unclear in recent times. In fact some may argue that ECB is not capable of handling periods of economic downturn, the euro zone structure and the ability of the ECB to calm down the market seems insufficient compared to the US. Or we can at least say that this ability is currently being tested by the tough conditions of the global economy. However, as far as the downturn was a global phenomenon, the euro zone is not the only economy that has been hit by the crisis, although the current crisis seems to suggest that the Euro zone is having a hard time calming down the global market.

As explained by Salvatore (2002), a second difference coming from the US dollar longer utilization is the difference of seigniorage benefits from the use of the unique currency as an international currency. Indeed, seigniorage which is the discount earned coming from the issuing of currency, the difference between the face value of national notes or metal coins and the cost of providing them, is a well-known advantage for the dollar but seems to be applied to the euro in a smallest proportion due to the difference between the two currencies in term of popularity. However, this difference is not quantitatively comparable due to the lack of statistics in this domain.

Finally, the fact that the US dollar is a strong international currency for a long time has led many countries, mostly developing countries to favor the US dollar utilization over their own currency. Whereas the euro can almost only be used within Europe, the US dollar has the good advantage to be usable around the world. Indeed, hundred dollar bills are especially appreciated and can even provide more advantageous exchange rates than the spot exchange rate.

DISCUSSION

Having compared the main factors that can be analyzed from the past and the present situation in both currency systems, let's try to look in the future by looking at different scenarios which might take place in a few years' time.

In recent times there were many discussions about the current weakness of the US dollar against the currencies of the US trading partners, especially after the 2008 crisis. For example, on the October 22nd 2009, Robert Zoellick, the president of the World Bank points out that looking

forward; there will progressively be more other alternatives to the dollar. But it is also said that for now, there is no "attractive alternative" to dollar.

To assess the likelihood that the euro is actually this attractive alternative and will be the dominant currency in ten years' time, we will try to generalize a study conducted by Chinn and Frankel (2005), in which two interesting scenarios under which the euro could surpass the dollar as an international reserve currency have been identified. The question on which they focused in not exactly the same as the one we are trying to solve. Indeed, they exclusively looked at the two currencies use as reserve currencies. We can however use their work and more precisely the two scenarios that have been drawn in their research as starting points of our expectations of the future leading international currency.

The first scenario depends mostly on the United Kingdom. Indeed, according to Chinn and Frankel, the dollar as a reserve currency could be seriously endangered by the euro if the UK and enough other European countries join the euro zone so that the countries belonging to the Euro zone taken as a whole become larger than the American economy. Indeed, the British Pound is a strong international currency which could not be negligible and whose influence could significantly empower the Euro as an international currency. In our opinion, this interesting idea can be applied more broadly. Indeed, we think that as far as the UK have both a strong investment and reserve currency, it is very likely that the adoption of the Euro by the UK would empower the Euro as an international currency as a whole.

It is very hard to assess the likelihood that the UK will join the euro currency. This question was very relevant a couple of years ago when in 2003, Gordon Brown who was the Chancellor at that time, said that he was in favor of joining the currency "when it is in the UK's national interest" (http://news.bbc.co.uk/2/hi/business/ 2975790.stm). He based his ideas on five economic criteria that should be fulfilled to join the Euro. However, six years later, in 2009, nothing has changed. Will the UK remain a monetary outlier, like Switzerland? According to some analysis, mostly due to the appreciation of the euro against US dollar, the UK should join the euro, (www.telegraph.co.uk/news/worldnews/europe/eu/5506385/Britain-will-obviously-join-euro). But given current crisis in EU, we believe that it is not likely to happen.

The second scenario under study depends on the confidence in the value of the US dollar. According to multiple sources, if the confidence in the value of the dollar falls, which might come from a plenty of causes, there is a flight to the euro as an alternative. And once again, this flight to the euro might not only be observed in term of reserve currency. Indeed, banks, individual investors and companies are all more likely to rely on a trustworthy and strong currency. Let's look at the dollar historic exchange rates to consider the idea of US dollar depreciation. Compared to the euro, the US dollar exchange rate has evolved. When the euro was introduced in 1999, one euro was worth one US dollar. After more than two years of depreciation against the dollar mostly due to the uncertainty about its policy, the euro has constantly been appreciating from 2002 until recently. The spot exchange rate is 1.49365 USD/EUR, the 13th of November 2009. From the American perspective, we can therefore clearly see a depreciation of

the US dollar compared to the euro. But to look at it from another perspective, let's take an independent currency as an index. The Swiss Franc (CHF) is a strong international currency which is known to be stable and which can be used to see whether the depreciation of the dollar compared to the euro is due to the euro good performance or to the US dollar bad performance. For instance the CHF/EUR exchange rate was around 1.6 CHF/EUR in 1999 and is around 1.5 CHF/EUR today. Compare to the Swiss franc, we will note that there is a slight depreciation of the euro during this 10 year period. If we look the CHF/USD exchange rate during the same period, we can also see an appreciation of the Swiss franc but significantly higher than the appreciation of the Swiss franc against the euro. Indeed, in 1999 the CHF/USD exchange rate was around 1.6 CHF/USD. In late 2009, the two currencies tie with the CHF/USD spot rate of 1.01 CHF/USD.

Knowing that the US dollar depreciated compared to a stable international currency, what does this mean? Regarding the basic principles of economics and international trade, to have a weak currency compared to another has obviously two major effects. Indeed, on the one hand, it is an interesting opportunity for the exportation side of the balance of payment, and on the other hand, it prevents importations to occur because the price of foreign goods had become unaffordable due to the weakness of the currency compared to the foreign country. As Kevin Giddis, managing director of fixed income at Morgan Keegan said, the prices are sustained by foreign countries 'demand, that profit from the current low dollar exchange rate (http://money.cnn.com/2009/10/13/markets/bondcenter/bonds/index.htm).

Therefore, it seems that the USA has an incentive to keep a low dollar or at least not have a too strong dollar even if the level of trust from the investors might suffer from such an exchange rate.

The third scenario that we imagined precisely comes back to the reserve currency argumentation and is somewhat linked to the second scenario. Currencies can quickly and easily be exchanged. Therefore, a scenario which may happen in a more or less short term horizon is the following. If heavy holders of US dollars decide to do get rid of US dollars because they don't trust the US dollar anymore, or because they found a more interesting alternative, it will obviously weaken the US dollar value and may lead other heavy users to do the same. This could be the starting point of a vicious circle leading the US dollar to lose its international influence.

The most important user of US dollars as reserve currencies is China. Indeed, it is well known that China buys US dollars to support the dollar as far as the American are the Chinese most important trading partner with almost thirty percent of the Chinese exports going to the United States. If the US dollar would dramatically decrease, the price American citizen wouldn't have enough purchasing power to buy Chinese imported products or at least, the former unbeatable Chinese prices would not be unbeatable anymore. This would therefore considerably reduce the Chinese exportation. It seems therefore that the Chinese are not very likely to sell their US dollars for other currencies.

According to the Chinese Central Bank chief Zhou Xiaochuan, one should shift from global finance to a reliance on a new international reserve currency rather than the dollar or any other national unit. The purpose is to avoid the periodic crisis that have characterized recent decades. This is another interesting option that has not been taken into account in this article; a made-up currency.

IMPLICATIONS AND LIMITATIONS

The purpose of this article is to figure out whether one or the other of the US dollar and the euro will be the dominant currency in ten years' time. But regarding the different scenarios discussed above, there are a lot of criteria to take into consideration so as to know which of the two currencies would be the future international leading currency. It is obviously not possible to precisely predict what will happen in the future. The second main limitation of this article is that most of its essence is based on the past literature. No study or model has been created. Third, we decided to stay apart from other important currencies which were therefore not included in the discussion.

However, this paper gives several indicators and hints about the likelihood that one or the other currency would be the dominant international currency in ten years' time. Indeed, we gathered much useful and interesting information which may help people to understand the future role of both the US dollar and the euro as international currencies. More precisely, this article gives a good idea of the reasons why monetary unions exist, and precisely why the ECB has been created. This article is also useful to be aware of the different scenarios that may take place in international markets in the following years.

The main differences between the European and the American case as well as the three scenarios under study could be used for further research to more accurately analyze each of these differences and assess quantitatively the likelihood of each scenario to effectively take place. A model which could take all these suggestions into consideration could be a good prediction of the future leading international currency.

SUMMARY AND CONCLUSION

Regarding the different scenarios discussed above, there are a lot of criteria to take into consideration so as to know which of the two currencies will be the future international leading currency. Let's first sum-up the arguments developed in this article in favor of the USD as the leading currency to have a better understanding of the US dollar future likely role before doing the same in favor of the euro.

First, in asymmetrical shock situation, it seems that the American economy is better prepared to react due to two main factors. The mobility of the workforce from state to state allows the US to lean on an important automatic regulatory mechanism. And the 50 states are

united and should not care about their own interest first as European countries might do in an asymmetrical shock situation.

Second, the US economy is present in international business for plenty of years compared to the euro which has been introduced in 1999. This longevity linked with a good reputation allows the USA to make more seignoriage benefits than the Eurozone does and to have a currency that is used around the world, especially in developing countries.

Finally, by looking at both shares of reserve currencies, US dollar is still the unavoidable reserve currency and China as well as other big trading partners seem not likely to get rid of their USD dollars due to their own interests.

Let's look at the arguments in favor of the Euro as the leading currency. In our opinion, the appreciation of the euro against the USD is the first very good sign for the European economy and for the euro reputation, but recent crisis in EU seems to negate that argument somewhat. But once this crisis is over, and with further US dollar depreciation might lead the US dollar to be gradually replaced by euros in foreign currency reserves. A better reputation can also lead to higher seignoriage benefits for the ECB.

In addition, although the current crisis is not handled well by the ECB but given its severity of the problem, they seem to be doing their best. With their plans to change some policies in the EU treaty, they may be able to handle them better in the future, which is a good sign for the future of the euro as an international currency.

Finally, the adoption of the euro by the UK could strengthen the Euro as the international leading currency forevermore. This is not very likely to happen, but we can however not exclude this scenario.

Having balanced both the arguments for the USD and the ones for the euro, we think that the US dollar will remain as the future international leading currency. We believe that the US dollar should remain a strong international currency although the Euro will take advantage of a gradual decrease in the confidence of the US dollar in the long run. But this is not likely to happen in ten years' time.

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