Government Spending or Tax Cuts for Education in Taylor County, Texas

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On February 17, 2009, President Barack Obama signed into law the American Recovery and Reinvestment Act. The Education sector in Taylor County, Texas, received \$17,251,899 in grants over 16 months for 17 projects. This paper will model the impact of the stimulus package on Taylor County, Texas, and its effect on education, and then compare this model with an alternate tax relief model to gauge indirect and induced changes in the Education sector within the county. This paper will examine the sustainability of one time government grants versus community generated funding. These models will be compared with actual changes in the Education sector, where boom and bust spending has forced significant layoffs as funding runs out.

INTRODUCTION

On February 17, 2009, President Barack Obama signed into law the American Recovery and Reinvestment Act ("The economic stimulus," 2009). Taylor County, Texas, received \$47,904,582 over a period of 16 months for 78 projects. The Education sector alone in Taylor County, Texas, received \$17,251,899 in grants over 16 months for 17 projects.

At the federal level, the Department of Education's budget doubled to \$105.9 billion. It directed funds to public schools, universities, and childcare centers over two years. A little more than half of the funds (\$53.6 billion) were given to the states to stabilize their educational funds and offset planned cuts in education. State budget shortfalls at the national level were approximately \$132 billion; the infusion of federal dollars meant that teacher layoffs would be curtailed. Additionally, the stimulus allocated \$650 million to a program, Enhanced Education through Technology Funding (EETTF), aimed at improving technology outcomes in the classroom (Electronic Education Report, 2009).

This paper will model, firstly, the impact of the stimulus package on education in Taylor County, Texas, and then compare this outcome with an alternate tax relief model to gauge indirect and induced changes in the Education sector within the county.

Funds directed to specific non-education sectors of the county drive the positions and other educational requirements to support new activity created within education. Therefore, in order to understand the full impact of the stimulus package on education, this paper will model, secondly, the entire stimulus package for Taylor County, Texas.

Thirdly, several tax relief packages were developed to model the support required to save education positions equal to the number of actual education positions lost in Taylor County.

This paper offers comparisons of one-time government grants versus community-generated funding for education. It also compares the first two models to actual changes in the Education sector (where boom-and-bust spending has forced significant layoffs).

Models in this analysis were developed using the IMPLAN system (IMPLAN, 2012). The comparison of tax relief and government spending outputs from IMPLAN allows us to model funding policy and its effectiveness on Taylor County's Education sector. By constructing Social Accounts that describe the structure and function of a specific economy, IMPLAN creates a highly localized model to investigate the consequences of projected economic transactions on geographic regions. Over one thousand public and private institutions use IMPLAN. It is the most widely employed and accepted regional economic analysis software for predicting economic impacts.

IMPLAN's Social Accounting Matrices (SAMs) capture the actual dollar amounts of all business transactions occurring in a regional economy as reported each year by businesses and governmental agencies. SAM accounts are a better measure of economic flow than traditional input-output accounts because they include "non-market" transactions. Examples of these non-market transactions are taxes and unemployment benefits (IMPLAN, 2004).

The comparison of tax relief and government spending outputs from IMPLAN allows us to examine funding policy and its effectiveness on education in Taylor County. One of the stated goals of the stimulus package was to create or save jobs in education. The three model outcomes are compared for differences in job creation for the Education sector in Taylor County. This paper is intended to improve the economic choices made by Independent School Districts and policy makers in Taylor County, Texas, and the city of Abilene.

EDUCATION FUNDING IN TAYLOR COUNTY

Taylor County funding follows state guidelines. Texas currently uses a weighted funding approach, where a basic allotment is based on average daily attendance. This allotment is then adjusted based on subgroups such as gifted and talented, vocational, bilingual, and compensatory or special education students. Educational funding formulas at their best are confusing. The authors' intent is to offer suggested alternatives to funding, not to question the current methodology in use.

In 2009–2010, Taylor County funds were sourced 5% from federal, 57% from state, and 38% from local funds (Funding Information, 2011). In 2004, the average county in America sourced 7.3% from federal, 49.7% from state, and 43% from local funds (The Index of Education Effort, 2004). In 2006, Texas changed the funding formulas to be less locally oriented and more reliant on state and federal funds.

Funds for education are sourced predominantly from property taxes. Strobel points out that part of the stimulus package provided tax law changes to encourage the economy (Strobel, 2009). For properties placed into service after December of 2008, taxpayers were allowed an additional depreciation deduction equal to 50 percent of the adjusted basis of the qualified property. This depreciation allowance is intended to stimulate local growth in property taxes in the long term. As business and property values improve, tax revenues for local schools could increase.

MODEL DEVELOPMENT

We obtained stimulus data for Taylor County, Texas, from the web site www.recovery.gov ("Stimulus package accountability," 2009). Taylor County zip codes were used to find total expenditures in Taylor County (refer Table 1).



TABLE 1
TAYLOR COUNTY STIMULUS BY TYPE, NUMBER OF AWARDS AND ZIP CODES

	Stimulus by Zip													
Zipcode		Contracts		Grants	(Grand Total								
79601				3,801,521	\$	3,801,521								
79602			\$	14,167,950	\$	14,167,950								
79603			\$	643,062	\$	643,062								
79604	\$	6,754,940	\$	14,496,557	\$	21,251,497								
79605			\$	659,536	\$	659,536								
79606			\$	2,165,936	\$	2,165,936								
79607	\$	5,124,418			\$	5,124,418								
79698			\$	36,082	\$	36,082								
79699			\$	54,580	\$	54,580								
Grand Total	\$	11,879,357	\$	36,025,224	\$	47,904,582								

Projects requesting funding are listed in Appendix A, detailing the Taylor County stimulus projects by the Funding Agency (e.g., Abilene Christian University), Award Area (e.g., Department of Education), the amount of the funding, the IMPLAN sector associated with each project, and the Project Title given by the Funding Agency.

The Stimulus Package Accountability Web Site revealed the funding months and years for each project. Project funding dates and IMPLAN sectors were used to create a table summarizing the project descriptions, sectors, and total expenditures by year (refer Table 2). It should be noted that funds allocated to monitor and continue government services were assigned to those government sectors being monitored. Funds allocated to provide social services were assigned to the appropriate non-government sectors.

TABLE 2
IMPLAN DESCRIPTION, SECTORS, AND TOTAL EXPENDITURES BY YEAR

Sector	Implan Description	2009	2010		Total
39	Maint & repair construct of nonresident struc	\$ 14,635,955	\$ 2,957,684	\$	17,593,639
40	Maint & repair construct of residential struc	\$ 3,567,059	\$ -	\$	3,567,059
373	Other computer related services- including fa	\$ 150,809	\$ -	\$	150,809
374	Management- scientific- and technical consult	\$ 57,576	\$ -	\$	57,576
399	Child day care services	\$ -	\$ 895,987	\$	895,987
401	Community food- housing- and other relief ser	\$ 147,752	\$ 123,448	\$	271,200
402	Performing arts companies	\$ 16,435	\$ -	\$	16,435
424	Grantmaking- giving- and social advocacy orga	\$ 572,314	\$ -	\$	572,314
425	Civic- social- professional- and similar orga	\$ 798,559	\$ 3,575,754	\$	4,374,313
430	* Not unique commod (S&LG passenger transit)	\$ 2,057,460	\$ -	\$	2,057,460
432	Other state and local government enterprises	\$ 516,085	\$ 100,000	\$	616,085
437	* Special (S&LG Non-Ed Emp & Payroll)	\$ 389,143	\$ -	\$	389,143
438	* Special (S&LG Ed Emp & Payroll)	\$ 16,382,448	\$ 960,114	\$	17,342,562
	Total	\$ 39,291,595	\$ 8,612,987	\$4	47,904,582

In preparation for the comparative tax rebate model, the authors reviewed the current demographic statistics for Taylor County, Texas, available from the U.S. Census Bureau, 2009, American Community Survey, to obtain a cross section of households by income bracket. We found that the IMPLAN data analysis has an upper salary income stratum of over \$200,000; therefore, any number over \$200,000 was

accumulated into the top stratum. Once the population estimates were established for each stratum, we recorded the midpoint of each salary range to serve as the average of the possible incomes in each stratum.

Using the Internal Revenue Service's web site 2009 ("Internal revenue service," 2009) marginal tax rates for each income level, the marginal tax rates were multiplied by the midpoint income of each income level to determine the amount of federal tax revenue per household in Taylor County by income level. The estimated federal tax revenue per household was then multiplied by the estimated number of households at each income level to estimate total tax revenue per income level.

A proposed \$47,904,582 tax rebate per income level was apportioned by calculating the percentage of total federal tax revenue by income level over total federal tax revenue. Refer to Table 3 - Determination of Total Tax Rebate per Income Level - to review the apportioned funds.

TABLE 3
DETERMINATION OF TOTAL TAX REBATE PER INCOME LEVEL

Income Level	Estimated Households per Income Level	ome Level Iidpoint	Marginal Tax Rate	F R	Federal Tax Revenue per		Federal Tax Federal Tax Revenue per Rev		eral Tax Federal Tax Fenue per Revenue per Income Level In as a of		F	Total Tax Rebate per come Level
								Total Federal Tax Revenue				
Less than \$10,000	3,386	\$ 5,000	0%	\$	-	\$	-	0.0%	\$	-		
\$10,000 to \$14,999	2,604	\$ 12,500	10%	\$	250	\$	650,870	0.2%	\$	73,369		
\$15,000 to \$24,999	6,963	\$ 20,000	15%	\$	1,250	\$	8,702,531	2.0%	\$	980,983		
\$25,000 to \$34,999	6,410	\$ 30,000	15%	\$	2,750	\$	17,625,417	4.1%	\$	1,986,806		
\$35,000 to \$49,999	5,935	\$ 42,500	17%	\$	4,737	\$	28,114,199	6.6%	\$	3,169,142		
\$50,000 to \$74,999	10,524	\$ 62,500	25%	\$	9,099	\$	95,761,138	22.5%	\$	10,794,568		
\$75,000 to \$99,999	5,449	\$ 87,500	27%	\$	15,599	\$	84,999,223	20.0%	\$	9,581,443		
\$100,000 to \$149,999	4,039	\$ 125,000	28%	\$	25,974	\$	104,908,077	24.7%	\$	11,825,647		
\$150,000 to \$199,999	986	\$ 175,000	30%	\$	40,448	\$	39,882,207	9.4%	\$	4,495,678		
\$200,000 or more	925	\$ 200,000	33%	\$	47,923	\$	44,329,086	10.4%	\$	4,996,947		
Total	47,221			\$	148,030	\$	424,972,749	100.0%	\$	47,904,582		

ECONOMIC IMPACT METHODOLOGY

There are two widely used economic impact modeling software packages available for economic analysis: the REMI model, developed by Regional Economic Models, Inc. and IMPLAN (Impact Planning), developed by the Forest Service of the Department of Agriculture and distributed by MIG, Inc. (Formerly Minnesota IMPLAN Group, Inc.). Crihfield and Campbell (1991) compared these two models and found significant and sizable differences in the two system outputs. Crihfield and Campbell found the REMI system multipliers to be 32% to 57% larger than IMPLAN. Given a choice in package selection for modeling, the authors used the more conservative modeling package of the two with regard to multipliers – the IMPLAN system.

Using IMPLAN software, the authors calculated the impact of the stimulus package data on business activity based on investment in projects and grants during each of the years 2009 and 2010. Specifically, this analysis measures the anticipated economic impacts of the 2009 Stimulus Package using the IMPLAN input-output economic system and RIMS II (a similar system produced by the Census Bureau). We customized the models by categorizing the industry investments into IMPLAN Sectors. We used regional purchasing coefficients found in the model to determine the percentage of projects expended within Taylor County. In any business transaction, funds flow away from the study area through normal business channels and do not affect it.



An economy can be measured in any number of ways. The three most common are: "Output," which describes total economic activity and is closely linked to a firm's gross sales; "Employee Earnings," which corresponds to wages and benefits; and "Employment," which refers to permanent jobs that have been created in the local economy.

In an input-output analysis of these types of activities, it is useful to distinguish three types of expenditure effects: direct, indirect, and induced.

- Direct effects are production changes associated with the immediate effects on final demand. The payments made by an out-of-town visitor to a hotel operator are an example of a direct effect, and so is the money spent by that same visitor at a restaurant.
- Indirect effects are production changes in backward-linked industries caused by the changing input needs of directly affected industries typically, additional purchases to additional output. Satisfying the demand for an overnight stay will require the hotel operator to purchase cleaning supplies to clean the room. These payments affect the economic status of other local merchant workers (e.g., grocery and cleaning suppliers).
- Induced effects are the changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects. Both the hotel operator and restaurant experience increased income from the visitor's stay, for example, as do the cleaning supplies outlet and the food service vendor. Induced effects capture the way in which local merchants spend this increased income in the local economy.

FIGURE 1 THE FLOW OF ECONOMIC IMPACTS

DIRECT + INDIRECT + INDUCED = TOTAL IMPACT

The interdependence between different sectors of the economy is reflected in the concept of a "multiplier." The output multiplier divides the total (direct, indirect, and induced) effects of an initial spending injection by the value of that injection. The higher the multiplier, the greater the interdependence among different sectors of the economy. An output multiplier of 1.3, for example, means that for every \$1,000 injected into the economy, another \$300 in output is produced in all other sectors.

IMPACT ANALYSIS AND EDUCATION FUNDING POLICY

Impact analysis can help focus education funding policy debates on facts rather than emotions. Impact analysis models tax revenues based on actual consumer spending patterns for each county. It is these spending patterns that generate funding for each of the tax segments at the state and local levels. Impact analysis is used extensively in private sector analysis but has seen little use in the government sector. Impact analysis is problematic for government analysts in that it could actually disprove the benefits of the politically motivated project, while proving the benefits of alternate projects in the long-term.

When given a choice of direct or induced funding for education there is the problem of *moral hazard*. The Education sector is "In it to win it!" so given a known quantity of funds versus an unknown model for funds (waiting on property tax increases from other stimulus), the Education sector would likely choose the sure option - directed funding. From a local county standpoint, modeling allows commissioners to predict tax revenues generated by various tax relief packages. In most cases, counties will choose the option that generates the highest general revenues for the county. The county can fund more educational spending through higher property taxes brought about by improvements in the local economy, while the school will choose directed funding which lowers possible county resident spending. Table 4 sets out the directed funds by Education sector in Taylor County.

TABLE 4 STIMULUS FUNDS FOR TAYLOR COUNTY EDUCATION

Funded Agency	Local	Project Title
	Stimulus	
	Amount	
ABILENE INDEPENDENT SCHOOL DISTRICT	\$ 960,114	Title II, Part D Enhancing Education Through Technology.
ABILENE INDEPENDENT SCHOOL DISTRICT	\$ 85,469	Preschool Grants for Children with Disabilities
ABILENE INDEPENDENT SCHOOL DISTRICT	\$ 79,398	Education for Homeless Children and Youth.
ABILENE INDEPENDENT SCHOOL DISTRICT	\$ 3,627,947	Title I, Part AImproving Basic Programs Operated by Local Educational Agencies.
ABILENE INDEPENDENT SCHOOL DISTRICT	\$ 114,281	Title II, Part D Enhancing Education Through Technology.
ABILENE INDEPENDENT SCHOOL DISTRICT	\$ 6,322,420	State Fiscal Stabilization Fund -Education Fund
ABILENE INDEPENDENT SCHOOL DISTRICT	\$ 3,306,928	Grants to States for the Education of Children with Disabilities
ABILENE REGIONAL MHMR	\$ 324,956	Early Intervention Program for Infants and Toddlers with Disabilities
COMMUNITY ACTION PROGRAM, INC.	\$ 312,859	Head Start Early Head Start ARRA
EDUCATION AGENCY, TEXAS	\$ 90,846	Title II, Part D Enhancing Education Through Technology.
EDUCATION AGENCY, TEXAS	\$ 28,936	Title I, Part AImproving Basic Programs Operated by Local Educational Agencies.
EDUCATION AGENCY, TEXAS	\$ 54,271	Title II, Part D Enhancing Education Through Technology.
EDUCATION AGENCY, TEXAS	\$ 186,260	Head Start Quality Improvement and COLA (ARRA)
EDUCATION AGENCY, TEXAS	\$ 202,046	Early Head Start
WYLIE INDEPENDENT SCHOOL DISTRICT	\$ 90,601	Title I, Part AImproving Basic Programs Operated by Local Educational Agencies.
WYLIE INDEPENDENT SCHOOL DISTRICT	\$ 562,240	Grants to States for the Education of Children with Disabilities
WYLIE INDEPENDENT SCHOOL DISTRICT	\$ 902,327	State Fiscal Stabilization Fund -Education Fund.
Total	\$17,251,899	

MODEL OUTPUT - THE 2009 STIMULUS PLAN

The original stimulus plan to drive \$47,904,582 into the Taylor County economy has an actual impact of only \$43,046,960 in 2009 dollars. There are two reasons for the loss of impact on Taylor County. First, expenditures were carried out over eighteen months (so those dollars that were expended in 2010 are discounted back to 2009 dollars) and second, the impact of regional purchasing coefficients tells us that funds flow out of Taylor County through purchases of goods and services by contractors to provide the in-county goods and services. See Table 5 – The Model Output, Employment, Tax, and Sector Impact.

TABLE 5
THE MODEL OUTPUT, EMPLOYMENT, TAX, AND SECTOR IMPACT

Model	Impact Type	Direct	Indirect	Induced	Total
Tax Rebate	Output	\$ 33,641,245	\$ 8,843,829	\$ 22,395,142	\$ 64,880,216
	Employment	313	69	207	589
	Tax	\$ 2,194,398	\$ 343,790	\$ 986,467	\$ 3,524,655
	Sector Count	179	186	207	207
2009 Stimulus	Output	\$ 28,695,817	\$ 4,500,211	\$ 9,850,932	\$ 43,046,960
	Employment	313	40	92	446
	Tax	\$ 248,269	\$ 262,254	\$ 506,872	\$ 1,017,395
	Sector Count	21	178	205	206
Variance	Output	17.2%	96.5%	127.3%	50.7%
	Employment	0.0%	71.1%	123.8%	32.0%
	Tax	783.9%	31.1%	94.6%	246.4%
	Sector Count	752.4%	4.5%	1.0%	0.5%

TOTAL MODEL OUTPUT - ALTERNATE MODEL TAX REBATE

The effect of a tax rebate on the county is significantly different. Again, two factors influence the



outcome. First, a tax rebate can be issued all at once (a moment in time), and the expenditures occur quickly over multiple sectors as consumers spend extra income that becomes available. There is no multiyear lag to delay the effect of the stimulus. A second major factor is that these direct tax rebate dollars are spent locally in Taylor County. The tax rebate model generates \$64,880,216 in output for the county, a 50.7% increase over the government's directed stimulus package.

MODEL COMPARISON

A tax rebate directly to the people of Taylor County has an output impact 50.7% greater than a directed stimulus package to specific industries in that county. Comparison of the number of sectors directly impacted is significantly different, with a 752.4% increase in those sectors impacted by a tax rebate by nature of consumer spending patterns rather than industry spending patterns. The direct tax rebate effect infuses funds into the county more quickly than a directed stimulus package.

With the tax rebate option, there is a 32% improvement in employment. Employment is spread out more significantly over a greater number of sectors - initial impact in the direct round of spending impacts 752.4% more sectors than a directed stimulus plan.

TABLE 6
JOB CREATION BY INCOME LEVEL

Job Income	Tax Rebate	2009 Stimulus
Less than \$10,000	14	11
\$10,000 to \$14,999	9	8
\$15,000 to \$24,999	37	24
\$25,000 to \$34,999	30	22
\$35,000 to \$49,999	50	30
\$50,000 to \$74,999	12	10
\$75,000 to \$99,999	8	6
\$100,000 to \$149,999	2	2
\$150,000 to \$199,999	1	0
Over \$200,000	0	0
Total	163	113

FIGURE 2
JOB CREATION BY INCOME LEVEL GRAPHIC

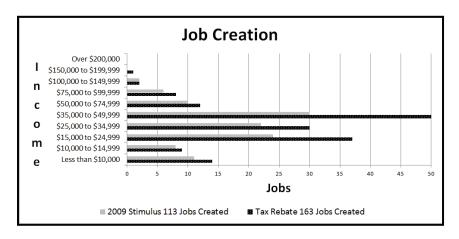


Table 6 and Figure 2 illustrate job creation resulting from the 2009 stimulus and the tax rebate models.

The tax rebate model creates 163 jobs while the stimulus model creates only 113. The tax rebate model creates more jobs in the \$15,000 to \$50,000 range, which implies that the types of jobs created are of higher value and longer-term than in cyclical construction or other minimum wage areas.

Tax revenues for Taylor County increase by 246.4% when a tax rebate is given rather than directed stimulus funds. The data indicates that these tax revenues are received earlier as tax rebate expenditures influence 752.4% more sectors in the initial round of spending.

Due to the difficulty in establishing the cost of command and control structures in the 2009 stimulus plan, no oversight costs were included in both IMPLAN models. Including these costs would reduce the effectiveness of the stimulus plan and improve the performance of the tax rebate model, since most supervision and monitoring is conducted outside of Taylor County.

TWO MODEL IMPACTS ON EDUCATION IN TAYLOR COUNTY

Both models create education impacts. Table 7 – Model Comparison of Education Sectors - shows a comparison of education positions created by each model. The 2009 stimulus plan has both direct and induced effects as the 2009 stimulus directly created positions in each Education sector through grants to specific education areas. Funds directly infused into education also add to induced increases as spending impacts employment.

TABLE 7
MODEL COMPARISON OF EDUCATION SECTORS

Model	Direct	Indirect	Induced	Total
Tax Rebate Education Employment	0	0	15.3	15.3
Stimulus Education Employment	113.4	0	70.4	183.8
Variance	-100%	0%	-78 %	-92%

A total of 15.3 education positions were created with a tax rebate model. All positions in this model were induced by spending within the local economy. A total of 183.8 positions were created by direct grants creating positions and induced spending from the community. This comparison points out the benefits of direct funding for education rather than a tax rebate policy for local Education sectors.

Taylor County School Districts

The allocation of stimulus funds within the state of Texas proved problematic from the start. As funds became available through the stimulus program, regions began to subrogate funds from normal sources and replace them with stimulus funds. So rather than improving the lot of many school districts as presented, the stimulus funds merely reduced the state funds supplied to the schools. The resulting employment effect was a net zero change in positions. When time came to report stimulus fund use, the school districts became aware that the proposals put forward for the funds had agreed to add or maintain positions in education. In actuality, many school districts were reporting no additions and no change. After several rounds of reporting that showed no gains, the school districts were asked to "not report how many jobs were saved and added" but "how many jobs were now supported by these stimulus funds rather than state funds."

An analysis of (AISD Abilene Texas, 2011) net job changes throughout the five Independent School Districts in Taylor County for the 2010/11 and 2011/12 school years is summarized in Table 8.



TABLE 8 TAYLOR COUNTY INDEPENDENT SCHOOL DISTRICTS NET JOB CHANGES 2009/10 – 2010/11

Taylor Cou	Taylor County Independent School Districts												
School District	School District 2010 - 2011 Net Job Change 2011 - 2012 Net Job Change												
Abilene ISD	17	-134											
Merkel ISD	0	0											
Wylie ISD	2	0											
Jim Ned ISD	0	-1											
Trent ISD	-5	0											
Total	14	-135											
* N	umbers sourced from ISD intervi	2000											

Note: These numbers are sourced from telephone interviews with Independent School District administrators and are dependent on these administrators freely divulging these changes.

The 2010/11 school year funding through the tax rebate model approximates the changes shown in Table 8. Real changes of a net positive 14 (Table 8) closely approximate the induced number of 15.3 positions created by the tax rebate model (Table 7).

UNINTENDED CONSEQUENCES OF STIMULUS FUNDS

Funds intended to increase educational services in Taylor County lead to subjugation where state funds were dropped and replaced by the amount federal funds increased. **Jeffrey Leeds**, who runs education-focused private equity firm **Leeds Equity Partners**, said the following regarding the stimulus package for education:

A lot of the stimulus money going in [to education] is designed to preserve what already exists. Most of it wouldn't be considered 'new spend.' If there is \$120 billion that's allocated for education broadly, a good portion of that is simply replacing the state and local contributions (MacFayden, 30 March, 2009).

Figures 3, 4, and 5 attempt to visually display the sequence of events and unintended consequences leading to a drop in positions in 2011 and 2012. State funds once subrogated are hard to replace, resulting in extra pressures on educational funding in subsequent years. Lost federal funds in the 2011-2012 school years resulted in the reported loss of 135 positions in Taylor County schools.

FIGURE 3 INTENT OF STIMULUS FUNDING

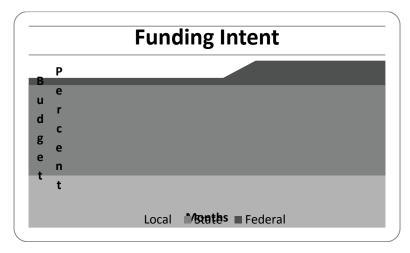


FIGURE 4 STIMULUS FUNDING EFFECT

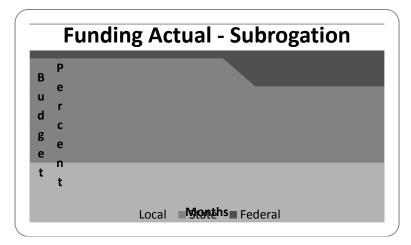
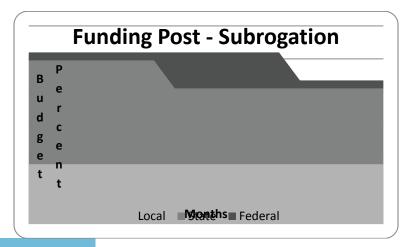


FIGURE 5 STIMULUS FUNDING RESULT





Dodaro was concerned with accountability of funds in such a volatile and changing environment as education (Dodaro, 2009). Dodaro states,

Based on its experience in auditing Texas' use of previous federal awards and reporting internal control deficiencies or material weaknesses, the State Auditor's Office noted that relatively high risks generally can be anticipated with certain types of programs—such as (1) new programs with completely new processes and internal controls, (2) programs that lack clear guidance on allowable uses of Recovery Act funds, (3) programs that distribute significant amounts of funds to local governments or boards, and (4) programs that rely on sub-recipients for internal controls and monitoring. The State Auditor's Office also noted that general economic stability and public education programs are considered to be high risk because they are new programs and federal guidance regarding the state's appropriate use of the funds is uncertain.

Interviews with Taylor County school officials confirmed that all four areas of concern were problematic for local schools.

Rapoport reported that last spring the Texas Legislature needed to close a \$27 billion shortfall and resisted protesters as they fought to stop deep cuts to education (Rapoport, 2012). After much debate, the cuts finally totaled \$5.4 billion, forcing districts to lay off tens of thousands of teachers and staffers. The fallout for Taylor County was that at least 135 positions were lost. Subrogation had taken its toll.

SENSITIVITY ANALYSIS REPLACING LOST FUNDS

Sensitivity analysis allows us to estimate changes in education positions using modeled changes. Given the developed models, we can estimate the required Tax Relief or Direct Stimulus required to generate funds to support the lost positions.

TABLE 9 SENSITIVITY ANALYSIS

Model	Dollars Infused		Positions	9	Stimulus Per	mulus Per Positions			
			Created		Position	to Fill		Stimulus	
Tax Rebate / Reduction	\$	47,904,582	15.3	\$	3,131,018	135	\$	422,687,488	
Directed Stimulus	\$	47,904,582	107.5	\$	445,624	135	\$	60,159,243	

Using this analysis, a tax rebate stimulus of \$422,687,488 is required for Taylor County to generate 135 positions through induced spending. This indicates that a tax rebate for each of the 47,221 families in Taylor County would need to be \$8,951 in either a tax reduction or tax rebate. The original stimulus of \$47,902,582 would only have been a tax rebate of \$1,014 per family.

A similar analysis for the directed stimulus shows that to create 135 positions the directed stimulus would need to be increased to \$60,159,243 (a 25.6% increase in directed funding for the county) or \$1,274 per family. In summary, to create one position in the schools the directed model needs \$445,624 per position, whereas the tax rebate model requires \$3,131,018 per position (a ratio of 7 to 1 favoring directed stimulus).

STATE AND COUNTY TAX REVENUES

State and local county revenues are significantly improved through the selection of a tax rebate rather than directed funding. Tables 10, 11, and 12 compare the two model outputs with regard to state and local

tax revenues not used to fund education. A tax rebate generates 564% more revenue at the local level than directed funds.

TABLE 10
TAX SNAPSHOT FOR DIRECTED STIMULUS

			Ta	ax I	mpact								
		E	mployee	Р	roprietary		Household	Е	nterprises		Indirect		
		Con	npensation		Income	E	xpenditures	(Co	orporations)	Bu	siness Taxes		Total
Enterprises	Transfers	\$	(4,652)	\$	-	\$	-	\$	-	\$	-	\$	(4,652)
(Corporations)	Total	\$	(4,652)	\$	-	\$	-	\$	-	\$	-	\$	(4,652)
	Corporate Profits Tax	\$	-	\$	-	\$	-	\$	143,314	\$	-	\$	143,314
	Indirect Bus Tax: Custom Duty	\$	-	\$	-	\$	-	\$	-	\$	10,594	\$	10,594
	Indirect Bus Tax: Excise Taxes	\$	-	\$	-	\$	-	\$	-	\$	25,344	\$	25,344
Federal	Indirect Bus Tax: Fed NonTaxes	\$	-	\$	-	\$	-	\$	-	\$	12,690	\$	12,690
Government	Personal Tax: Estate and Gift Tax	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
NonDefense	Personal Tax: Income Tax	\$	-	\$	-	\$	389,118	\$	-	\$	-	\$	389,118
NonDetense	Personal Tax: NonTaxes (Fines- Fees	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
	Social Ins Tax- Employee Contribution	\$	296,440	\$	40,904	\$	-	\$	-	\$	-	\$	337,344
	Social Ins Tax- Employer Contribution	\$	311,300	\$	-	\$	-	\$	-	\$	-	\$	311,300
	Total	\$	607,742	\$	40,904	\$	389,118	\$	143,314	\$	48,630	\$	1,229,706
	Dividends	\$	-	\$	-	\$	-	\$	20,102	\$	-	\$	20,102
	Indirect Bus Tax: Motor Vehicle Lic	\$	-	\$	-	\$	-	\$	-	\$	3,452	\$	3,452
	Indirect Bus Tax: Other Taxes	\$	-	\$	-	\$	-	\$	-	\$	25,294	\$	25,294
	Indirect Bus Tax: Property Tax	\$	-	\$	-	\$	-	\$	-	\$	195,096	\$	195,096
	Indirect Bus Tax: S/L NonTaxes	\$	_	\$	-	\$	-	\$	-	\$	14,316	\$	14,316
	Indirect Bus Tax: Sales Tax	\$	-	\$	-	\$	-	\$	-	\$	193,994	\$	193,994
State/Local	Indirect Bus Tax: Severance Tax	\$	-	\$	-	\$	-	\$	-	\$	19,028	\$	19,028
•	Personal Tax: Estate and Gift Tax	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Govt NonEducation	Personal Tax: Income Tax	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
NonEducation	Personal Tax: Motor Vehicle License	\$	_	\$	-	\$	5,806	\$	-	\$	-	\$	5,806
	Personal Tax: NonTaxes (Fines- Fees	\$	-	\$	-	\$	30,032	\$	-	\$	-	\$	30,032
	Personal Tax: Other Tax (Fish/Hunt)	\$	-	\$	-	\$	1,764	\$	-	\$	-	\$	1,764
	Personal Tax: Property Taxes	\$	-	\$	_	\$	3,354	\$	-	\$	-	\$	3,354
	Social Ins Tax- Employee Contribution	\$	3,416	\$	-	\$	-	\$	-	\$	-	\$	3,416
	Social Ins Tax- Employer Contribution	\$	14,696	\$	-	\$	-	\$	-	\$	-	\$	14,696
	Total	\$	18,110	\$	-	\$	40,958	\$	20,102	\$	451,182	\$	530,352
Total		\$	621,202	\$	40,904	\$	430,076	\$	163,416	\$	499,810	Ś	1,755,408

TABLE 11 TAX SNAPSHOT FOR TAX REBATE

			Tax Impact					
		Employee		Household	Enterprises	Ir	ndirect Business	
		Compensation	Proprietary Income	Expenditures	(Corporations)		Taxes	Total
Enterprises	Transfers	\$ (14,837)						\$ (14,837)
(Corporations)	Total	\$ (14,837)	\$ -	\$ -	\$ -	\$	-	\$ (14,837)
	Corporate Profits Tax				\$ 1,017,528			\$ 1,017,528
	Indirect Bus Tax: Custom Duty					\$	74,708	\$ 74,708
	Indirect Bus Tax: Excise Taxes					\$	179,730	\$ 179,730
Federal	Indirect Bus Tax: Fed NonTaxes					\$	89,484	\$ 89,484
Government	Personal Tax: Estate and Gift Tax							
NonDefense	Personal Tax: Income Tax			\$ 1,340,684				\$ 1,340,684
NonDetense	Personal Tax: NonTaxes (Fines- Fees							
	Social Ins Tax- Employee Contribution	\$ 945,598	\$ 196,940					\$ 1,142,538
	Social Ins Tax- Employer Contribution	\$ 993,001						\$ 993,001
	Total	\$ 1,938,599	\$ 196,940	\$ 1,340,684	\$ 1,017,528	\$	343,922	\$ 4,837,673
	Dividends				\$ 142,726			\$ 142,726
	Indirect Bus Tax: Motor Vehicle Lic					\$	24,349	\$ 24,349
	Indirect Bus Tax: Other Taxes					\$	178,374	\$ 178,374
	Indirect Bus Tax: Property Tax					\$	1,375,810	\$ 1,375,810
	Indirect Bus Tax: S/L NonTaxes					\$	100,959	\$ 100,959
	Indirect Bus Tax: Sales Tax					\$	1,368,047	\$ 1,368,047
State/Local	Indirect Bus Tax: Severance Tax					\$	134,183	\$ 134,183
Govt	Personal Tax: Estate and Gift Tax							
NonEducation	Personal Tax: Income Tax							
NonEducation	Personal Tax: Motor Vehicle License			\$ 19,831				\$ 19,831
	Personal Tax: NonTaxes (Fines- Fees			\$ 102,351				\$ 102,351
	Personal Tax: Other Tax (Fish/Hunt)			\$ 6,045				\$ 6,045
	Personal Tax: Property Taxes			\$ 11,283				\$ 11,283
	Social Ins Tax- Employee Contribution	\$ 10,895						\$ 10,895
	Social Ins Tax- Employer Contribution	\$ 46,875						\$ 46,875
	Total	\$ 57,770	\$ -	\$ 139,510	\$ 142,726	\$	3,181,722	\$ 3,521,728
Total		\$ 1,981,532	\$ 196,940	\$ 1,480,194	\$ 1,160,254	\$	3,525,644	\$ 8,344,564



TABLE 12 TAX REBATE STIMULUS TO REBATE VARIANCE

		Tax Rebate Vo	ariance to Stimulus	s Comparing Tax I	mpact		
		Employee		Household	Enterprises	Indirect Business	
		Compensation	Proprietary Income	Expenditures	(Corporations)	Taxes	Total
Enterprises	Transfers	219%					219%
(Corporations)	Total	219%					219%
	Corporate Profits Tax				610%		610%
	Indirect Bus Tax: Custom Duty					605%	605%
	Indirect Bus Tax: Excise Taxes					609%	609%
Federal	Indirect Bus Tax: Fed NonTaxes					605%	605%
	Personal Tax: Estate and Gift Tax						
Government	Personal Tax: Income Tax			245%			245%
NonDefense	Personal Tax: NonTaxes (Fines- Fees						
	Social Ins Tax- Employee Contribution	219%	381%				239%
	Social Ins Tax- Employer Contribution	219%					219%
	Total	219%	381%	245%	610%	607%	293%
	Dividends				610%		610%
	Indirect Bus Tax: Motor Vehicle Lic					605%	605%
	Indirect Bus Tax: Other Taxes					605%	605%
	Indirect Bus Tax: Property Tax					605%	605%
	Indirect Bus Tax: S/L NonTaxes					605%	605%
	Indirect Bus Tax: Sales Tax					605%	605%
State/Local	Indirect Bus Tax: Severance Tax					605%	605%
Govt Govt	Personal Tax: Estate and Gift Tax						
NonEducation	Personal Tax: Income Tax						
NonEducation	Personal Tax: Motor Vehicle License			242%			242%
	Personal Tax: NonTaxes (Fines- Fees			241%			241%
	Personal Tax: Other Tax (Fish/Hunt)			243%			243%
	Personal Tax: Property Taxes			236%			236%
	Social Ins Tax- Employee Contribution	219%					219%
	Social Ins Tax- Employer Contribution	219%					219%
	Total	219%		241%	610%	605%	564%
Total		219%	381%	244%	610%	605%	375%

CONCLUSIONS

Output from the models indicates that local counties should lobby for tax rebates rather than accept directed stimulus dollars for education projects. Based on model outputs, directed spending does not represent the spending patterns of the people within Taylor County. Tax rebate expenditures occur earlier in the rounds of spending as consumers react quickly to tax rebates through increased local spending. The fact that local purchases are higher with tax rebates increases tax revenues for the county. More middle-income jobs are created with the tax rebate model, and these jobs appear to be of a more long-term nature. While job creation at the county level is significant, within the Education sector it does not match the direct infusion of funds. Schools will always opt for direct federal funds while counties should always opt for tax rebates.

The model results presented above place pressure on state and local governments to avoid the problems associated with traditional spending decisions. The findings of this paper encourage the following practices:

- 1. Schools and county officials should focus on facts rather than emotions, model expenditures to gauge outcomes, and then choose the outcome that best fulfills the needs of the community, not the funded entity.
- 2. Researching funding methods allows us to be more informed of moral, hazard-based decisions. Researched outcomes can help in negotiation of different types of funding for local regions.
- 3. Recognize the benefit of impact analysis; private enterprise has based financial fortunes on the practice of impact analysis and has proven its efficacy.

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APPENDIX A TAYLOR COUNTY STIMULUS PROJECTS

Funded Agency	Award Description	10	ocal Stimulus	Implan	Project Title
runded Agency	Awara Description		Amount	Sector	Project rice
ABILENE CHILD CENTERED	Department of Labor	Ś	172,314	424	Community Service Employment Funded Through the Senior
ABILENE CHRISTIAN UNIVERSITY	Department of Education	\$	54,580	438	FEDERAL WORK STUDY
ABILENE INDEPENDENT SCHOOL	Department of Education	\$	960,114	391	Title II, Part D Enhancing Education Through Technology.
ABILENE INDEPENDENT SCHOOL	Department of Education	\$	85,469	391	Preschool Grants for Children with Disabilities
ABILENE INDEPENDENT SCHOOL	Department of Education	\$	79,398	391	Education for Homeless Children and Youth.
ABILENE INDEPENDENT SCHOOL	Department of Education	\$	3,627,947	391	Title I, Part AImproving Basic Programs Operated by Local
ABILENE INDEPENDENT SCHOOL	Department of Education	\$	114,281	391	Title II, Part D Enhancing Education Through Technology.
ABILENE INDEPENDENT SCHOOL	Department of Education	\$	6,322,420	391	State Fiscal Stabilization Fund -Education Fund
ABILENE INDEPENDENT SCHOOL	Department of Education	\$	3,306,928	391	Grants to States for the Education of Children with Disabilities
ABILENE PHILHARMONIC ABILENE REGIONAL MHMR	National Foundation on the Arts and Department of Education	\$	16,435 324,956	402 391	Arts and the American Recovery & Reinvestment Act of 2009 Early Intervention Program for Infants and Toddlers with
ABILENE REGIONAL MHMR	Department of Housing and Urban	\$	84,297	437	Homelessness Prevention and Rapid Re-Housing Program
ABILENE, CITY OF	Department of Energy	\$	1,131,600	39	Energy Efficiency and Conservation Grant Project
ABILENE, CITY OF	Department of Housing and Urban	\$	292,839	40	CDBG-R activities include a wide variety of community
ABILENE, CITY OF	Department of Justice	\$	150,809	373	Law Enforcement Initiatives
ABILENE, CITY OF	Department of Transportation	\$	878,042	39	JUDGE ELY BLVD
ABILENE, CITY OF	Department of Transportation	\$	361,467	39	cs
ABILENE, CITY OF	Department of Transportation	\$	84,985	39	SH 36
ABILENE, CITY OF	Department of Transportation	\$	2,057,460	430	Abilene Transit System Ecomonic Recovery Capital Infrastructure
ABILENE, CITY OF	Department of Transportation	\$	394,586	39	MOCKINGBIRD
ABILENE, CITY OF	Department of Transportation	\$	583,112	39	BARROW ST
AFCO TECHNOLOGIES INC	Department of the Air Force	\$	246,100	39	Federal Contract
AFCO TECHNOLOGIES INC	Department of the Air Force	\$	1,180,400	39	Federal Contract
AFCO TECHNOLOGIES INC	Department of the Air Force	\$	444,964	39	Federal Contract
AFCO TECHNOLOGIES, INC. AFCO TECHNOLOGIES, INC.	Department of the Air Force Department of the Air Force	\$	1,198,000 246,100	39 39	Federal Contract Federal Contract
AMERINE MECHANICAL, INC	Department of the Air Force	\$	288,750	39	Federal Contract
BOYS AND GIRLS CLUB OF ABILENE,		\$	42,500	437	Boys & Girls Clubs Recovery Act National Mentoring Programs
COMMUNITY ACTION PROGRAM,	Department of Energy	\$	575,910	40	Recovery Act - Weatherizatoin Assistance Program for the State
COMMUNITY ACTION PROGRAM,	Department of Energy	\$	2,056,426	40	Recovery Act - Weatherizatoin Assistance Program for the State
COMMUNITY ACTION PROGRAM,	Department of Energy	\$	250,000	40	Recovery Act - Weatherizatoin Assistance Program for the State
COMMUNITY ACTION PROGRAM,	Department of Health and Human	\$	312,859	391	Head Start Early Head Start ARRA
COMMUNITY ACTION PROGRAM,	Department of Health and Human	\$	365,276	432	Community Services Block Grant/ARRA
COUNTY OF TAYLOR	Department of Energy	\$	57,576	374	Recovery Act-State of Texas Energy Efficiency and Conservation
COUNTY OF TAYLOR	Department of Justice	\$	150,809	432	Law Enforcement Initiatives
EDUCATION AGENCY, TEXAS	Department of Education	\$	90,846	391	Title II, Part D Enhancing Education Through Technology.
EDUCATION AGENCY, TEXAS	Department of Education	\$	28,936	391	Title I, Part AImproving Basic Programs Operated by Local
EDUCATION AGENCY, TEXAS	Department of Education	\$	54,271	391	Title II, Part D Enhancing Education Through Technology.
EDUCATION AGENCY, TEXAS	Department of Health and Human	\$	186,260	391	Head Start Quality Improvement and COLA (ARRA)
EDUCATION AGENCY, TEXAS	Department of Health and Human	\$	202,046	391	Early Head Start
FOOD BANK OF ABILENE INC	Department of Agriculture	\$	33,662	401 39	Texas TEFAP CAP Recpvery Act
G 2-V ENTERPRISES, INC. HARDIN-SIMMONS UNIVERSITY	Department of the Air Force Department of Education	\$	139,500 36,082	438	FEDERAL WORK STUDY
HAWKINS BUILDERS INC	Department of the Air Force	\$	1,500,000	39	Federal Contract
HAWKINS BUILDERS INC	Department of the Air Force	\$	499,951	39	Federal Contract
HAWKINS BUILDERS INC	Department of the Air Force	\$	1,096,007	39	Federal Contract
HAWKINS BUILDERS INC	Department of the Air Force	\$	1,055,992	39	Federal Contract
HAWKINS BUILDERS INC	Department of the Air Force	\$	2,050,390	39	Federal Contract
HAWKINS BUILDERS INC	Department of the Air Force	\$	552,600	39	Federal Contract
HOUSING AUTHORITY OF THE CITY	Department of Housing and Urban	\$	391,884	40	Sewer Line Replacement at Riviera Complex
ICL CONSTRUCTION INC.	Department of Defense (except	\$	26,428	39	Federal Contract
ICL CONSTRUCTION INC.	Department of Defense (except	\$	21,116	39	Federal Contract
NEW HORIZONS RANCH & CENTER	Department of Agriculture	\$	41,258	39	CNP-RA-NSLP Equipment (O)
PACE-AMTEX JOINT VENTURE	Department of the Air Force	\$	392,100	39	Federal Contract Homologypass Proyentian and Papid Ro Housing Program
SALVATION ARMY (GA), THE (INC) TRANSPORTATION, TEXAS	Department of Housing and Urban Department of Transportation	\$	400,000 184,225	424 39	Homelessness Prevention and Rapid Re-Housing Program BU 83-D;US 83
TRANSPORTATION, TEXAS	Department of Transportation	\$	193,328	39	IH 20
TRANSPORTATION, TEXAS	Department of Transportation	\$	1,583,740	39	SH 36
TRANSPORTATION, TEXAS	Department of Transportation	\$	76,424	39	US 83
TRANSPORTATION, TEXAS	Department of Transportation	\$	201,515	39	US 83
V & R DRYWALL, INC.	Department of the Air Force	\$	549,750	39	Federal Contract
WEST CENTRAL TEXAS COUNCIL OF	Department of Health and Human	\$	37,424	401	ARRA Home Delivered Nutrition Services
WEST CENTRAL TEXAS COUNCIL OF	Department of Health and Human	\$	76,666	401	ARRA Home Delivered Nutrition Services
WEST CENTRAL TEXAS COUNCIL OF	Department of Justice	\$	100,000	432	BJA FY 2009 Recovery Act Edward Byrne Memorial Justice
WEST CENTRAL TEXAS COUNCIL OF		\$	123,448	401	OVW Recovery Act STOP Violence Against Women Formula
WORK FORCE CENTER OF WEST	Department of Health and Human	\$	223,541	399	Child Care and Development Fund (CCDF)
WORK FORCE CENTER OF WEST	Department of Health and Human	\$	672,446	399	Child Care and Development Fund (CCDF)
WORK FORCE CENTER OF WEST	Department of Health and Human	\$	2,102,927	425	17.259 RECOVERY ACT-WIA YOUTH FORMULA GRANTS-STATES /
WORK FORCE CENTER OF WEST	Department of Labor	\$	98,380	437	17.207 - RECOVERY ACT-EMPLOYMENT SERVICE STATE
WORK FORCE CENTER OF WEST	Department of Labor	\$	798,559	425	17.259 RECOVERY ACT-WIA YOUTH FORMULA GRANTS-STATES /
WORK FORCE CENTER OF WEST WORK FORCE CENTER OF WEST	Department of Labor	\$	316,494	425	17.259 RECOVERY ACT-WIA YOUTH FORMULA GRANTS-STATES /
	Department of Labor	\$	34,832 1,121,501	425 425	17.259 RECOVERY ACT-WIA YOUTH FORMULA GRANTS-STATES / 17.259 RECOVERY ACT-WIA YOUTH FORMULA GRANTS-STATES /
	Department of Labor	ı ə		423	117.200 NECOVERT ACT-VIA TOOTH FORIVIOLA GRAINTS-STATES /
WORK FORCE CENTER OF WEST	Department of Labor	Ċ		427	17 207 - RECOVERY ACT-EMPLOYMENT SERVICE STATE
WORK FORCE CENTER OF WEST WORK FORCE CENTER OF WEST	Department of Labor	\$	163,966	437 391	17.207 - RECOVERY ACT-EMPLOYMENT SERVICE STATE Title I. Part AImproving Basic Programs Operated by Local
WORK FORCE CENTER OF WEST WORK FORCE CENTER OF WEST WYLIE INDEPENDENT SCHOOL	Department of Labor Department of Education	\$	163,966 90,601	391	Title I, Part AImproving Basic Programs Operated by Local
WORK FORCE CENTER OF WEST WORK FORCE CENTER OF WEST WYLIE INDEPENDENT SCHOOL WYLIE INDEPENDENT SCHOOL	Department of Labor Department of Education Department of Education	\$	163,966 90,601 562,240	391 391	Title I, Part AImproving Basic Programs Operated by Local Grants to States for the Education of Children with Disabilities
WORK FORCE CENTER OF WEST WORK FORCE CENTER OF WEST WYLIE INDEPENDENT SCHOOL	Department of Labor Department of Education	\$	163,966 90,601	391	Title I, Part AImproving Basic Programs Operated by Local

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