

Running head: ANALYZING THE PAST

Analyzing the Past to Prepare for the Future; an Econometric Examination of the Affects of
Property Tax Caps on Budgets of the Goshen Fire Department

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions or writings of another.

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Abstract

In 2010, the citizens of Indiana placed into the constitution a cap on property taxes. The problem is that the Goshen Fire Department has never attempted to forecast the consequences on our budget from these new tax caps. In an effort to determine what impact the caps may have on Goshen Fire Department's budget, Indiana's similar attempt to control property taxes with a tax freeze in 1974 was examined. The 1974 tax freeze was considered for its correlation with the tax caps. The purpose of this research was to identify what affects the 1974 Bowen tax freeze had on the revenues Goshen City received from property taxes and to identify similarities between the tax freeze and the newly imposed tax caps. This information was then use to forecast the possible impact the tax caps may have on the fire department's budget going forward. This research used descriptive literature review and historical research to create an econometric model of the effects of the 1974 Indiana tax freeze on Goshen's revenues.

Time series data was gathered from the offices of the Clerk/Treasurer for Goshen and the Treasurer and the Auditor's office for the county of Elkhart, Indiana, for the years 1965 through 2008 to answered the four research questions. Why did the State of Indiana impose a "property tax freeze" in 1974? How do the tax caps in 2010 compare with the tax freeze in 1974? What affects did the tax freeze have on revenues Goshen received from property taxes? What affects may the tax caps have on the fire department's budget? This research found that Indiana imposed the tax freeze out of taxpayer frustration with property tax rates increasing faster that the rate of inflation. The relationship between the freeze and the caps was found to be general taxpayer disgust with ever-increasing rates and that a group championed each tax reform. The tax freeze was found to have negatively affected tax revenues between 1974 and 2008 by an average of

\$488,030. The model estimated that tax revenues in 2011 will be \$657,998 less than revenues received in 2008.

In consultation with the Union, immediate examination of the fire department's budget with a goal of prioritizing areas to reduce future costs should be undertaken. Revenue enhancement through increased EMS billing or creation of a citywide fee for trash pick-up should also be explored.

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Introduction

The goal of the fourth year of the Executive Fire Officer Program is to "...develop the ability to conceptualize and employ the key processes used by effective executive-level managers." (United States Fire Administration, 2005, p V) One of the skills required of an executive leader is to use available information to forecast the future and how it may affect his or her organization. Some of the significant categories affecting an organization are revenues/costs, labor relations and demand for your service or product. Rudolph Giuliani, past Mayor of New York, suggests, "preparation, thus eliminating assumptions, was the single most important key to success, no matter what the field." He devoted an entire chapter in his book Leadership to "Prepare Relentlessly." (Giuliani, 2002)

In 2010, the citizens of Indiana passed by referendum an amendment to the state's constitution capping property tax rates at 3% for commercial, 2% for rental and 1% for residential of the property's assessed valuation. (DeBoer, 2010) This was not Indiana's first attempt at controlling property taxes. In 1974, Indiana had attempted to curb property tax increases by instituting the "Bowen tax freeze," named after then Governor Otis Bowen, significantly limiting tax increases year over year.

The problem is that the Goshen Fire Department has never attempted to forecast the consequences on our budget from these new tax caps. The department has no idea of the impact these caps may have nor how it would affect our ability to continue to provide essential services to our citizenry.

The purpose of this research is to identify what affects the Bowen tax freeze had on the revenues Goshen City received from property taxes and to identify similarities between the tax

freeze and the newly imposed tax caps. Then to use this information to forecast the possible impact the tax caps may have on the fire department's budget going forward.

This research will use a descriptive literature review and historical research to create an econometric model of the effects of the 1974 Indiana tax freeze on Goshen's revenues while answering the following four research questions. Why did the State of Indiana impose a "property tax freeze" in 1974? How do the tax caps in 2010 compare with the tax freeze in 1974? What affects did the tax freeze have on revenues Goshen received from property taxes? What affects may the tax caps have on the fire department's budget?

Background and Significances

The Goshen Fire Department has been proudly serving its community since 1862 when it was formed as the Reliance German Fire Company # 1 and was staffed by community volunteers. In 1922, Goshen had grown enough to justify a change from a volunteer to a career department. The Goshen Fire Department has provided fire, emergency medical and other Life Safety services to those who reside, work and travel through the City of Goshen for the past 149 years. As the City of Goshen has grown, the Goshen Fire Department has met the ever-increasing challenges in improving the quality and types of service that we provide to our community. That community includes a significant recreational manufacturing industry, Goshen College and Greencroft, a multi-million dollar non-profit retirement complex. (Goshen Fire, 2010)

The fire department's workforce stands at 51 sworn members with 48 members assigned to operations, one member assigned to Inspections/Prevention and two members as administrators. Beginning in 2008, due to decreasing revenues, the fire department has cut its staff by three positions through attrition. Goshen's Mayor, Allan Kauffman, stated that the fire

department's reduction in staffing is directly caused by loss of property tax revenues resulting from the newly imposed tax caps. Mayor Kauffman also states that the property tax revenues account for approximately 82% of city's general fund, of which the fire department's budget is funded. (Kauffman, 2011) Indiana was not spared from the economic downturn that began in 2007. Just as the economy was beginning to falter, an Indiana Supreme Court decision was implemented that significantly increased property taxes on residential structures. The court had declared the current property tax assessment rules unconstitutional and the legislature created a new "market value" method of assessing taxes on property. (Hillerman, 1996) This unfortunate timing was the genesis to the Indiana "Tea Party" a vocal and passionate group that actively and successfully campaigned against the increasing property taxes. (Purdue. 2006)

Because of this successful campaign, legislation was adopted that capped the amount of taxes on property in Indiana at 3% for commercial, 2% for rental/agriculture and 1% for residential of the property's assessed valuation. The new caps were phased in beginning in 2008 and were fully implemented in 2011. In addition, on November 2, 2010, the citizens of Indiana placed tax caps into the state's constitution by referendum vote, passing the new amendment with 72% plurality. (Kelly)

Mayor Kauffman estimates Goshen's lost tax revenue in 2012 to be 2.1 million dollars, a significant impact on a total city budget of just over \$16 million. (Davis, 2010) The fire department was not the only victim of tightening budgets, police, streets and parks have had their staffing reduced through attrition. These budget cuts are not unique to Goshen, most other Indiana cities are in the same dire financial situation and have reduced payroll to accommodate falling revenues. "Cities already are laying-off police and firefighters, as well as raising business

fees, because the caps have reduced local tax revenues.” (Merrick 2010) However, Tax Caps are not the first time Indiana has attempted to curb property taxes.

Indiana’s property taxes have been controversial, so much so that in 1974 the state instituted a property tax freeze significantly limiting the annual increase in property tax. (Colwell 1974). Many cities with rapid growth were having trouble keeping pace with demand for services under the tax freeze are now faced with an additional hurdle of the new tax caps. Goshen is one example of such cities.

The United States Fire Administration (USFA) has established five operational objectives that serve to guide its priorities and programs; reduce the loss of life from fire in the age group 14 years old and below; reduce the loss of life from fire in the age group 65 years old and above; reduce the loss of life from fire of firefighters; to promote within communities a comprehensive, multi-hazard risk reduction plan led by the fire service organization; and to respond appropriately in a timely manner to emerging issues. (USFA, 2008)

This research will satisfy the USFA goal of responding appropriately, in a timely manner to emerging issues affecting the fire service. Specifically, responding to the possible financial cuts to the Goshen Fire Department and its ability to provide emergency services to its citizens due to the newly imposed tax caps.

As stated in the Introduction, a main tenet of the National Fire Academy’s fourth year EFOP course, Executive Leadership, is to “...develop the ability to conceptualize and employ the key processes used by effective executive-level managers.” (USFA., 2005. p.V) More expressly, the executive leadership student manual points out that the course empowers students

to "...examine contemporary public sector and fire service issues..." (USFA., 2005. p.iii) This is the aim of this research.

Literature Review

Why did the State of Indiana impose a "property tax freeze" in 1974?

Indiana's 1974 action on limiting property tax increases grew from the seemingly ever increasing tax rates. Yearly increases of double the inflation rate raised the attention of Indiana's republican party and then Speaker of the House Otis Bowen. Bowen took up it's cause and ran for Governor on a platform of property tax reform. Bowen hoped to end a decade of property tax increases and wean local governments off property taxes altogether. (To ease. 2006)

The vast majority of states attempt to restrict the size and growth of local government by limiting their ability to increase revenues by means of restricting their property taxing authority (Porterba 1995). Restrictions on property tax rates are the most common, and California's Proposition 13 is the most well known. Proposition 13, adopted by California voters in 1978, requires that properties be assessed at market value at the time of sale, and allows assessments to rise by no more than 2 percent per year until the next sale of the property. This severely restricts the revenues cities receive from these taxes.

Indiana's property tax limits preceded California's by 4 years. Indiana's property taxes have been controversial, so much so that the issue may have decided the 1972 gubernatorial election. Gubernatorial candidate and state representative Otis Bowen, proposed increasing the sales tax from 2% to 4% to pay for his planned property tax cut. Newspaper accounts revealed, "The debate was long, but the House passed the increase on the last day of the session. In the

Senate, again, the vote was a tie. The Lieutenant Governor was Robert Orr and he voted aye. The Bowen plan became law. Bowen praised Orr for risking his political future with that vote” (Colwell 1974). Indiana Code 6-1.1-18, Limitations on Property Tax Rates and Appropriations, held cities’ budget increases to a maximum of 5% a year by limiting increases in property tax rates.

Many cities with rapid growth are increasingly feeling the financial strain from the property tax freeze and have complained that the property tax limitations passed in the 1970s never anticipated the pace of growth that has occurred in the past decade or more. Many municipal revenue needs are growing at rates greater than the allowable maximum levy increase of 5%. Goshen is one example of such cities.

How do the tax caps in 2010 compare with the tax freeze in 1974?

Like 1974, whose tax freeze idea was born out of frustration over increasing rates, so too were the tax caps. A recession combined with a significant change in the way property’s value was assessed combined to raise the ire of the public. Out of this frustration, anew was born Indiana’s Tea Party. This group championed significant spending cut of all levels of government. Their main thrust was capping of property tax rates. Like the tax freeze had the backing of the republican party in 1974, tax caps were backed by a new political party.

News accounts leading up to the passage of the caps legislation were ominous for local government. “Cuts in services, higher fees and consolidation of government units are among the developments some experts are forecasting...” (Jarosz, 2010) These predicted cuts to local services appear to have come to fruition; Indiana cities with heavy reliance on manufacturing, such as, Kokomo, Muncie and Gary have laid-off firefighters because of reduced property tax

revenues resulting from the caps. Muncie's situation is made worse by the fact that almost 50% of its assessed valuation is tax-exempt in the Ball State University properties. Muncie laid-off 32 firefighters and closed two stations. Also as predicted, Muncie has consolidated with a contiguous township and received a SAFER grant to re-hire the majority of the firefighters. Kokomo has laid-off 16 firefighters however they have struck a deal with the Firefighter's Union to reduce pay and benefit and have hired back a portion of the laid off firefighters. (Smith, 2009)

Unlike the freeze in 1974 which increased the state's sales tax from 2% to 4% and provided other revenue generating options for local government to recoup losses from the freeze, the legislature provided no such remedies with the new tax cap and local governments not the state have bore the fiscal hardships. "Unlike other tax cuts, property taxes are unusual in that the state government has the authority to make the cuts but doesn't suffer their direct effects."

(Harrison, 2010)

What affects did the tax freeze have on revenues Goshen received from property taxes?

In research of an earlier project, this author examined the effects of the 1974 tax freeze on firefighter's salaries in Goshen. In an effort to determine what factors may be contributing to Goshen's budget constraints and therefore its ability to provide public services, Indiana's 1974 property tax rate freeze was considered as a possible negative factor. As a proxy for a city's ability to provide public services, the tax freeze was considered for its correlation with firefighter salaries. The research empirically confirmed that the tax freeze had negatively affect firefighter salaries and therefore negatively affected Goshen's ability to provide public services.

The analysis confirmed the results of previous studies on wage determination of public employee salaries. (Ehrenberg, 1973) The empirical findings suggested that firefighter salaries in

Goshen, Indiana, are not keeping pace with per capita income, or inflation in Indiana since the tax freeze and firefighter salaries were relatively on average 14.7% higher before the tax freeze was enacted. Limits on property tax rates have a significant downward pressure on firefighter salaries. Since wages are one component of a municipality's overall expenditures, it can be expected that all aspects of city services are negatively affected by these taxing limits. All expenditures on goods and services should be restricted when property tax limits are imposed since the available budget becomes constrained. (Ramer, 2005)

What affects may the tax caps have on the fire department's budget?

Nearly all states have some allowance for municipal home rule allowing the city charter to prescribe the type of governance. Examples would be council-manager, council-mayor. Some states also permit some leeway in revenue generation allowing cities to tax sales or income. All states allow municipalities to tax property but restrict this tax by restraints on the tax rate, assessment increases or impose levy limits. However, all states impose these restriction/leeways to establish state preferences. In Indiana, the state has imposed all three methods and these restrictions are most effective in the mayor-council type of government of which Goshen has adopted. (Coyle, 2000)

Newspaper accounts of other Indiana cities paint an ominous picture of future property tax revenues. Many cities have laid-off firefighters and closed fire stations. The vast majority of a career fire department's budget is personnel cost. The Goshen Fire Department's personnel services constitute 82% of our budget. Any significant budget reductions would have to include personnel reductions. Muncie, Indiana has taken drastic steps and cut 32 firefighters and closed two of seven fire stations. They have also taken steps to reduce their expenses and have stopped sending fire trucks to non-emergency EMS calls. (Merrick, 2010)

In January 2008, Goshen Fire Department retired two individuals and elected not to replace them. This action resulted in an estimated \$124,000 in savings. The fire department's operating budget was also reduced in 2011. "A cut of \$50,000 was approved for the cumulative capital fire fund, used for capital purchases for the fire department including ambulances, fire trucks and other equipment. According to Fire Chief Dan Sink, the fund had already been cut by approximately \$33,000 before being presented to the council, so the additional cut amounted to a reduction of more than \$80,000. (Davis, 2010)

A study of the effect on municipal government by Maine's 2004 propose one-percent property tax cap was estimated to have required cuts to city services by 69%. This estimate was assuming that education, debt payments and county taxes would be exempt from the cap. This dire prediction forecasts even harsher cuts for Indiana cities, as education is included in our caps. (Gabe, 2004)

This literature review portrays a bleak picture for municipalities in Indiana because of the tax caps. Downward pressure on revenues and increasing cost will likely affect budgets of the fire department and require some difficult funding decisions in the future. Indiana's 1974 tax freeze should provide some insight as to the impact of the new tax caps. The research highlighted the urgency to prepare for future budget cuts the importance of Goshen Fire Department to examine its budget.

Procedures

During my attendance at the National Fire Academy in September, 2010 for the EL class, I researched tax cuts and their effects at the Learning Resource Center. I read several articles and copied them for further reference. I also reviewed the EFO papers for relevant work. My

literature review was further extended by searches at Indiana University South Bend, Franklin D. Schurz Library on February 10, 2011 and March 29, 2011. I utilized Ebsco Host to obtain peer reviewed articles and books relevant to my topic.

The historical time series data for the city of Goshen for the years 1965 through 2010 was gathered from the offices of the Clerk/Treasurer for Goshen and the Treasurer and the Auditor's office for the County of Elkhart, Indiana. Data were obtained by a physical search of stored paper records in the basements of Goshen's City Hall, Annex building and Street Department. County tax disbursement records were also obtained by a physical search of the county's records storage facility.

Historical wage data for Indiana was obtained from the United States Census Bureau and the Bureau of Labor Statistics. The World Wide Web was accessed to research newspaper articles related to the topic. During the records search, data was gathered on a broad range of topics. (see appendix A) Once the data topics were collected I narrowed the data I used by deciding which data may logically affect the amount of collected property taxes. The data was narrowed to the gross domestic product, per capita income in Indiana, consumer price index, assessed property value and a dummy variable for the years in which the past tax freeze was enacted. (see appendix B)

This data was then used for an econometric examination of their effect on the dependant variable 'property taxes distributed to Goshen city' which was used as a proxy for the fire department's budget for which no historical data is available. Econometrics is a tool used by economists to apply economic theories to empirical data in an effort to determine the factors and the extent of the effect that they have on a variable under consideration. The statistical methods employed test hypotheses and estimate relationships between a dependent variable and

independent variables. One way to analyze data is the method of *least squares*. The least squares method fits a trend line to the data that is a best fit. This line is then used to predict the impact of one variable on another. (Studenmund, 2001) The data was entered into an Excel spreadsheet and a least squares function was used to measure the effect on the dependant variable while holding all other independent variables constant. The resulting equation was then be used to estimate future movements of the dependent variable, “property taxes distributed to Goshen city”

For the econometric examination, categories were chosen because of their hypothesized impact on the dependant variable Y , ‘Property taxes distributed to Goshen.’ Intuitively, property tax collection is dependent on the property’s value and the owner’s ability to pay. To capture the property’s value, data was collected on m^1 ‘property assessed valuation.’ To capture an owner’s ability to pay, m^3 ‘cpi’ consumer price index, which is a measure prices paid by consumers for goods and service was used to measure the cost owners had to pay for other things that taxes. ‘GDP’ m^4 , gross domestic product, is a measure of how much goods and services the entire country is producing. Finally, ‘per capita income Indiana’ m^5 was used to measure how much income the average property owner had available to pay property taxes. To measure the effect of the 1974 property tax freeze a dummy variable m^2 was created which used 1 for the years when the tax freeze was not in effect and 0 for the years which it was.

In Indiana, property taxes are distributed to local governments a year later than they are collected. An example is that property taxes assessed to the property owner for 2009 are paid by the owner in 2010. As a result, the dependant variable, property taxes distributed to Goshen city, was lagged one year in the data set.

The resulting equation was used to answer how Goshen property tax revenues affected by the tax freeze and to forecast the amount of property taxes that will be distributed to Goshen in 2012. This forecasted amount then was used as a proxy to estimate the reduction in the fire department's budget in 2012.

Limitations to this data set are that the tax caps have only been in partial effect for two years and full effect for one year and data for the year when the caps were fully enacted is not available. Economic conditions in Elkhart County have continued to decline. A larger data set would be more desirable to increase the reliability of the forecast. Historical data for the fire department's budget was not available however since the fire department's budget is 100% funded from city's general fund which in turn is funded from property taxes it is a reasonable proxy for comparison.

Results

Why did the State of Indiana impose a property tax freeze in 1974?

The tax freeze in Indiana was instituted because of a grassroots movement by a majority of the citizens how thought that their property taxes were increasing at an unacceptable rate. This mood was seized upon by then republican Speaker of the House Otis Bowen. He ran for governor on a platform of freezing taxes and won the election. Legislation limiting property tax rate increases was passed.

How do the tax caps in 2010 compare with the tax freeze in 1974?

Like 1974, tax caps were also a grassroots movement born out of the sediment that taxes were too high. Caps were championed by the newly formed "Tea Party" and quickly gained

support of the general population. Unlike the tax freeze which passed only by the tie breaking vote of Governor Bowen's Lieutenant Governor, caps was placed into the state's constitution by a wide majority. Both the freeze and the caps negatively affected the revenues collected by the municipalities.

What affects did the tax freeze have on revenues Goshen received from property taxes?

The regression equation developed is shown below. Where Y is the dependant variable "property taxes distributed to Goshen city", X1 is "property assessed value", X2 is dummy variable for the tax freeze, X3 is the CPI, X4 is the GDP and X5 is the per capita Indiana income, b is the constant.

$$Y = m^1(X1) + m^2(X2) + m^3(X3) + m^4(X4) + m^5(X5) + b$$

The regression model returned the following equation.

$$Y = 0.0015(\text{property assessed value}) + 488,030.37(\text{Dummy}) - 22,090.65(\text{CPI}) + 620.1(\text{GDP}) + 253.99(\text{per capita income Indiana}) - 2,398,031.41$$

All independent variable coefficients came back as expected. GDP, Indiana income and property values had positive coefficients and CPI returned a negative value. Increases in GDP, Indiana income per capita and property assessed values would intuitively be expected to result in increase property tax revenues. However, as the CPI increases property owners have to pay more for goods and services, which leaves less money for tax payments.

The model's adjusted R² value is 0.9952. The adjusted R-squared statistic measures the proportion of the variation in the dependent variable that is accounted for by the entire regression equation. This is also known as the "goodness of fit" of the independent variables in collectively explaining the dependent variable. The adjusted R-squared value of 0.9952 indicates that the estimated model accounts for 99.5% of the variation in property taxes distributed to Goshen over

the years 1965 through 2008. This suggests that only 0.5% of the variation in property taxes distributed to Goshen over the years 1965 through 2008 is unexplained.

The developed regression model used a dummy variable to measure the effects on property tax revenue received by applying a value of 1 for years 1965-1973 when the tax freeze was not in effect and 0 for the years 1974-2008 for when the tax freeze was in effect. The dummy variable's coefficient indicates that, holding the other independent variables constant, the dependant variable "property taxes distributed to Goshen city" would have been on average \$488,030 higher for years 1974-2008 had the tax freeze not been enacted.

What affects may the tax caps have on the fire department's budget?

Data on property taxes received and property assessed value in 2010 is not available however, 2010 CPI, GDP and Indiana per capita income are available. These 2010 data were entered into the equation. In a phone interview, Peggy Graff, Elkhart County Auditor estimates that property values have likely decreased more than 10% since 2008. (Graff, 2011) Property assessed value was estimate at 10% less than 2008 levels. Entering these figures in the model returned a Y or property tax received value of \$12,409,694. The model estimates that tax revenues collected in 2010 and received in 2011 will be 1.4% less than 2008 levels.

Since the fire department's budget is derived from the city's general fund of which 82% is funded from property tax revenue, it is assumed that the fire department budget will also be reduce by some factor. The fire department's budget has accounted for approximately 19% of the city's general fund. Using this 19%, projected cuts to the fire department's budget, assuming cuts are evenly distributed across all department's equally, are estimated at \$32,300.

Since the historical data ends in 2008 this econometric model does not factor the tax cap effects however, the model does factor the effects of the tax freeze in 1974. Assuming the caps will have a similar effect as the freeze an additional \$488,030, the average effect of the freeze, may be subtracted from the estimated tax receipts in 2011 for a total reduction from 2008 level of \approx \$657,000. The estimated affect on the 2011 fire department budget would be \$125,000.

Discussion

Accounts of dire budget cuts in Indiana cities are ubiquitous today's newspapers. Staff lay-offs of 10 and 20% are not uncommon. The cities most affected appear to have one or more of three things in common, a manufacturing tax base, tax-exempt properties or a higher than average tax rate. A heavy manufacturing base such as Kokomo with its reliance on the auto industry has laid-off staff and only recently with the help of an AFG grant has rehired. Muncie has a high ratio of tax-exempt properties to assessed valuation with Ball State University in their jurisdiction. Lastly, Gary has cut their staff significantly and began with one of the state's highest tax rates before the imposed tax caps. (Smith, 2009) Goshen has a manufacturing base and significant tax-exempt properties. Though Goshen has not been immune from cuts we certainly have not been effected as significantly as many others.

An example of cuts GFD has already enacted is a reduction of the fire department's capital purchases line from \$230,000 to \$147,000, a 36% cut. This cut resulted in the department increasing its fire truck replacement cycle from 20 to 25 years and its ambulance cycle from 8 years to 12. Staffing has been reduced by two through attrition in 2009. When compared to the previous three cities Goshen has been relatively fortunate. These cuts are similar to other Indiana cities. (Merrick, 2010) However, more cuts will likely be needed.

The econometric model predicts property tax revenues in 2011 to be \$169,968 less than 2008 levels. An additional loss of \$488,030 may be attributed to the caps. This is not as bad as I had anticipated. However, Elkhart County Auditor Peggy Graff's estimate that 2011 property assessed valuations will decline 10% from 2008 levels seems optimistic. (Graff, 2011) This model's prediction is paralleled by Goshen's Mayor Kauffman who has stated that the tax cap affects on Goshen will not be as significant as other cities because of previous budget cuts in anticipation of the tax caps and historical frugal fiscal management. (Leighty, 2011) This bodes well, relative to other cities, for Goshen and the fire department though thoughtful budget planning is needed.

Recommendations

The findings of this applied research project indicate that Goshen Fire Department should begin an in-depth examination of its budget to identify areas that may be reduced in response to future tax revenue losses. In addition, revenues should be evaluated and to find other sources or to enhance current source. The risk assessment to the budget should be updated regularly enough to account for changes in economic conditions that may affect city revenue streams.

Though the smallest part of the fire department's budget, capital and operational projects/expenditures should be evaluated and prioritized. Estimated cost should be attached to this prioritized list. Then in the event that the budget requires modification cuts could be made beginning with the least important to the most.

Talks should begin immediately with the Union. All stakeholders should be involved with frank discussions on where saving could be found if needed in the future. Cuts in the personnel service line, which is the largest budget item, would have the most significant impact on moral and productivity of the department. Areas of personnel services that would have the

least impact would be specialty pay, holiday pay, salary reductions and seniority pay. Specific cost saving should be attached to these costs and prioritized as with the operation list. However, if significant cuts are required lay-offs must be an option.

Though not mentioned in this paper, increased revenues must be considered. The fire department currently charges for advanced life support, ALS, ambulance services. Increases in fees are not an option as we are currently at the maximum allowable Medicare/Medicaid rates. However, increasing our EMS run volume by providing ALS ambulance service to surrounding communities would increase our total revenues. Non-emergency transports such as nursing home to physician office/dentist and inter hospital transports should be considered to increase our billable calls. Fees for firefighting, allowable under most homeowner's insurance, should also be considered. Lastly, fees for fire inspections would also increase FD revenues. Citywide fees for trash pick-up would generate significant monies.

Goshen's records management system is a significant source of data. Econometric modeling should be used as a tool for other administrative decisions such as resource allocation, incident location density and injury prevention.

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Appendix A
Global Data

	Property taxes distributed to Goshen City	Gross tax rate	Taxable Property Values	Salary 1st Class Firefighter	Unempl rate	Dummy Mayor R=0 D=1	Dummy Council R=0 D=1	Dummy tax freeze	Average Hourly wages	CPI	Real GDP	Per Capita income Indiana
1960	270,433				5.5	1	0	1		29.59	2501.80	2208.75
1961	273,165				6.7	1	0	1		29.88	2560.00	2245.48
1962	313,819				5.5	1	0	1		30.25	2715.20	2398.93
1963	350,954				5.7	1	0	1		30.64	2834.00	2485.83
1964	286,360				5.2	0	0	1	2.53	31.04	2998.60	2617.13
1965	350,012	6.2	24487803		4.5	0	0	1	2.63	31.55	3191.10	2855.88
1966	347,403	6.46	25,125,807		3.8	0	0	1	2.73	32.50	3399.10	3041.13
1967	373,700	6.86	25,551,059	5720	3.8	0	0	1	2.85	33.38	3484.60	3152.98
1968	359,853	9.06	26,060,779	6026	3.6	0	0	1	3.02	34.79	3652.70	3040.83
1969	620,640	9.06	42,122,350	6329	3.5	0	0	1	3.21	36.68	3765.40	3685.60
1970	760,333	10.43	41,960,890	7000	4.9	0	0	1	3.40	38.84	3771.90	3781.18
1971	891,125	10.69	40,191,060	7420	5.9	0	0	1	3.62	40.48	3898.60	4077.40
1972	697,342	10.58	42,421,260	7791	5.6	0	0	1	3.90	41.81	4105.00	4428.18
1973	837,342	8.69	45,752,130	8025	4.9	0	0	1	4.14	44.43	4341.50	5075.53
1974	584,368	8.26	50,348,160	8466	5.6	0	0	0	4.44	49.32	4319.60	5415.80
1975	878,722	8.36	52,261,030	9143	8.5	0	0	0	4.73	53.83	4311.20	5832.65
1976	1,179,327	8	53,531,240	9600	7.7	1	0	0	5.06	56.93	4540.90	6498.73
1977	1,165,624	7.92	55,655,250	9888	7.1	1	0	0	5.43	60.62	4750.50	7162.65
1978	1,291,228	8.053	60,953,830	10209	6.1	1	0	0	5.87	65.24	5015.00	7945.13
1979	1,287,143	5.927	85,954,710	10500	5.8	1	0	0	6.33	72.58	5173.40	8726.78
1980	1,360,465	6.326	90,895,680	11129	7.1	0	0	0	6.84	82.38	5161.70	9373.28
1981	1,743,964	6.652	87,736,560	12225	7.6	0	0	0	7.43	90.93	5291.70	10308.05
1982	1,672,454	6.857	89,768,680	13410	9.7	0	0	0	7.86	96.53	5189.30	10689.23
1983	1,949,095	7.175	91,125,690	13410	9.6	0	0	0	8.19	99.58	5423.80	11215.53
1984	2,085,873	7.448	95,574,200	15202	7.5	0	0	0	8.48	103.93	5813.60	12463.55
1985	2,342,256	7.6898	101,484,540	16344	7.2	0	0	0	8.73	107.60	6053.70	13159.58
1986	2,642,621	7.5011	106,674,310	17161	7	0	0	0	8.91	109.69	6263.60	13820.73
1987	2,569,972	8.1473	108,468,710	17847	6.2	0	0	0	9.13	113.62	6475.10	14588.80
1988	3,199,809	8.4763	113,470,630	18792	5.5	1	1	0	9.43	118.28	6742.70	15471.00
1989	3,386,223	7.4869	152,980,090	19544	5.3	1	1	0	9.79	123.94	6981.40	16716.10
1990	3,438,126	7.7886	164,010,580	19544	5.6	1	1	0	10.19	130.66	7112.50	17490.33
1991	3,987,394	9.2229	165,460,140	21602	6.8	1	1	0	10.50	136.17	7100.50	17869.60
1992	4,516,026	8.8892	179,544,560	22250	7.5	1	0	0	10.76	140.31	7336.60	19034.70
1993	4,862,451	9.0882	187,551,720	23399	6.9	1	0	0	11.04	144.48	7532.70	19763.23
1994	5,012,026	9.1782	187,885,570	24407	6.1	1	0	0	11.32	148.23	7835.50	20758.05
1995	4,888,684	8.9843	209,847,990	25660	5.6	1	0	0	11.64	152.38	8031.70	21405.78
1996	5,237,452	8.9636	222,261,840	26219	5.4	1	0	0	12.03	156.86	8328.90	22366.68
1997	5,801,049	9.3059	235,195,610	27326	4.9	1	0	0	12.49	160.53	8703.50	23306.30
1998	6,150,582	9.7867	245,933,690	28037	4.5	1	0	0	12.99	163.01	9066.90	24892.58
1999	6,640,857	10.1733	253,470,610	28766	4.2	1	0	0	13.47	166.58	9470.30	25614.08
2000	7,254,167	10.3507	263,779,720	29074	4	1	0	0	14.00	172.18	9817.00	27131.25
2001	7,675,782	3.3577	790,713,120	30436	4.7	1	0	0	14.52	177.04	9890.70	27490.08
2002	7,984,355	2.8048	1,127,405,610	31361	5.8	1	0	0	14.94	179.87	10074.80	27909.58
2003	9,090,656	2.80	1,093,552,070	32380	6	1	0	0	15.34	183.95	10381.30	28794.63
2004	9,911,591	3.11	1,205,695,230	33432	5.5	1	1	0	15.67	188.89	10837.20	30094.00
2005	11,614,087	3.26	1,243,798,660	34602	5.3	1	1	0	16.29	190.7	12,638	31276.00
2006	11,351,420	3.13	1,291,864,430	35813	5	1	1	0	16.94	198.30	13,399	32526.00
2007	12,157,127	3.21	1,304,143,540	37062	4.8	1	1	0	17.30	202.40	14,062	33215.00
2008	12,579,662	3.24	1,217,223,137	38642	4.8	1	0	0	17.99	211.10	14,369	34543.00

Appendix B
Data for Econometric Model

	Property taxes distributed to Goshen City	Property Assessed Values	Dummy tax freeze	CPI	Real GDP	Per Capita income Indiana
1965	350,012	24487803	1	31.55	3,191	2,856
1966	347,403	25,125,807	1	32.50	3,399	3,041
1967	373,700	25,551,059	1	33.38	3,485	3,153
1968	359,853	26,060,779	1	34.79	3,653	3,401
1969	620,640	42,122,350	1	36.68	3,765	3,686
1970	760,333	41,960,890	1	38.84	3,772	3,781
1971	891,125	40,191,060	1	40.48	3,899	4,077
1972	697,342	42,421,260	1	41.81	4,105	4,428
1973	837,342	45,752,130	1	44.43	4,342	5,076
1974	584,368	50,348,160	0	49.32	4,320	5,416
1975	878,722	52,261,030	0	53.83	4,311	5,833
1976	1,179,327	53,531,240	0	56.93	4,541	6,499
1977	1,165,624	55,655,250	0	60.62	4,751	7,163
1978	1,291,228	60,953,830	0	65.24	5,015	7,945
1979	1,287,143	85,954,710	0	72.58	5,173	8,727
1980	1,360,465	90,895,680	0	82.38	5,162	9,373
1981	1,743,964	87,736,560	0	90.93	5,292	10,308
1982	1,672,454	89,768,680	0	96.53	5,189	10,689
1983	1,949,095	91,125,690	0	99.58	5,424	11,216
1984	2,085,873	95,574,200	0	103.93	5,814	12,464
1985	2,342,256	101,484,540	0	107.60	6,054	13,160
1986	2,642,621	106,674,310	0	109.69	6,264	13,821
1987	2,569,972	108,468,710	0	113.62	6,475	14,589
1988	3,199,809	113,470,630	0	118.28	6,743	15,471
1989	3,386,223	152,980,090	0	123.94	6,981	16,716
1990	3,438,126	164,010,580	0	130.66	7,113	17,490
1991	3,987,394	165,460,140	0	136.17	7,101	17,870
1992	4,516,026	179,544,560	0	140.31	7,337	19,035
1993	4,862,451	187,551,720	0	144.48	7,533	19,763
1994	5,012,026	187,885,570	0	148.23	7,836	20,758
1995	4,888,684	209,847,990	0	152.38	8,032	21,406
1996	5,237,452	222,261,840	0	156.86	8,329	22,367
1997	5,801,049	235,195,610	0	160.53	8,704	23,306
1998	6,150,582	245,933,690	0	163.01	9,067	24,893
1999	6,640,857	253,470,610	0	166.58	9,470	25,614
2000	7,254,167	263,779,720	0	172.18	9,817	27,131
2001	7,675,782	790,713,120	0	177.04	9,891	27,490
2002	7,984,355	1,127,405,610	0	179.87	10,075	27,910
2003	9,090,656	1,093,552,070	0	183.95	10,381	28,795
2004	9,911,591	1,205,695,230	0	188.89	10,837	30,094
2005	11,614,087	1,243,798,660	0	190.7	12,638	31,276
2006	11,351,420	1,291,864,430	0	198.30	13,399	32,526
2007	12,157,127	1,304,143,540	0	202.40	14,062	33,215
2008	12,579,662	1,217,223,137	0	211.10	14,369	34,543
2009			0	211.10	14,119	33,725
2010			0	216.70	14,660	34,943

Appendix C
Statistics

	Indiana per cap income	gdp	cpi	dummy	tax assessment	
	m5	m4	m3	m2	m1	b
	253.99	620.10	-22,090.65	488,030.37	0.0015	-2,398,031.41
Standard Error	70.41	95.95	9,712.32	171,070.98	0.0003	449,627.65
R²	0.995					
F Statistic	1,565					
Regression Sum of Squares	560,409,441,071,170					
Residual Sum of Squares	2.72083E+12					