

Local Government Employee Health Care Finance in Minnesota:  
An Analysis of Large City Employee Health Benefit Spending  
**A Professional Paper**

In Partial Fulfillment of the Master of Public Policy Degree Requirements

The Hubert H. Humphrey Institute of Public Affairs

The University of Minnesota

Lori L. Milanowski

April 27, 2009

Zhirong Zhao

April 27, 2009

---

[Name of Paper Supervisor]

---

Date of oral presentation

Signature or Paper Supervisor, certifying successful completion of oral presentation

Zhirong Zhao

---

[Name of Paper Supervisor]

---

Date

Signature of Paper Supervisor, Certifying successful completion of professional paper

Tim Penny

---

[Name of Second Committee Member]

---

Date

Signature of Second Committee Member, certifying successful completion of professional paper



## **Table of Contents**

<b>ABSTRACT</b>	<b>IV</b>
<b>INTRODUCTION</b>	<b>1</b>
<b>APPROACH TO ANALYSIS</b>	<b>1</b>
<b>METHODOLOGY</b>	<b>2</b>
<b>HISTORY AND CONTEXT: REVENUES AND HEALTH CARE FINANCE</b>	<b>4</b>
<b>LOCAL GOVERNMENT AID</b>	<b>4</b>
<b>PROPERTY TAXES</b>	<b>5</b>
<b>HEALTH CARE FINANCE</b>	<b>6</b>
Health Insurance Providers: The Economics of Health Insurance	7
<b>LITERATURE REVIEW: HEALTH CARE SPENDING, STATISTICS AND TRENDS</b>	<b>9</b>
<b>HEALTH CARE SPENDING IN THE US</b>	<b>9</b>
Comparing Public and Private Sector Health Benefits Nationally	10
<b>HEALTH CARE SPENDING IN MINNESOTA</b>	<b>10</b>
Public vs. Private Sector Benefits in Minnesota	12
<b>PREMIUM COST DRIVERS: Why is the Cost of Health Care Increasing?</b>	<b>13</b>
Methods of Controlling Costs	16
<b>DATA ANALYSIS: DESCRIPTIVE STATISTICS AND REGRESSION ANALYSIS</b>	<b>18</b>
<b>DESCRIPTIVE STATISTICS ANALYSIS: PREMIUM SPENDING QUANTIFIED</b>	<b>18</b>
Premium Dollar Spent per FTE in 2008 for Family Plans	18
Average Plan Spending	20
Cost Sharing: How Much Responsibility Are Minnesota Cities Taking For Employee Health Insurance Costs?	21
Medical Spending Component Offerings Incidence	22
Regional Analysis	23
Comparing LGA Cities and Non-LGA Cities	24
Case Study: Industry Premium Growth's Effect on Hypothetical Minnesota Cities	26
<b>MEDICAL BENEFITS SCORES: A COMPARISON OF SPENDING AND GENEROSITY</b>	<b>27</b>
Medical Benefit Generosity Scorecard: Incorporating Qualitative Data	28
<b>REGRESSION ANALYSIS: STATEWIDE TRENDS IN SPENDING</b>	<b>30</b>

Study Hypothesis:	30
Variables Included: Defined	31
Variable Hypotheses	32
Property Tax Capacity Based Model: Factors in Employee Health Expenditure Budgeting and Plan Structure Decisions	33
Property Tax Levy Based Model: What Factors are Considered When Contributing to Employee Health Care Expenditures	35
Other Potential Issues to Address For All Multivariate Models Presented	37
Levy and Capacity Model Conclusions	38
Identifying Trends in LGA Receiving Cities Spending	39
LGA Model Conclusions	40
Regression Analysis Summary	41
<b>SUMMARY OF ANALYSIS, POLICY IMPLICATIONS, AND RECOMMENDATIONS</b>	<b>42</b>
LGA Loss Model: Would Property Tax Burdens Still be Politically Acceptable?	43
<b>RECOMMENDATIONS: INCREASING SPENDING EFFICIENCY AND ACCOUNTABILITY</b>	<b>44</b>
Legislation Requiring Object Code Spending	44
Maximize Spending Efficiency: Reevaluate and Restructure City Health Plans	44
Establish New Budgeting Best Practices: Helping Cities Do More With Revenues	45
<b>STUDY CONCLUSIONS</b>	<b>46</b>
Further Studies	46
<b>REFERENCES</b>	<b>1</b>
Data Sources	1
Professional Research: Meetings and Interviews	1
Works Cited	1
<b>APPENDICES</b>	<b>1</b>
<b>APPENDIX A: FULL METHODOLOGY</b>	<b>1</b>
<b>APPENDIX B: ADDITIONAL REGRESSION RESULTS AND ANALYSIS</b>	<b>2</b>
Important Regression Concepts	2
<b>APPENDIX C: FULL SCORECARD METHODOLOGY</b>	<b>4</b>
Overall Scoring Method	4
Prescription Drug Proxy Calculation	6
<b>APPENDIX D: MEDICAL BENEFITS SPENDING SCORECARD OUTLINE</b>	<b>7</b>
<b>APPENDIX E: MEDICAL BENEFITS GENEROSITY SCORECARD OUTLINE</b>	<b>7</b>
<b>APPENDIX F: ADDITIONAL HEALTH CARE FINANCE RESEARCH</b>	<b>8</b>

The Role of the Minnesota Provider Tax \_\_\_\_\_ 8  
Prescription Drugs in Minnesota \_\_\_\_\_ 8

**APPENDIX G: DATA AVAILABILITY** \_\_\_\_\_ **8**

## **ABSTRACT**

Employee health care finance is a complex and often misunderstood area of local budgets. Due to a lack of regulation around city budgets in Minnesota, a significant amount of transparency and accountability is lost to taxpayers and legislators when the compensation of city employees is reported as part of overall compensation or human services. This study set out to determine what city employee benefit spending looked like in 2008, and in identifying trends, resulted in an analysis of revenue sources related to employee health care benefit spending. Therefore, this study focuses on the main task of quantifying city health benefit spending and ways to increase efficiency in spending, and in addition, approaches the issue of tax payer burden and equity in relation to various city revenue sources. What this study found is that while voters are expected to “vote with their feet” and thus choose the appropriate mix and tax price of their local government services, the introduction of state aids (Local Government Aid) has further complicated the assessment in the generosity and tax burden related to local government employee health benefits. This study attempts not only to quantify, through multiple lenses and modes of analysis, average city spending on employee health care benefits in large Minnesota cities, but also provides a means of improving efficiency in spending in large cities in Minnesota. In addition, this study identifies the role and effect of the introduction of unrestricted LGA into local budgets, and state aid’s relation to medical benefit spending in cities.

## INTRODUCTION

Nearly 50% of the American public cites the rising cost of health care as their number one economic concern and 80% were dissatisfied with high national health care spending in 2008.<sup>1</sup> Nationally, the cost of healthcare is increasing at a faster rate than inflation, and for local governments, this means more of the budget is going to the cost of employee health benefit plans. According to the Bureau of Labor Statistics, access to employer sponsored health plans has increased 100% since 2000, while in comparison inflation has increased 24%, and cumulative wage growth has been 21%. Nationally health care spending has increased to over 16% of the GDP and is expected to increase to about 20% of GDP in the next decade.<sup>2</sup>

Since 2000, employment based premiums have increased over 100%, and this figure is particularly staggering when compared to total compensation. In the same time period, wages have only increased 21% and in comparison a 100% increase in health premiums seems not only unreasonable but also irresponsible.<sup>3,4</sup> Moreover, there is a significant disparity between public and private sector employee health benefit access. For example, 89% of state and local government employees had access to employer sponsored benefit plans compared to 71% of workers in the private industry. From 2002 to 2004, Minnesota had the lowest number of state and local government employees without access to health care, which shows good policy in providing access, but at what cost to taxpayers?<sup>5</sup> Current economic challenges, state and local government budget shortfalls, and severe reductions in state aid have called attention to the need to reassess how taxpayer dollars are spent. While providing a high level of access to affordable healthcare is important and commendable; so is responsible, reasonable, and efficient spending. Therefore, this study attempts to quantify and identify trends in large city spending on employee medical benefits and understand the role of various revenue sources, in both budgeting decisions and actual spending, in order to approach rapid health care cost growth and the resulting affects on local budgets.

## APPROACH TO ANALYSIS

Minnesota cities are not required to report object code spending in their budgets or in CAFRs (City Annual Financial Reports) and most cities do not publically report employee salary, benefit, or health care spending data separately. Most cities budget by program or function, rather than line item, and they group these three categories as personnel or human resources; which makes the costs of benefit plans, and thus cost and spending growth nearly impossible to track. While a city has this data, not making it public decreases transparency in the government and reduces accountability to taxpayers. Why is object code budgeting and reporting so

---

<sup>1</sup> Employee Benefits in State and Local Government, 2007

<sup>2</sup> Employee Benefits in State and Local Government, 2007

<sup>3</sup> Facts on Health Care, 2009

<sup>4</sup> Facts on Health Care, 2009

<sup>5</sup> Employee Benefits in State and Local Government, 2007

important for employee health care costs? Health care costs are the fastest growing portion of local, state, and national budgets, and are growing at an unsustainable rate that will eventually crowd out all other spending if left unchecked. Over the past four years the cost of health care has increased 20%; while in the same time period, inflation has only increased 4%, creating a significant disparity. So, in 2008, how did Minnesota cities make decisions about how to structure health care plans and how much to contribute to employee health care costs? In order to answer these questions, a multi-lens analysis was conducted so that, based on the spending data available, a picture of health care spending in large Minnesota cities could be established.

### *METHODOLOGY*

This study examines health care spending in Minnesota through an analysis of descriptive statistics and multivariate regression techniques that assess the role of Local Government Aid (LGA), property taxes, and other revenues, in city plan choice and total spending on employee health care. In addition, this study will assess the efficiency of plan choices by cities through quantification and analysis of generosity, relative to spending. There are two primary research questions for this study; what does city employee health care spending in Minnesota look like and what role do various revenue sources play in budget decisions and final spending allocations? Could tracking spending growth and reassessing medical benefit plan structure help ailing city budgets and slow medical spending and cost growth, thus reducing property tax burden increases and the need for debt issuance as the budget is exposed to crowd out? Are costs really driven by uncontrollable factors like region and the age of the workforce, if they are not, why do they vary? Are there any trends and patterns in spending emerging in the state? Is the cost of providing medical benefits driving increases in large city LGA received and property tax burdens? In order to perform this analysis data was collected and aggregated from various sources:

- The League of Minnesota Cities Salary and Benefits Survey for 2008
- State Auditor's Office (2007 and 2008 Property Tax Levies)
- House Research: Local Government Aid Lookup Tool (2007 and 2008 LGA Amounts)
- Census Data from the MN Dept. of Administration (control variable data)
- The League of Minnesota Cities Property Tax Capacity Data 2008

The health care spending data for this study was lifted, cleaned, and standardized from the League of Minnesota Cities Salary and Benefits Survey. Refer to Appendix B for a detailed description of the extensive data cleaning and standardization processes. All other data was extracted from state or US data sets and cleaned to peer the data set down to fit the sample.

The sample of cities for this study was selected based upon the size of the population and on the completeness of survey responses. The State of Minnesota has 853 cities, and there are 219 cities in Minnesota with over 2,500 residents, classified as "large" cities, primarily classified for the purpose of determining LGA. The League of Minnesota cities Salary and Benefits Survey received complete responses from 205 of these cities, and after response errors/non-respondent

cities were removed, the total sample is 182 cities. This is an 88% response rate and 83% of the total population.

While this is a significant sample, with carefully cleaned data, due to the lack of object code reporting, this study draws from the self reported League of Minnesota Cities' Salary and Benefits Survey for 2008; therefore, this study has some limitations. The primary limitation is that this study does not provide a direct measure of city health benefit spending. This study is using per FTE average premium amounts and incorporating various qualitative survey responses to provide a proxy for spending in cities in Minnesota, compared to one another. While this is not the ideal way to assess health care spending in cities, this does provide a means for approximating how cities spend in comparison to each other, and in effect, allow for the identification of trends in spending within the state. As a result of the lack of totals for employee health care benefits, this study cannot be interpreted as an exact representation of spending by cities.

There are several key limitations to this study which should be kept in mind when extrapolating from this analysis. First, there is inherently some self reporting error, both in accuracy of answering the questions (data entry), and interpretation of the questions being asked (correctly answering the question). If a question appeared to allow for multiple interpretations, the question was not included in the scorecard scores. Therefore many survey questions, which could have added robustness to the study, were not useable because of the vagueness of survey questions, only straight forward and reliable questions were used. In addition, due to the complexity of health care plans and enrollment, the average plan premium contribution was used. Finally, it is important to note that this study is a one year snap shot of spending in Minnesota in 2008. While a time series study would have been ideal, the data was not readily available and too costly for the purposes of this project. Therefore the lack of multiyear data limits this study in its ability to develop time trends, and thus growth trends, and therefore the regressions in this study cannot be used to estimate future spending and growth. Any growth estimations are based off of national or state projected growth rates for the market.

First, this report will work through the complex areas of local government revenue sources in Minnesota and overall health care finance, and transition into a discussion of past research and studies, as well as historical trends in employee health care spending. Next, the report will apply this history, context, and background to the data set for this study, taking a multifocal approach to understanding employee health care finance in large cities throughout the state. The analysis is performed in three ways: through an analysis of the data set's descriptive statistics, a comparison of qualitative and quantitative data through the utilization and analysis of spending and generosity scorecards, and finally through a multivariate regression, identifying trends in revenue sources and employee health care benefit spending in 2008. Finally the report will conclude with an analysis of the policy implications of extensive health care cost growth on the budgets of city governments in Minnesota, and recommendations as to how to increase spending efficiency in a time of budget deficits and cuts to state aid.

## **HISTORY AND CONTEXT: REVENUES AND HEALTH CARE FINANCE**

In order to understand and develop models of spending for Minnesota cities, one must understand the LGA program, how property taxes are calculated in Minnesota, how the US health care system is structured, and finally, how Minnesota functions within this system.

### *LOCAL GOVERNMENT AID*

The purpose of state aid in Minnesota is to address issues of equity in providing adequate government services throughout the state. The general theory behind providing LGA is that every Minnesotan, regardless of where they live, should have access to adequate levels of public services at reasonable tax prices. In 2008, 854 cities in Minnesota received LGA and the total statewide amount of LGA distributed was 484 million.<sup>6</sup> LGA was established in 1971 to provide per capita funding to Minnesota cities that would be proportionate to their property tax levy.<sup>7</sup> The approach and formula has changed significantly since inception and since then there has been a significant decrease in the amount of LGA distributed. This occurred in part due to a large cut by the legislature, a 25% decrease in 2003, but also because of the elimination of the inflation factor of the formula, as well as several other changes to the LGA formula.<sup>8 9</sup>

The Minnesota LGA formula is divided by the size of the city eligible for LGA, the division occurs between small cities (under 2,500 residents) and large cities (over 2,500 residents). This study is looking large cities, therefore only the large city LGA formula will be discussed. Overall, the formula aims to compare each city's ability to pay with what is needed for the city's annual expenditures. The state begins with a pool of LGA funds to be distributed, which in 2008 was \$484.5 million, with no inflation adjustment, so this amount is static from year to year.<sup>10</sup> The first part of the formula is considered the city aid base, or "grandfathered aid." This aid was cut by a total of \$30.4 million from 2002 to 2007, and thus its distribution is limited and based upon strict criteria.<sup>11</sup> More importantly, increased need and eligibility in one city, results in a loss of LGA for other cities. The next portion is city formula aid: The difference between ability to pay and expenditure need. Ability to pay is determined by each city's ability to raise revenue through the prior year's property tax levy; this amount is then multiplied by the statewide average city tax rate. Each city's need is then calculated based on the following factors, which are multiplied by fixed coefficients that are determined through regression analysis<sup>12,13,14</sup>,<sup>i</sup> Using the need factor formula, the individual factors are determined and then multiplied by fixed coefficients to determine the per capita need. This per capita need is then multiplied by the total population to determine the total expenditure need for the city. This amount is then compared to

---

<sup>6</sup> Minnesota Department of Revenue, 2009; Local Government Aid 101, 2009

<sup>7</sup> Local Government Aid 101, 2009

<sup>8</sup> Local Government Aid 101, 2009

<sup>9</sup> 2007 Local Government Aid, 2009

<sup>10</sup> Dalton, 2007

<sup>11</sup> Dalton, 2007

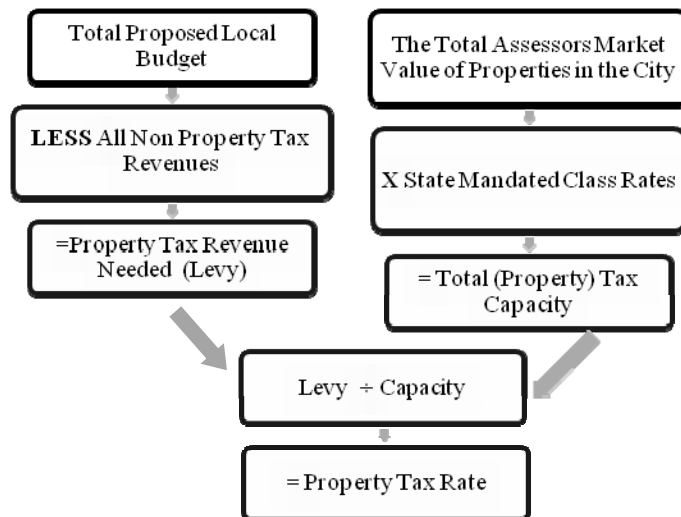
<sup>12</sup> Local Government Aid 101, 2009; Dalton, Pat, 2007 LGA: The Technical Details of Calculating a City's Need, 2008

the city's ability to pay. This is when expenditure need is subtracted from ability to pay to get the LGA need amount. Finally, adjustments are made due to limits on increases and decreases in aid. First, no city can increase the amount of LGA they are receiving by more than 10% of its property tax levy from the prior year; similarly no city can lose more than 10% of its levy from the previous year.<sup>15</sup> The key relationship to address in this study is the relationship of the prior year's property tax levy in the calculation of LGA need and the property tax capacity and ability to pay.

**PROPERTY TAXES**

In Minnesota, and in most states for that matter, the property tax is the “tax of last resort”, because besides being highly visible, being paid twice per year, and politically unpopular. In order to understand the role of property taxes in employee health care expenditures, *Figure 2* on the next page walks through the steps of calculation.

In effect, property taxes are the taxes that residents of a city have the most control over, in that they are direct resultant of increases in spending or cost growth, among other factors such as the amount of local government aid received, property valuations, and cost increases.<sup>16</sup> So, one would expect that as property taxes increase, one of the factors contributing to levy growth would be increases in city employee health care benefits, whether that be due to cost increases, or increased spending. In order to better understand how revenues link to expenditures, health care finance will now be explored.



**Figure 1: Determining the Property Tax Levy in Minnesota cities**

<sup>15</sup> Dalton, Pat. The City LGA Program. Short Subjects. House Research. Updated January 2007.

<sup>16</sup> Understanding your property taxes, 2008

## *HEALTH CARE FINANCE*

A health care system is defined as the “organizational arrangements and processes through which a society makes choices concerning the production, consumption, and distribution of health care services.”<sup>17</sup> Therefore, the structure of health care systems is vital in any discussion of health care finance, because the structure of a system directly affects how the economic actors in the system make choices, and thus how costs are determined. This study focuses on the delivery and use of health insurance, specifically in relation to city government and the nonprofit health insurance providers they utilize.

Health insurance, while most people have, or have had, access to some form, at some point in their lives, few really understand the underlying business and economic activities at work behind the US health care system. Health insurance, like most other forms of insurance, functions on the basis of individuals or employers, or in most cases, both, pay an insurance firm a monthly “premium” which guarantees them a certain definable level of health care service when the need arrives. In short, individuals or employers pay a fixed monthly amount for access to health care services, as they are outline in the health plan, and the health insurer then pays medical providers for the services that those persons they insure utilize.<sup>18</sup> Obviously, this is a very simplistic view of health insurance, which tends to not only vary by country, state, but also by provider.

The US system is a pluralistic system which means that health care is provided by practitioners and paid for by the government and third party insurers.<sup>19</sup> The system is financed by a system of voluntary enrollment with attached premiums and in some cases copays, as well as federal, state and local taxes, which makes the US system a multi-payer system. Finally, production in the US is private and choices are only partially limited, usually by plan provider network. This system of finance is complex in administration and payment, and often the true cost of services is lost among the process. In addition, it is worthwhile noting that the US is one of the few developed countries working under a private health care system. The benefits of this are that citizens with access to health care get newer treatments and prescription drugs faster and the competition that occurs in a private market drives innovation. The downfalls are that there is no centralized decision making about health care standards, which creates systemic and administrative complexity, and therefore prices are subject to the market fluctuations, and partial monopolies in some areas. In addition, our society has developed a standard where “defensive medicine” must be practiced to avoid malpractice suits, and thus an over use of medical care that is unnecessary is common. Finally, many of our various health care structures allow for inefficiency, mainly because medical practitioners are rewarded for doing more, and not on the quality of their care.<sup>20</sup>

---

<sup>17</sup> Santerre, 2000

<sup>18</sup> Gruber, 2007

<sup>19</sup> Santerre, 2000

<sup>20</sup> Engelhard; Garson, 2009

### *Health Insurance Providers: The Economics of Health Insurance*

Health care systems are complex, varied, and ever changing. This complexity of the system, and the lack of understanding of health care in general lead to an economic state where consumers are not receiving perfect information, which introduces uncertainty and thus imperfect decisions and a “fuzzy” demand line.<sup>21</sup>

Private health insurance is the most utilized type of health insurance, comprising 80.8% of health insurance consumed, which can be broken down into two main categories, group (employer) and non-group insurance.<sup>22</sup> For the purposes of this study, only group, or employer based health insurance will be examined, because all but four cities in this study utilized private group health insurance. Then why do employers provide health insurance to their employees, and more specifically, why would Minnesota cities chose to use private insurance, rather than self-insure? Gruber offers two theories as to why employers choose to provide group health insurance: risk reduction and the tax exempt status of medical benefits. Minnesota cities therefore utilize health insurance coverage, and premium compensation as an additional tax free means of providing compensation, comparable to the private sector. Health Insurance, like any form of insurance operates under an assumption of risk, and more importantly, under the area of insurable risk, where the probabilities of adverse events can be estimated. Individuals pay into a pool of from which medical expenditure claims are paid out from by the insurance company. The basic underlying concept is that the larger the pool, the more spread out the risk becomes. In addition, employers are not required, under current US tax law to pay taxes on health insurance; however, they are required to pay taxes on employee compensation.<sup>23</sup> In other words, rich health care benefits can provide a tax free option to increasing overall employee compensation.

One of the benefits to any employee under a group plan is that they experience the effects of consumption smoothing but they also introduce significant moral hazard cost, both of which are related to any form of insurance.<sup>24</sup> Since the pool of insured employees have varying levels of health risk, once combined, allow for a cost sharing of regular doctors visits, while also providing coverage for those who need high cost medical procedures. Moral hazard is defined by Cutler and Zeckhauser as “the incentive of people to seek more care if they are insured,” which results from the inability of consumers to internalize the full cost of medical care, and associate that with consumption decisions; Santerre elaborates on this idea explaining that as consumers alter behavior relative to health insurance receive, they may take less precautionary measures to prevent health issues or avoid shopping around for the best price.<sup>25</sup> If individuals cover 100% of the premium costs they will internalize the full cost of their health insurance; however, they typically will never see a bill for the full cost of the medical services they

---

<sup>21</sup> Santerre, 2000

<sup>22</sup> Gruber, 2007

<sup>23</sup> Gruber, 2007

<sup>24</sup> Gruber, 2007

<sup>25</sup> Santerre, 2000; Cutler; McClellan, 2001; Zeckhauser, 2009

consume and therefore never internalize the cost. This is further complicated with the introduction of employer based health insurance, where employers take on a significant portion of the cost of the health care premium, thus further shielding the cost of health insurance and health care from the employee, or the direct consumer. This often results in an over consumption of health care because the private, employee cost of health care services is only a fraction of the actual cost of the service, and far disconnected from monthly or annual premium payments.

This obstruction of true cost, besides resulting in an over consumption of health care, also creates a significant loss of efficiency and a “dead-weight loss” in the health care market. Looking at the economics of the health care market there are a few important facts to establish. For one, it has been statistically proven (by the Health Insurance Experiment, of the 1970’s, by RAND) that demand for health care is elastic and dependent on the price of health care; that there is not an increase in marginal benefit, or an increase in health outcomes, when more health care is consumed; and finally, that for low income or chronically ill persons, increasing the price of medical care, actually increases medical costs in the long run because of an aversion to preventative care that could have avoided higher cost medical procedures.<sup>26</sup> This means that the price of health care is significant to consumption decisions, and that there is a point at which consuming more health care does not produce additional health benefits or overall better health, and that because of the health insurance market, the true cost and price of health care is obscured from the consumer.

The other component to inefficiency in the health market is related to supplier induced demand, which is the incentive of providers to over-produce health care, to the point of inefficiency, due to the reimbursement incentive provided by health insurance.<sup>27</sup> Many different forms of health care have evolved in an effort to mitigate the effects of supplier induced demand. In general third party health insurance takes on three primary forms: fixed payment (lump sum), variable payment (based on quantity), and performance based payment, with the most common forms of organization being HMOs and PPOs. For the cities in this study, HMOs were the only insurance model used, so their structure will be discussed below, specifically in relation to PPOs.

Health Maintenance Organizations, or HMOs, take the managed care approach to controlling medical costs. HMOs specifically utilize supply side restrictions to control medical costs by limiting a patient’s access to providers. HMOs can restrict access in two ways, one is to hire their own physicians, and salary is independent of the quantity of care they deliver. The other approach, more commonly used is the independent practice association model, in which the HMO contracts with independent health care providers, but instead of the health care provider billing the HMO, the HMO pays the provider what they feel the service they provided should cost, regardless of how many patients they treat. The main concerns with this approach being the quality of care received, since the less care that is delivered, the more money the provider makes, the inverse of the supplier induced demand problem. Preferred Provider Organizations, or PPO’s, offer significant discounts to employers enrolling in group insurance by acting as

---

<sup>26</sup> Gruber, 2007

<sup>27</sup> Cutler; McClellan, 2001; Zeckhauser, 2009

middlemen and “shopping around” to health care providers, who in turn, are usually required to drop their prices in an equal amount. This offer can be made to multiple similar providers to create a network of providers for the group to use. The theory behind this approach is that costs will decrease because the bargaining and restrictions placed on both supply and demand would increase competition, lower prices, and in theory not affect the quality of care.

## **LITERATURE REVIEW: HEALTH CARE SPENDING, STATISTICS AND TRENDS**

### *HEALTH CARE SPENDING IN THE US*

Nationally health care expenditures are growing at a rate of about 8% annually.<sup>28</sup> In 2006, health care expenditures totaled 2.1 trillion dollars in the US; this works out to about 7,026 dollars per capita spent on health care costs.<sup>29</sup> In comparison, from 2006 to 2007 premiums increased at about 6.1% nationally, this is about two times the rate of inflation.<sup>30</sup> So, although the amount by which premiums are increasing nationally is increasing at a slower rate than expenditures; the national growth of the cost of premiums is still outpacing all other spending.

In the 1950’s, when employees began receiving health benefits, they accounted for 8.8% of total benefit spending by employers, but since then, health benefits have risen at an incredible rate, and now (in 2008-09) comprise 42.8% of all spending on employee benefits in the U.S.<sup>31</sup> This growth is crowding out retirement benefits, and obviously, all other benefits as well, which includes life insurance and workers compensation.<sup>32</sup> The EBRI recognizes that overall, benefit plans have been a cornerstone of US labor history, dating back to colonial times, based on the policy that employee benefits “represent a national commitment to provide some measure of income security and access to certain services [ . . . ]” to workers and their families.<sup>33</sup> So, while benefit packages have been historically considered a key part of compensation, when you compare all this, to the fact that wages have only increased 21% in the same time period, a 100% increase in health premiums seems unreasonable.<sup>34</sup> In 2006, spending on healthcare was paid for nationally as follows:<sup>35</sup>

---

<sup>28</sup> State Health Facts: Minnesota, 2009

<sup>29</sup> Covington, 2007

<sup>30</sup> Facts on Health Care, 2009

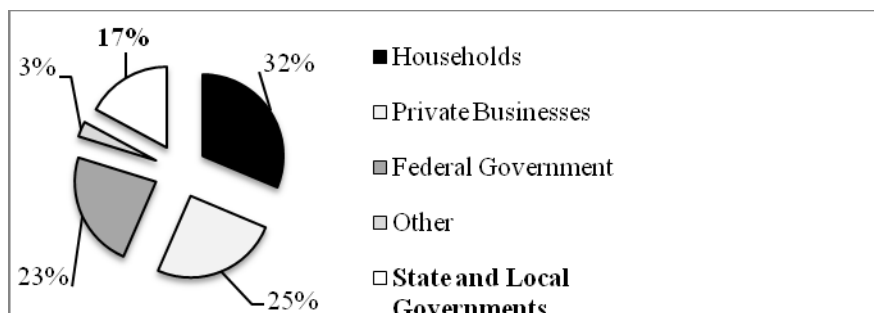
<sup>31</sup> EBRI Data book on Employee Benefits: Finances of the Employee Benefit System, 2009.

<sup>32</sup> Employer Spending on Benefits, 2002

<sup>33</sup> EBRI Data book on Employee Benefits: Employee Benefits in the United States: An Introduction. Chapter 1, 2009.

<sup>34</sup> Facts on Health Care, 2009.

<sup>35</sup> Snapshot Health Care Costs 101, 2009.



**Figure 4: Health Care Spending by Entity, 2006**

### *Comparing Public and Private Sector Health Benefits Nationally*

Public Sector benefits have always been considered richer than private sector benefits, and the main reasoning behind giving public sector employees richer benefits was to make up for the wage premium in the private market. Overall 87% of state and local government employees had access to medical care plans in 2007, while in comparison; only 71% of private sector employees had access, a 16% difference.<sup>36</sup> In the private sector the typical health benefit package, in 2006, was a PPO, with 67% of private workers participating. HMOs were utilized by 24% of the private workforce, and the remaining 7% chose to use traditional health insurance.<sup>37</sup> In the private sector, 61% of businesses offered health care benefits and 69% of workers had access to health insurance in 2006; of that 53% took advantage of medical benefits, and enrolled. In 2003, on average the business contributed 71% to family premiums, or about \$273.00 per month.<sup>38</sup> This distinction is important to draw due to the significant debate over the richness of public sector benefits, and more importantly the closing of the private-public wage gap, which was once used as reasoning for richer public sector benefits, but how does Minnesota historically compare?

### *HEALTH CARE SPENDING IN MINNESOTA*

In Minnesota, 93% of residents had access to health care in 2008. The Minnesota Council of Health Plans found that in 2007 the providers of health insurance paid out 14.3 billion dollars in medical care costs, this was an increase in medical costs of 6% from 2006. Overall, residents, businesses, and insurers spent 29.4 billion dollars on healthcare in 2005, yet the nonprofit health plans in the state, together had an operating loss of \$86.6 million in 2006.<sup>39</sup>

This increase in healthcare spending will be due in part to inflation, changes in technology, and changes in utilization patterns across the state, and general industry cost growth. This increase will however also be due in part to significant demographic shifts, that will not only affect the state and cities ability to collect tax revenues, but this demographic shift will also result in increased utilization of healthcare services. This demographic shift of course refers to

<sup>36</sup> Employee Benefits in State and Local Government, 2007

<sup>37</sup> Typical Health Benefit Package in Private Industry, 2006

<sup>38</sup> Typical Health Benefit Package in Private Industry, 2006

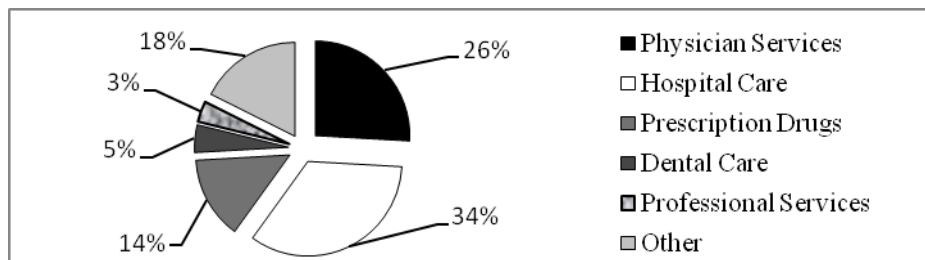
<sup>39</sup> Minnesota Health Plans: Employers, Innovators, Leaders, 2009; Improving Quality, Reducing Costs, Adding Value, 2009

the event of baby boomers reaching retirement age, which also just happens to be a marker for increase health care utilization. Overall, in 2006, all areas of health care spending had increased by at least 4%, in Minnesota. In addition, while costs increased an average of 7% in 2006, overall enrollment in health plans only increased 1%.<sup>40</sup>

<b>Hospital costs</b>	
<b>15%</b>	
ER Costs	14%
Pharmacy/Prescription Drugs	6%

**Illustration 1: Increases in Spending Areas 2006 to 2007**

Figure 5 below breaks down medical expenditures in Minnesota in 2005 by type of medical service provided. Hospital care was the majority of expenditures, as is the trend nationally, followed closely by non-hospital doctor care. Most plan providers would agree that more cost allocation to physician services should theoretically decrease the amount of hospital care required, because routine procedures and visits are far less costly than any hospital service. This assertion is however based on the theory that increased use of physician services, and preventative care via physician services, will result in a decreased need for hospital or emergency care, but this in the end is still partially dependent on the quality and appropriate use and timing of medical care.



**Figure 5: Health Care Spending in Minnesota<sup>ii</sup>**

The health insurance market in Minnesota is a mature market, and has a relatively small number of providers, which has no bearing on the cost of premiums, according to statistical studies nationwide. In Minnesota most health insurance providers operate as non-profit HMO's, with relatively few providers operating in other management approaches like PPO's, because Minnesota law requires that all HMO's be non-profit.<sup>41</sup> Providers headquartered in Minnesota, and the primary providers of city employee's healthcare are: Blue Cross Blue Shield, First Plan, Health Partners, Medica, Metropolitan Health Plan, Preferred One, Sanford Health Plan, and Ucare. These providers alone cover over 4 million people in Minnesota, and in 2006, 91% of the

<sup>40</sup> Minnesota Health Plans: Employers. Innovators. Leaders, 2009; Improving Quality, Reducing Costs, Adding Value, 2009

<sup>41</sup> Minnesota Budget Trends Study Commission. 2009

costs they incurred were for medical expenses (paying insurance claims) and only 9.8% of funds were used to cover administrative costs. So, for every \$1 paid to a premium, only 9 cents is used on administrative costs.<sup>42</sup> One important point to note however is that most of the aforementioned HMO's, and specifically the ones primarily utilized by the cities in the sample, all were profitable in 2007, usually seeing around 3% net income, as a percentage of revenues, most of which was investment income (77%).<sup>43</sup>

In Minnesota, the issue of health care is already on the state budget agenda. Finding number seven of the *Budget Trends Study Commission* found that healthcare growth will become the most important factor in controlling rising state expenditures. For example, over the next 25 years, revenues are expected to grow at a rate around 3.9%, and this could be lower or even a decline, due to recent changes in the US economy; while healthcare spending is expected to grow approximately 8.5% in comparison.<sup>44</sup> The report however leaves the issue of healthcare to later debate, citing that this is an issue that cannot be resolved at the state or local level.<sup>45</sup> So, what can cities in Minnesota do to help control costs, and become more efficient consumers of health care? In order to answer that question, one must first understand statewide patterns of employer provided health benefits.

#### *Public vs. Private Sector Benefits in Minnesota*

Overall, of Minnesota employers, both public and private, 47.7% offered health insurance in 2002, according to the Minnesota Department of Health. The percent coverage varied by region, with the cities in the metro area seeing the highest rate of coverage, 54%, and cities in rural Minnesota averaged around 37%.<sup>46</sup> In comparison, in 2002, about 82% of employees worked for a firm that offered health insurance, and only those firms that had less than 10 employees had a significant difference in coverage. Finally, looking at the percent of employees that were eligible for health insurance, on average, 75.9% of employees were eligible for health insurance in 2002; and of those, 80% enrolled in coverage, 68% of them were sponsored through their employer.<sup>47</sup>

In the state of Minnesota, private and public employer contributions are typically slightly less than the national average. In 2006 the average employer contribution to single premiums was about 80%, while the average in the US was 81%. For family premiums, Minnesota, on average, contributed about 73% of premium costs, while the national average was closer to 75% of total premium costs. Looking specifically at dollar averages overall, in 2006, employer contributions were on average \$8,318 for family premiums; while national average annual contributions were \$11,381 on average.<sup>48</sup> Monthly averages in Minnesota were around \$649 for family premiums in

---

<sup>42</sup> Minnesota Health Plans: Employers. Innovators. Leaders, 2009.

<sup>43</sup> Health Plans Slides, 2009

<sup>44</sup> Minnesota Budget Trends Study Commission. 2009

<sup>45</sup> Minnesota Budget Trends Study Commission. 2009

<sup>46</sup> Health Plans Slides, 2009

<sup>47</sup> Health Plans Slides, 2009

<sup>48</sup> State Health Facts: Minnesota, 2009

2002, and had nearly doubled since 1997.<sup>49</sup> For family premiums, employers in Minnesota actually again spent slightly less than the rest of the country, which on average covered 75% or about \$700 per month, covering 73% of family premium amounts, and on average spending around \$690 per month per FTE.<sup>50</sup> Looking at firm size, those with the fewest employees (less than 10) and the highest number of employees (200+), paid the highest percentage of premiums, 70.2% and 69.7% respectively, with about a 10% range of coverage for all other firm sizes, indicating that the number of FTEs does play a role in premium contribution amount.<sup>51</sup> When

*PREMIUM COST DRIVERS: Why is the Cost of Health Care Increasing?*

Research has been conducted as to what increases employer costs when dealing with medical benefit premiums and contribution, in other words, how employers can control costs when costs are becoming uncontrollable. In 2006, overall spending growth was attributed to several cost

<p><b>Medical Price Inflation 51%</b>          The Volume and Mix of Services Utilized 28%          Population Growth 15%          Aging Population 6%</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------

factors, according to the California Health Care foundation, the most significant of which are outlined below.<sup>52</sup>

**Illustration 2: Spending Growth in Various Cost Factors**

These are obviously very broad categories, however, for local governments, these can be broken out in to factors that specifically affect local premium growth; while there are many significant factors contributing to premium cost increases, some are controllable and some are not.<sup>53</sup> In order to better understand why costs are increasing, as was shown in the previous two sections, controllable and uncontrollable cost drivers will be discussed.

The first uncontrollable factor for employers is the dramatic growth of health care inflation, relative to general inflation. While this is a factor that remains difficult to address, due to the complexity of the system there are several clear factors contributing to this significant discrepancy in inflation. One part of the dramatic cost growth is resultant of the growing prevalence of high cost diseases, specifically ones that require long term care, and expensive prescription drugs and extensive medical procedures. When these high cost diseases become part of a group insurance pool, then the overall costs to maintain payments to providers will go up, thus increasing premiums for the pool, and therefore employers. While discouraging innovation with technology and medical practice is not a suggestion or goal, one must

---

<sup>49</sup> Health Plans Slides, 2009  
<sup>50</sup> State Health Facts: Minnesota, 2009  
<sup>51</sup> Health Plans Slides, 2009  
<sup>52</sup> Snapshot Health Care Costs 101, 2009  
<sup>53</sup> Public Health, 2009

understand the role that technological advances have had in improving the chances of increased life spans for those afflicted by high cost diseases on the overall price of health care related to insurance premiums.

Another significant uncontrollable factor is an aging population, specifically one that is disproportionate to the shrinking working population. Compounding this issue is the fact that life expectancy has increased significantly in the US. Overall US residents are getting older and living longer, which is especially worrisome in regards to health care cost growth because the “baby boomers” are reaching retirement age, and will likely be more reliant on the shrinking workforce to pay into public health benefits. In 2004, The Kaiser Family Foundation found that spending on health care doubles between the 25 to 44 and 45 to 64 age brackets, and doubles again from the 45 to 64 age bracket to the 64+ age group. So, not only do costs increase as one gets older, but they increase significantly between age groups, double in most cases.

The Minnesota Council of Health Plans indicated that regional differences most likely play a significant role in overall health care costs and thus premiums rates. Theory would suggest that the concentration of health care providers in an area would largely affect price, due to increased or in some cases decreased competition. In regions that have one primary health care provider, and very little or no competition, health care prices would likely be significantly higher; an example of this could be the northeast or the southeast, both of which are served by large providers (St. Mary’s and Mayo) with very little competition. In contrast however, the significant concentration of health care providers in the metro would suggest that prices, costs, and thus premiums would be lower.<sup>54</sup> Other less significant determinants include: tastes and preferences of medical care consumers, lifestyle choices, and the state of health of the consumer; all of which play a role in the types of medical care desired and needed.<sup>55</sup>

One specific area of concern for most health plan providers, when it comes to controlling costs is the issue of prescription drugs. Nationally prescription drug spending in 2007 was about 10% of total health care spending, but it actually contributes to about 14% of spending growth for health care overall.<sup>56</sup> In 2006 prescription drug spending growth was at about 8.5% for the year. According to Blue Cross Blue Shield of Minnesota (BCBS), retail prescription spending has been increasing at a rate of around 20% annually, and has increased quickly and on a large scale. This is due in part to increased patent protection, which results in fewer generic drugs available, due to increased patent time, but increased spending is also a direct result of something called direct to consumer advertising. Direct to consumer advertising, advertises prescription drugs to the public outside of the doctor’s office. This results in an increased demand for brand name prescription drugs, which results in increased spending both by consumers and by insurance providers. This becomes a significant issue relevant to city budgets because increase prescription drug spending has a significant impact on the premiums and packages offered,

---

<sup>54</sup> While there is no specific literature on regional effects on health care price, basic economic theory supports these assumptions. Regional and Demographic effects were suggested in interviews with MCHP.

<sup>55</sup> Santerre, 2000

<sup>56</sup> Health Care Costs, A Primer: Key Information on health care costs and their impact, 2009

increasing the cost of providing medical benefits to the city. In other words, increased demand results in increased costs to insurance providers, which results in higher premiums and co pays.<sup>57</sup>

Other significant cost factors include: increased consumer demand, increased utilization, unhealthy lifestyles, the cost of technological innovation and changes to patent law, and required changes to the practice of medicine (primarily the issue of malpractice). While obviously not all of these are directly controllable by plan providers or employers, some of them are directly controllable, by the employer and plan provider. The question then becomes, what can employers control to help spend taxpayer dollars more efficiently?

As was mentioned briefly, plan providers can work towards restructuring their relationship with health care providers; which in Minnesota, has taken the form of working towards a “pay for performance” which pays based on patient outcomes rather than quantity of patients served.<sup>58</sup> As a result of these efforts, Minnesota’s PPOs and HMOs rank far higher in pay for performance rankings, coming in above average the national average. The main role that health plan providers can play is to help employers select the best plans, which allow for the most efficient results that support pay for performance standards.<sup>59</sup> In addition MCHP has been advocating for increased consumer choice, and greater performance transparency.

Utilization, plan enrollment, and therefore, overall plan structure are all controllable by employers in the plans they chose, and providers in the plans they offer. While premiums pool health care costs, not only to absorb risk, but to allocate costs; they will rise if more health care services are consumed or if price rises.<sup>60</sup> Choosing an appropriate plan design can lead to appropriate levels of utilization and in part, plan enrollment.<sup>61</sup> Plans should offer flexibility in options, not only in provider choices, but also in what plan components are available. Some key plan design features that can significant reduce overall premium increases for the group include providing things like waivers for preventative services, making sure that there are few barriers to essential medical care, and overall finding ways to educate and inform consumer choice, by exposing consumers to the cost of the medical services they utilize. This is especially pertinent when it comes to the issue of preventative, low cost, medical care, versus high cost, emergency services.

Office Visit (Sore Throat):	<b>\$109</b>
VS	
ER Visit (Sore Throat)	<b>\$328</b>
Brand Name Prescription Drug	<b>\$89</b>
VS	
Generic Prescription Drug	<b>\$63</b>

---

<sup>57</sup> Blue Cross Blue Shield, 2009

<sup>58</sup> Pay for Performance, 2009

<sup>59</sup> Pay for Performance, 2009

<sup>60</sup> Sample Company Intranet Q&A: Rising Health Care Premiums, 2009

<sup>61</sup> This section draws heavily from interviews with the Minnesota Council of Health Plans, as well as their websites.

**Illustration 3: Typical Costs, which consumers never see, but providers charge and insurers must pay, from MCHP:**

Often things as small as copays offer a disincentive for going to the doctor for routine medical care and exams, as well as getting preventative care.<sup>62</sup> In the long run, this avoidance creates the risk of having to utilize what is considered to be catastrophic and/or long term care, that could have been avoided with the use of low cost or no cost copays and waivers for preventative care. Another means of controlling costs includes restructuring prescription drug plans, specifically into a tiered approach, where generic drugs have the lowest copays, or in the best case, no copay to incentivize consumers to use generic drugs instead of the higher cost brand name and non-formulary drugs. While prevention and routine care cannot prevent all high cost health care procedures, they can significantly reduce the need.

Plan enrollment is another means of controlling costs, in that if you can incentivize employees to enroll in single coverage, costs will be reduced in comparison to a family plan, and moreover, you can further incentivize employees with families to use a spouse's health plan, through the use of waivers and cash in lieu of coverage. While this does not suggest employers should deny coverage, or limit coverage, employers can structure plans in a way that encourages the use of other means of insurance, as long as they are covered. In addition, a significant cost driver is offering post retirement health insurance to employees. Offering post retirement health care options increase costs, no matter how the post retirement plan is structured. Most cities in this study that offer post-retirement health care benefits simply offer employees the option to remain on the city's health plan for either a certain number of years or up to a certain age, with the employee bearing the responsibility of paying all premiums. This however, will still cost the city significant amounts of money in premium increases due to increased utilization. Some cities actually took post retirement health care a step further and actually cover a portion of premiums as well; regardless of whether or not the city makes a premium contribution, offering post retirement benefits is perpetuating keeping higher cost enrollees in the city's risk pool, thus likely increasing costs and premiums.

So the keys to maximizing efficiency in plan structure include choosing appropriate incentives to chose low cost options, focusing more on quality, rather than quantity of services received, and utilizing disincentives for higher cost options that do not necessarily provide significant marginal benefits. Another important approach is to promote more cost sharing by appropriately structuring the percentage of premiums paid to put more responsibility on the employee to assist in internalizing more of the cost of health care with the employee.

*Methods of Controlling Costs*<sup>63</sup>

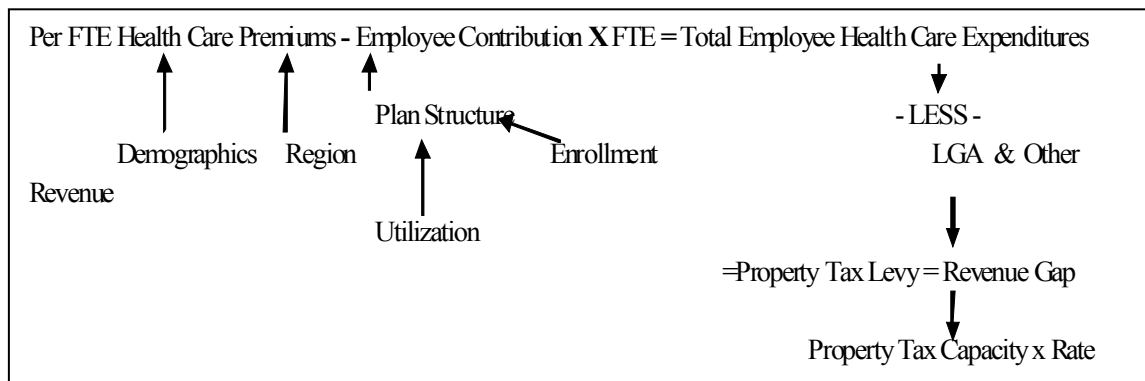
---

<sup>62</sup> The True Costs of Healthcare, 2009

<sup>63</sup> Minnesota's Health Plans Improving Quality, Reducing Costs, Adding Value, 2009

There are four primary methods recommended by the Minnesota Council on Health Plans, as a proven means of reducing utilization of high cost medical goods and services and avoiding misuse of healthcare: prevention, generic substitution, health management and health savings accounts. Prevention simply means providing incentives for health care consumers to see out preventative care and physician services to avoid high cost hospital visits and long term care. For example, in 2006 Health Partners saved \$3 million by proactively preventing depression for at risk members, this can apply to other treatable, high costs conditions. This also includes doing preventative screenings and administering necessary vaccines. Another approach is to promote the substitution of generic drugs for brand name prescription drugs; which can be done with incentivizing generic drug use through a low cost or no cost copay, and significantly higher copays for non-generic prescription drugs. In 2007, by adopting a prescription drug management strategy, Medica saved \$48 million in prescription drug costs, by promoting the use of effective generic drugs whenever possible. Blue Cross Blue Shield implemented a similar strategy which saved about \$91 million in 2006, partially attributable to the use of a free generics program. Choosing a health plan provider that utilizes health management approaches which utilize or incorporate pay for performance measures can significantly reduce costs, and thus premium increases in group plans. For example, in 2007, Health Partners saved approximately \$11.2 million annually by implementing its pay for performance program which uses financial incentives to improve the quality of their care by containing costs, through better diagnosis, referrals, and treatment. Medica took a similar approach, called health management, which also focused on consumers receiving the right care at the right time, for the efficient delivery of medical care, which is expected to save them about \$15.2 million based on expected participation in 2008. Finally, the newest innovation in health care cost control has been health savings accounts, which come in various forms.

To conclude, the relationship between employee health insurance and city spending is complex, but, if the time is taken to understand the underlying relationships, and the health care industry, then one can see that Minnesota cities are likely not maximizing efficiency. *Figure 6*, summarizes the most important, overarching relationships.



**Figure 6: The Relationship of health benefit premiums and City Revenue Sources**

## DATA ANALYSIS: DESCRIPTIVE STATISTICS AND REGRESSION ANALYSIS

### DESCRIPTIVE STATISTICS ANALYSIS: PREMIUM SPENDING QUANTIFIED

Every city government in Minnesota has employees and every city government offers some form of medical benefit compensation to these employees, much like most private business employers. Most cities in this study contributed to all or some of their full time employees (FTEs) medical premium costs. The following tables and discussion look at various trends and statistics as to what local government health benefit spending in Minnesota Actually looks like.<sup>iii</sup>

When offered benefit plan choices most employees of city governments in Minnesota are given the option of accepting single coverage (coverage just for themselves), family coverage (coverage for themselves and their spouses and dependants), or to waive benefits (which is typically only allowed if they can provide proof of other insurance). While the exact statistics are not available, most employees in Minnesota opt for family coverage because they typically need to cover their family and because it is a better deal for the employee, because the cost to the employee is typically not significantly different from the single premium total cost. Each city in this study presented the average plan contribution for both single and family premiums, or presented all plans offered, and the average was calculated to standardize the data for comparison.

#### *Premium Dollar Spent per FTE in 2008 for Family Plans*

Health plan providers indicate that most employees enroll in family plans, even if cities tend to contribute less of a percentage of the premium, the overall benefit is much greater. In actuality this makes theoretical sense, in that most working age adults have one or more dependants. Therefore, the primary analysis in this study will focus on the average amounts spent on family premiums, because they are the more commonly enrolled in health plan.

**Table 1: Average Monthly per FTE Family Premium Contributions by cities**

<b>Per FTE Contribution</b>		(Example)
Mean	<b>\$853.35</b>	(Faribault)
Median	<b>\$800.00</b>	
Mode	<b>\$600.00</b>	
Min	<b>\$0.00</b>	(Zimmerman)
Max	<b>\$2,653.53</b>	(International Falls)

In the state of Minnesota, most cities, with over 2,500 residents, spent an average of \$800 per month, per full time employee for family plan premiums. One city, Zimmerman, did not offer any contribution towards family premium costs, while Wells, on the other end of the spectrum covered not only 100% of monthly family premiums, but actually contributed more than the total

***Faribault: Average Family Premium Contribution: \$852.00***

**Population:** 22,733

Spending on Premiums per Month: **\$89,290**

**FTE:** 131

Spending on Premiums per Year: **\$1,071,145**

**Total Budget for 2008:** \$51.4 million

Percentage of Total Budget: **2.1%**

**Property Taxes levied in 2008:** \$3.9 million

**LGA 2008:** \$5.8 million

Per Capita Premium Spending: **\$47.11**

**The cost of 7% growth in premiums: \$93,754 in 2009**

-Because Enrollment statistics are not available, and because this is the average premium contribution, this case provides an approximation of the city's spending on health care, assuming all employees choose a family plan and assuming 80% (state average for public and private) enrollment.

premium cost (assumedly towards an HRA or HSA). A good example of an "average" family premium spending city is Faribault, so it will be used as an illustration of what per FTE premium plan contributions really add up to each month and year.

**Figure 7: Extrapolation of an Average Spending City's monthly premiums<sup>iv</sup>**

As one can see, premium costs add up over time, and considering the fact that premium rates are growing at a rate of about 7-8% per year (and that number is increasing annually) and the anticipated large cuts in LGA in 2009, increasing health care costs will likely cause the property tax levy to increase significantly, as other sources of revenue are less productive due to the weakened state of the economy.

***Premium Dollar Spent per FTE in 2008 for Single Plans***

Although a less popular choice of plans for employee, single premium contributions in Minnesota are much more generous, often covering 100% of the cost of the insurance premium for the employee.

**Table 2: Average Monthly per FTE Single Premium Contribution by the City**

<b>Per FTE Contribution</b>		(Example)
Mean	<b>\$459.29</b>	(Little Falls/Blue Earth)
Median	<b>\$432.26</b>	
Mode	<b>\$497.23</b>	
Min	<b>\$0.00</b>	(Otsego)
Max	<b>\$1,098.00</b>	(Forest Lake)

As can be seen in *Table 2*, the average single contribution was \$459, while the median value was \$432.26, and the most common contribution was \$497. One city, Otsego, did not contribute to single premiums, which means the employee is responsible for 100% of the cost of their health insurance; this however was a definite outlier among Minnesota cities with over

2,500 residents because most cities contributed nearly the full cost, if not more, to employee health insurance. Another outlier, who covered more than the cost of a single premium for their employees, was Forest Lake, whom contributed, on average, \$1,098 to single employee premiums. Little Falls will serve as an example of average single premium spending in Minnesota cities<sup>v</sup>.

<b><i>Little Falls: Average Single Premium Contribution: \$459</i></b>	
<b>Population:</b> 8,407	Average Premium Spending Per Month: <b>\$16,983</b>
<b>FTE:</b> 46	Average Premium Spending Per Year: <b>\$203,796</b>
<b>Total 2008 Budget:</b> \$8.5 million	<b>2.4%</b> of the total budget
<b>LGA received in 2008:</b> \$2.2 million	
<b>Property Taxes Levied in 2008:</b> \$1.1 million	Per Capita Cost: <b>\$24.24</b>
<b><i>The Cost of a 7% increase in Premiums: \$218,062</i></b>	
Because Enrollment statistics are not available and because this is the average premium contribution, this case provides an approximation of the city's spending on health care, assuming all employees choose a single plan and assuming 80% (state average for public and private) enrollment.	

**Figure 8: An average spending city for single premium contributions per month per FTE**

As can be seen above, even if city employees all opt for the average single plan, growth in premium cost, even without accounting for increases in premiums due to increased utilization, are growing at an unsustainable rate, especially in a time where LGA cuts are large and property tax revenues are going down, something as “small” as benefit premium contributions can have a significant effect on local budgets and spending, on other services for the city.

*Average Plan Spending*

Since cities are not required to report spending by object code, i.e. report how much is spent on health benefits, or even enrollment in health benefits, another approach to looking at the self reported data is to take the average of the average single and family premiums and use that, multiplied by the number of FTEs, to come up with an approximate figure for monthly spending on premiums by city, the table below presents the results.

**Table 3: Average Plan Premium Contributions**

(FTE count not included)	
Mean	<b>\$654.01</b>
Median	<b>\$625.00</b>

**Table 4: Applying Average Plan Premiums**

(FTEs included in calc)		
Mean	<b>89,897.43</b>	Chaska/Fridley
Median	<b>35,411.9</b>	
Minimum	<b>687.87</b>	Sauk Centre

Maximum	<b>3,627,569</b>	Minneapolis
---------	------------------	-------------

As one might have noticed while comparing single and family plan results, and as can be seen in the *Tables 3 and 4* above, when you look at single and family plans in comparison for the same city, their contributions are typically quite different. This is because one tool cities have for controlling the cost of health benefits is in the structure of plan offerings. This means that cities can structure their plans to offer better cost coverage for certain plan options to incentivize employees to choose the options which place less of a direct burden on the city; because of this, cities will often cover 100% of single coverage, while only contributing 70% of the total cost of family premiums, in hopes that the employee, in the case that they would utilize a family premium will use a spouse's insurance and either waive benefits or choose to use the single plan instead. *Table 3* above, gives the average of monthly single and family plan premium contributions, without including the number of FTEs in the calculation. The average monthly plan premium is around \$654, and Stillwater is a good example of an average cost premium city. St. Charles, however, when single and family plans are considered, actually ends up contributing the lowest, on average to employee premiums.

As can be seen in *Table 4* above, three cities that had not yet been identified as lowest, highest, or average spenders are identified in this model, once the average of the two plan types is taken and multiplied by the number of FTEs. Monthly spending on premiums ranges all the way from Sauk Center, which has 19 employees, and spends on average somewhere around \$690 on employee health benefit premiums per month, to Minneapolis, who, spends around \$3.6 million on health premiums monthly, but has 4,005 employees.<sup>vi</sup> On average, cities spent somewhere around \$90 thousand per month on health care premiums for their employees, or \$1.1 million annually. If you consider that are 182 cities in this study, if each spent the annual average on health premiums, total local government spending in Minnesota would amount to somewhere around 200 million dollars each year, growing at a rate of around 7%.

*Cost Sharing: How Much Responsibility Are Minnesota Cities Taking For Employee Health Insurance Costs?*

Another way to look at how a city provides medical benefits is to look at the percentage of the premium a city covers. While cities cannot always control the cost of premiums, and thus control increases in premiums, they can control how much of an employee's premium they contribute to each month. In a time where medical spending, and premiums are growing at unprecedented rates, and spending is becoming a larger and larger portion of budgets, the percentage of employee benefits covered by the city is an obvious way to reduce rapidly increasing costs in the short term. As was identified in a time series study in the 1980's, by Long and Scott, five factors contribute to how employers decide how much of a premium to cover: the size of the workforce, changes in real income, unionization, taxation of income and health care, and demographic factors. While, this study is not aiming to explain what percentage of a premium employers pay, one must understand the decision making process that goes into determining how much of premiums to pay.

**Table 5: The Percent of Health Care Premiums Paid by the City**

<i>Single</i>			<i>Family</i>			
Mean	100.94%	Most Cities	Mean	77.12%	Baxter, Woodbury, Byron	
Median	100.00%		Median	75.00%		
Mode	100.00%		Mode	100.00%		
Minimum	0.00%	Otsego	Minimum	0.00%	Dodge Center/Zimmerman	
Maximum	218.44%	Edina	Maximum	600.00%	Otsego	

Table 5 above shows that while most cities cover 100% of single premiums, rates vary more significantly in family coverage, and while some cities, like Otsego, clearly balance generous family contributions with no single contribution, the majority of cities cover premiums at a ratio of 100% single and 75% family. Many cities reported contributions for both plan types above what the premium costs in total, one must assume that contributions over 100% are going towards HSAs or HRAs that are being used in conjunction with traditional health insurance. Further study will likely show that there is an important and underlying dynamic between the percentage of the premium paid by the employer and utilization rates, but what is important to understand at this point is that there is no clear cut pattern of premium contributions in the state of Minnesota in city governments. A clear trend is to cover all of an employee’s single coverage, but offer sufficient contributions to family plans as well. What is most surprising is how many cities not only cover the full cost of insurance premiums for employee, but who also offer contributions to health savings accounts or health retirement accounts. Many of these added benefits can be better understood by looking at the data surrounding benefit generosity, discussed in detail in the next section.

*Medical Spending Component Offerings Incidence*

Cities want to provide their employees with the best plan options possible, and this is understandable, in that benefit plans are a significant part of employee compensation. However, several benefit options are far more generous and significant in raising costs, while others can offer a large cost savings. Looking at cities in this study, many cities offer the option to waive health care benefits, if benefits are provided by another means, which not only means that the city is not responsible for contributing to health care costs, but also, that those individuals that would have fallen under that employees health plan are not growing the risk pool.

Although 158 cities offer the option to waive health care benefits, 36 of those cities do not offer a cash benefit in lieu of health care; in other words the employee simply loses out on that benefit, and that portion of their compensation. One of the largest benefits to offering the ability to waive benefits is the opportunity to offer a lump sum benefit in cash in lieu of health benefits. This cost is far more controllable and not subject to rising health care costs. While, 122 cities have found an efficient means of contributing to health care while controlling costs, 11 cities in this study offer one of the most expensive and uncontrollable benefits, post retirement health

care coverage, which means, that not only are they utilizing more health care services, thus increasing premium costs, but in some cities, they actually still pay a portion of the premium. Another equally costly offering, is to offer an HSA in conjunction with traditional premium coverage. This means that not only are employees receiving contributions to their health savings account, but they are also receiving the benefits of being in a cost pool, and receiving employer contributions.

What the descriptive statistics have shown thus far is that employee contributions and premium costs are varied throughout the state. While plan structure has a lot to do with spending, other factors, such as region, number of employees, economic status of the city, population, and the amount of revenue available are all also postulated to have a significant effect on variations in city spending.

*Regional Analysis*

Many cities, health plan providers, and economists argue that the location of a business, or in this case city, significantly affect the cost of health insurance, and medical care. This theory makes logical sense, because in more metropolitan areas, there will likely be more health service providers, more health plan providers, and therefore more competition to drive the costs of healthcare, at least to some extent, specifically in comparison to an area with one health care provider, with an excellent reputation, who can charge more for not only their reputation but because consumers have no other option for health service within the area. Looking at Table 6 below, the differences in single and family contributions again becomes obvious.

**Table 6: Health Plan Premium Contribution: City Spending by Region**

<b>Average Premium Contribution By Region (\$ per FTE)</b>		
	<i>Single</i>	<i>Family</i>
<i>Central</i>	448.38	930.85
<i>Metro</i>	480.34	771.50
<i>NE</i>	485.57	1,118.01
<i>NW</i>	450.30	751.15
<i>SE</i>	400.10	828.80
<i>SW</i>	445.46	873.40

Throughout the state the average spent on single premiums is fairly consistent, between 400 and 500 dollars per month per FTE; but on the other hand, average family premiums range from \$1, 118 to \$751. The obvious regions that appear to have significant differences in both single and family premium contributions are the metro area and the northeast. Looking at the averages for contributions in the northeast, the single and family averages are the highest in the state. The northeast region contains the city of Duluth, who is a self funded city and contains what has been referred to as the “Mayo of the North”, because it is served by a prestigious hospital with little competition; which likely can explain a significant portion of the per month per FTE cost increase. Inversely, it is not surprising that the metro area has one of the lowest family premiums, because this is an area with a large concentration of diverse medical providers and

health plans to increase competition and lower cost. What is surprising is that the northwest has the lowest average family contribution and one of the highest average single contributions, and that the southeast has the lowest single contributions but one of the highest average family contributions. This potentially highlights, again, the dynamic that exists between plans structure and contributions and its affect on utilization, but at the same time, one might be surprised that an outstate area, with less competition would have one of the lowest average premium rates.

Finally, in an effort to better understand some of the relationships observed in the descriptive statistics and spending scores, the sample was modified to segregate those cities that received LGA to those that did not, the main division in the sample.

*Comparing LGA Cities and Non-LGA Cities*

Looking at cities that do receive LGA and cities that are not eligible, there is a clear difference in spending patterns on employee health care benefits. Cities that received LGA in 2008 had an average family premium of \$880 per FTE per month; while cities that did not receive LGA in 2008 had an average family premium of \$753. Looking at the range of spending choices, cities that received LGA had a greater variety and a much higher maximum value than those cities that did not receive LGA had a much more clustered spread of spending options.

**Table 8: Descriptive Statistics: Family Premium Contributions: LGA vs. Non-LGA<sup>vii</sup> Receiving Cities**

	<u>Cities that received LGA</u>	<u>Cities that did not receive LGA</u>
Mean	880	753
Range	4,404	865
Minimum	0	465
Maximum	4,404	1,330
Count	138	45

On average, cities that receive LGA spend, on average, \$127 more than cities that did not receive LGA, per month, per FTE. Is this a coincidental trend in the data, or is there a link between LGA received and health insurance premium contributions? Beyond dollar contributions, another means of looking at spending, void of potential regional differences in premium prices, is the percentage of the premium that city’s cover for employees.

**Table 9: Single Premium Contributions, LGA vs. Non LGA Receiving Cities**

<b>For Cities Not Receiving LGA</b>		<b>For Cities That Received LGA</b>	
<b>Mean</b>	105.12%	<b>Mean</b>	99.70%
<b>Median</b>	100.00%	<b>Median</b>	100.00%
<b>Mode</b>	100.00%	<b>Mode</b>	100.00%
<b>Minimum</b>	53.72%	<b>Minimum</b>	0.00%
<b>Maximum</b>	179.83%	<b>Maximum</b>	218.44%
<b>Count</b>	45	<b>Count</b>	138

Cities that receive LGA, on average, contribute slightly less as a percentage of total premium covered for single employees, but when it comes to the most common percentage contribution, LGA appears to have played little role in the percentage contribution of single premiums. What is interesting however is the role of LGA in the variation of contributions amounts for single premiums? Looking at the descriptive statistics it is clear that something related to LGA is going on in the policy setting process. LGA receiving cities had a minimum contribution of 0%, while cities that did not, had a minimum coverage of 53%; overall, when it comes to single premiums, cities clearly want to incentivize employees to utilize the single premium, especially when you consider these coverage rates in comparison to family premium contributions.

**Table 10: Family Premium Statistics, LGA vs. Non LGA Receiving Cities**

<b>For Cities Not Receiving LGA</b>		<b>For Cities That Received LGA</b>	
<b>Mean</b>	69.95%	<b>Mean</b>	79.40%
<b>Median</b>	68.97%	<b>Median</b>	75.00%
<b>Mode</b>	N/A	<b>Mode</b>	100.00%
<b>Minimum</b>	50.00%	<b>Minimum</b>	0.00%
<b>Maximum</b>	100.00%	<b>Maximum</b>	600.00%

On Average, LGA cities contributed a larger percentage of family premium costs than non-LGA cities; and because employees typically chose to enroll in family coverage, rather than single coverage, these trends become significant in determining what factors go into city decision making on health care spending. These statistics show that not only do cities want to encourage employees to choose single plans, as is shown by the higher contributions for single premiums for non-LGA cities, as well as the significant difference in coverage between family and single contributions.( 35% less for non-LGA cities, and 20.3 for LGA cities). Moreover, for LGA cities, the most common single contribution for single and family premiums is 100%, while non-LGA cities have a most common single contribution of 100%, and no single most common value for family premiums, but an average of 69%. This indicates that there is, as was expected, a potential correlation between budgeting and management decisions and the ability to reasonably calculate LGA need.

Therefore, the important relationship to keep in mind is the percent change in coverage from single to family premiums and how the dynamic between the two can influence employee enrollment choices, and thus health plan costs. In addition to this dynamic, one must also consider how much of a premium a city is contributing, along with the dollar amount of contribution, to fully evaluate spending and health benefit design.

While performing a statistical analysis is beneficial, the basis of this study is to quantify the relationship and affect that employee healthcare benefit costs have on city property tax capacities and the LGA received (based on LGA need calculations). As this paper has thus far outlined, state law provides Minnesota cities with local government aid based upon a equalization formula, which using regression analysis, helps to identify cities with a need for aid. Property tax levies are used in conjunction with LGA from the state at the local level to fill the gap between budgeted revenues and expenditures for the year. While LGA is intended to fill this

revenue gap, many argue that GLA has been used as a means of providing more than adequate and more than equitable government services. What all this means is that city employee health care benefits are paid in part by property tax levies, and thus taxpayer dollars, and in part by LGA, which taxpayers from the entire state are paying into, and other revenues collected by the city. Using the property tax levy<sup>viii</sup> as the primary revenue source is expected and understandable, seeing as the majority of government expenses, especially at the local level are for services provided to taxpayers in the area, but LGA, while intended to increase equity in government services throughout the state, has been questioned, especially in the lack of spending parameters attached with the funding. Therefore, in order to identify and quantify the affects of LGA and ability to raise revenues on health spending decisions and decision making, the large city medical benefit cost data was put into a multivariate regression model.

*Case Study: Industry Premium Growth's Effect on Hypothetical Minnesota Cities*

In order to better understand the ramifications of spending trends in Minnesota cities, three hypothetical cities were created, that fit the average parameters of small, average, and large population cities within the states "large city" classification, accounting for an average number of full time employees, receiving the average family plan contribution, and the effect that the industry growth rate will have on the hypothetical city budgets, and tax prices of these various cities, based on the average population by size classification. Although these figures are hypothetical, they do represent realistic cost growth figures, that cities, regardless of changes to benefit plans or utilization, will have to deal with annually for the foreseeable future.

As can be seen in the table, below, per FTE contributions, while they provide a means of comparing per FTE costs, do little to explain overall city spending, especially with large premium cost growth absent of changes to benefit coverage or contributions. The last column of the table takes the sample averages and utilizes them to produce an average of spending growth in the state. What is really interesting, however, is that for small cities in Minnesota, although they have fewer FTEs and an average level of spending, per capita burden increases related to industry cost growth fore employee health premiums would likely be significantly higher for those cities that fall close to the small city averages. The preceding analysis focused on the quantitative data available in the LMC Salary and Benefits Survey, the next section takes into account qualitative data from the survey in order to develop a more descriptive analysis.

<u>Cost Factor</u>	<u>Small City</u>	<u>Medium City</u>	<u>Large City</u>
<i>Population</i>	3,524	<b>16,820</b>	35,577
<i>FTEs</i>	67	<b>99</b>	145
<i>Average Premium Contribution</i>	<u>\$853</u>	<u><b>\$853</b></u>	<u>\$831</u>
<i>Estimated Average Monthly Expense</i>	\$57,151	<b>\$84,447</b>	\$120,495
<i>Estimated Average Annual Expense</i>	\$685,812	<b>\$1,013,364</b>	\$1,445,940
<i>8% Industry premium growth</i>	\$54,865	<b>\$81,069</b>	\$115,675
<i>New Total Expenditure Burden</i>	\$740,677	<b>\$1,094,433</b>	\$1,561,615
<i>Per Capita Increase in Burden</i>	\$16	<b>\$5</b>	\$3
<i>New Total Employee Health Care Per Capita Burden</i>	\$210	<b>\$65</b>	\$44

**Figure 10: Premium Cost Growth Model**

*MEDICAL BENEFITS SCORES: A COMPARISON OF SPENDING AND GENEROSITY*

In order to assess more than just the direct amount cities contribute to premium amounts and to incorporate significant qualitative data on medical benefit plan structures, a medical benefits score card was created and methodology developed by which to assess medical benefits spending for cities in Minnesota.<sup>ix</sup>

National Statistics show that Minnesota, as a whole, provides an above average level of health care coverage and actual health care expenditures are about par with the rest of the country, but how do Minnesota cities fit into this statewide picture? In order to understand how cities, in their unique structure, make spending decisions in comparison to one another, quantitative and qualitative survey data was standardized and aggregated into a spending scorecard, for which the results are presented below.<sup>x</sup>

**Table 7: Spending Scorecard Key Figures, With City Examples for Spending**

<b>Medical Benefits Spending Scores (Out of 33)</b>		
Top Score (self-funded)	<b>Worthington</b>	<b>24</b>
Top Score Not SF	<b>Forest Lake</b>	<b>15</b>
Lowest Score Not SF	<b>Otsego</b>	<b>3</b>
<b>Average Score</b>		<b>9</b>

Spending scores ranged from 3 to 15 for those cities who were not self funded and overall sample scores averaged at 9. The top scoring city that was not self funded was Forest Lake with a score of 15; this is not surprising, as Forest Lake was already identified as having the largest average single plan contribution. All four of the self funded cities were in the top 5 for spending,

which was inherent in the way that the score card was scored, based upon the increased level of spending that occurs through self funding and thus risk assumption. Overall, non self funded spending scores were as varied as the previous direct descriptive statistics described, indicating that average family premium contributions serve as a good proxy for overall medical benefits spending. One of the largest benefits of being able to utilize a score card, rather than average premium contribution, is that this scorecard only compares Minnesota cities to one another, using averages and standard deviations as measures of comparison, and moreover, this method offers a simple means of understanding where one's city falls in spending in comparison to the rest of the state in a straightforward and consistent measure. The full data set of spending scores is available upon request.

#### *Medical Benefit Generosity Scorecard: Incorporating Qualitative Data*

In conjunction with the creation of the medical benefits spending scorecard, a generosity scorecard was also created. This scorecard standardized qualitative data in order to assess the relative generosity of plan flexibility and choice that is beneficial to employees, which could be summarized as extent of coverage. In other words, how much are cities getting for what they spend?

One would expect that as spending increases, employees would attain better benefits, hopefully in quality but also in the breadth of benefit coverage, in comparison to similar businesses in the region. For large Minnesota cities, one would expect that similar size city governments would offer similar benefits with similar levels of generosity. Therefore one would expect that spending scores and generosity scores would be nearly equal, but would also not be significantly varied throughout the state. What the spending statistics show is that spending is significantly varied throughout the state, and does not vary significantly by the demographics or economics of the region in Minnesota. So, knowing this, one would expect to find that spending is not only varied throughout the state, but that breadth of coverage moves with spending increases.

The basic methodology behind the creation of the scorecard was the theory that increased plan offerings relates to broader coverage and health benefits, and thus, the more plan options, the higher the score. This scorecard does not measure quality, but rather looks at the number of plan options.<sup>xi</sup> Gruber describes health insurance generosity in two ways, generosity to patients and generosity to provider.<sup>64</sup> For the purposes of this study, the focus in this section will be on generosity to patients, which is based on what share of medical services falls on the employee, which was already discussed, and how comprehensive the total package of health care benefits the employee receives are, which is what the generosity scorecard is capturing.

On average, out of a total of 17 possible points, most cities had a generosity score of 7, with a total sample range of scores from 17 to 2. In looking at generosity, the most generous plans did not come from the highest spending cities, for example, the most generous city, Maplewood, had an almost average spending score of 11.<sup>xii</sup> While cities like Kasson, Shorewood, and

---

<sup>64</sup> Gruber, Jonathan, 2007

Zimmerman scored very low on generosity, Kasson and Shorewood had very average spending scores, 10 and 7. Zimmerman did manage to have a low spending and generosity score, however, spending did out score generosity, and with a low score for each, one would hope that at least generosity would out score benefits.

Many cities did have an equal distribution of spending and generosity, the majority of which were close to the average scores of 9 and 7. Hermantown had the lowest score, 4, while maintaining balance between spending and generosity. Moreover, in looking at generosity specifically, the four most generous cities were all ranked higher in generosity of options than in spending, although all were above average in spending.

**Table 13 & 14: Generosity Descriptive Statistics**

<b>Generosity Score</b>			<b>Generosity Rank</b>		
<i>Most Generous plan options</i>	Maplewood	17	<i>Top 4 most generous</i>		
				<u>City</u>	<u>Score</u>
<i>Least Generous plan options</i>	Zimmerman Shorewood Kasson	2	<b>#1</b>	Maplewood	17
			<b>#2</b>	Cottage Grove	15
			<b>#3</b>	Golden Valley	15
			<b>#4</b>	Bemidji	14
			<b><i>Average Generosity Score</i></b>	<b>7</b>	

Finally, does spending and generosity vary by region, as do plan premiums and contributions? Spending and generosity do vary slightly by region, but when regional averages are considered, they closely resemble state averages, although spending and generosity within regions is significantly varied.

**Table 15: Comparing Spending and Generosity Average Scores by Region**

	<b>Average Spending Score</b>	<b>Average Generosity Score</b>
<b>Central</b>	8	7
<b>Metro</b>	9	8
<b>Northeast</b>	10	7
<b>Northwest</b>	9	8
<b>Southeast</b>	8	6
<b>Southwest</b>	8	6

For most regions, average scores were about the same, and in each region, the average was close to the overall state average, which indicates that spending and generosity are spread out throughout the state, even though overall, in most cities spending and generosity do not match

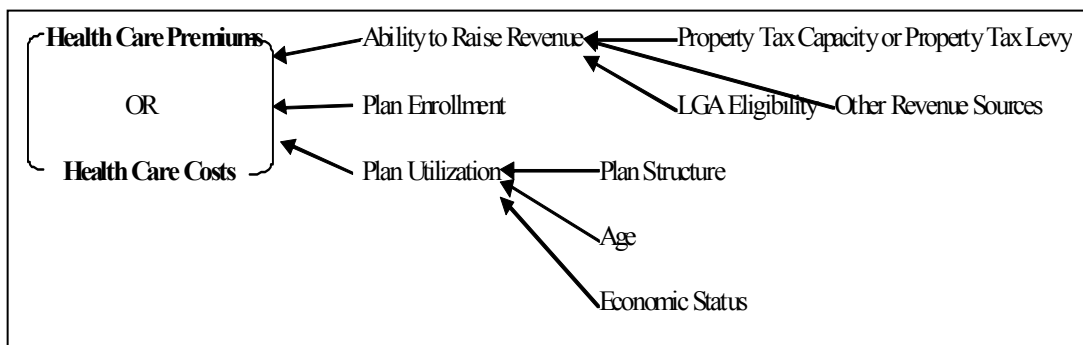
up. In all regions, spending was higher than generosity, but again, the northeast clearly experiences some differences in costs due to the region of the state; they not only have the highest average spending score, but they also have one of the lower average generosity scores. While this study is not in a position to make any conclusions as to why generosity and spending do not coincide, one hypothesis, for further study, is that when cities receive revenue from outside of their jurisdiction (particularly state aids) they are able to spend more, without being held accountable by taxpayers, especially when spending on employee health care and compensation are not required to be reported in public documents. Moreover, this lack of accountability, allows cities to be less diligent in choosing and implementing the best and most efficient health plans possible, maximizing city, as well as city employee benefits.

What the descriptive statistics have done is determine that factors traditionally thought to be the determinants of variation in city spending on employee health care, are not clearly developing trends throughout the state; moreover, significant variation in spending and generosity indicate that something beyond region, enrollment, and utilization plays a role in city employee benefit costs.

**REGRESSION ANALYSIS: STATEWIDE TRENDS IN SPENDING**

Since LGA and other revenues can be fairly accurately calculated prior to making budget decisions about employee health care benefits, decisions are likely partially based on expected state aid, the descriptive statistics tell us that cities receiving LGA spend more per month on their average family premium, both in dollar amount contributed and the percentage of total premiums covered. How big of an affect does this have in comparison to other cost drivers and revenue sources?

In order to determine the effect of a city’s ability to raise revenue, while controlling for other factors that affect health care spending, the relationship shown in *Figure 6*, was tested using a multivariate regression analysis.



**Figure 11: Regression Model Theoretical Relationship Diagram**

*Study Hypothesis:*

Cities will spend more on employee health care if they have the ability to pay for the expense, either through property taxes, state aid, or other revenues (such as fees for services, fines, or other tax sources). This could theoretically occur in several ways: Cities may have

lower tax rates or the cities may be eligible for local government aid or receive a higher LGA per capita.<sup>65</sup> Cities that have a large property tax capacity, specifically a large capacity per capita (Large Capacity/Low Population served), which places the burden with those receiving government services. Based on prior study's findings, the other two primary factors driving changes in health care costs and health care premiums are changes in utilization, or the amount of health care services consumed, and the number of enrollees in the plan for the city. In addition, in a less quantifiable manner, the structure of health plans can also affect plan utilization and thus overall changes to health care spending. In order to quantify the financial aspects of decision making and implementation of spending choices, two models were run consecutively, one using property tax capacity and one using property tax levy. Overall, this model approach allow for the direct identification of statewide trends in various revenue sources and health care expenditures. This means that the following models identify how health care spending changes, relative to the various revenue sources, such as LGA, property taxes, and all other revenue. By using this approach, the need to control for other areas of spending, by the various revenue sources, is eliminated because the various revenue sources are being used independently relative to the variable being explained, health care expenditures.<sup>xiii</sup>

*Variables Included: Defined*<sup>xiv</sup>

- HCFP: Health Care Family Premium Contribution. The city's average dollar contribution to family health insurance premiums, per FTE.
- HCS: Health Care Spending Score. Based upon the quantitative and qualitative self reported health insurance spending information reported to the League of Minnesota Cities, overall spending quantified, and compared to other cities in Minnesota. Refer to appendix for full methodology and scorecard outline.
- LGA: Local Government Aid Received 2008, per capita.
- PTC: Total Property Tax Capacity, 2008, per capita. Representative of the city's ability to raise revenue.
- PTL: Total Property Tax Levy, 2008, per capita. Representative of the amount of revenue the city had to raise, after all other revenues, and LGA were estimated.
- OR: Other Revenue, 2008, per capita. Calculated by taking Total Revenues for 2008 less the property tax levy, less LGA received.
- FTE: Full Time Employees for the City, 2008, per capita. A proxy variable for plan enrollment.
- WAUP: Workforce Age Utilization Proxy. 2000 Census data. The number of residents between the ages of 45-64 (the highest, working age, utilization group) divided by the total population to get the percentage of the population between the ages of 45 and 64. Serving as a proxy for the percentage of the city workforce between 45 and 64.

---

<sup>65</sup> Per Capita figures allow for standardization across city size

- AHI: Average Household Income. 2000 Census Data. The average household income for the city, serving as a proxy variable for the economic status of the city's residents.

*Variable Hypotheses<sup>xv</sup>*

H<sub>a</sub>: LGA received will increase health care spending and premiums.

H<sub>0</sub>: LGA received will not increase health care spending and premiums.

Reasoning: Although Local Government Aid does not specifically or directly go toward employee health care spending, the LGA need formula is fairly predictable, and the approximate value is budgeted for, thus one might expect that expected LGA is figured in to the ability of the city to collect revenue, and thus becomes part of health spending decision making, thus it is hypothesized that as the amount of LGA increases, spending on health care premiums and overall health care will increase. In other words, LGA is expected to enable increased spending on employee health care for those cities that receive it.

H<sub>a</sub>: PTC will increase health care spending and premiums.

H<sub>0</sub>: PTC will not increase health care spending and premiums.

Reasoning: Increased ability to pay for employee health care, as is shown by increases in property tax capacity, will likely result in increased spending on employee health care benefits in order to attract better and more qualified workers. Therefore it is expected, that as a city's property tax capacity increases, so will spending on employee health care. Property tax capacity serves as a means of quantifying what amount of tax revenue the city could collect; however, being the tax of last resort, the property tax is usually calculated after all other revenue sources are considered, and thus plays a crucial role in spending decisions.

H<sub>a</sub>: PTL will increase health care spending and premiums.

H<sub>0</sub>: PTL will not increase health care spending and premiums.

Reasoning: Increased ability to pay for employee health care, as is shown by increases in property tax levy, will likely result in increased spending on employee health care benefits in order to attract better and more qualified workers. Therefore it is expected, that as a city's property tax capacity increases, so will spending on employee health care. Property tax levy indicates how much the city actually needed to levy, after all other revenues were considered and spending decisions were made, and allows this model to measure how much an effect that the chosen level of property taxation had on health care premium spending.

H<sub>a</sub>: OR will increase health care spending and premiums.

H<sub>0</sub>: OR will not increase health care spending and premiums.

Reasoning: Increased ability to pay for employee health care, as is shown by increases in other revenue, will likely result in increased spending on employee health care benefits in order to attract better and more qualified workers. Therefore it is expected, that as a city's total other revenue increases, so will spending on employee health care.

H<sub>a</sub>: WAUP will increase health care spending and premiums.

H<sub>0</sub>: WAUP will not increase health care spending and premiums.

Reasoning: Health Insurance providers generally agree, and are backed up by data from the Medical Expenditures Panel Survey, that as age increases, utilization, and thus health care and premium costs increase. This means that as the percentage portion of the workforce that falls into the high utilization age bracket increases, one would expect that expenditures and premium costs would increase.

H<sub>0</sub>: FTE will increase health care spending and premiums.

H<sub>a</sub>: FTE will not increase health care spending and premiums.

Reasoning: The number of full time employees not only affects overall expenditures on health care benefits and increased costs, it also is representative of the effect that plan enrollment has on health care costs, therefore it is expected that the number of full time employees will increase health care spending and premiums.

H<sub>a</sub>: AHI will have an effect health care spending and premiums.

H<sub>0</sub>: AHI will not have an effect on health care spending and premiums.

Reasoning: Most models that are attempting to explain spending, or an area of spending, should include some sort of variable to account for the economic status of the areas the model is trying to explain. In this case, average household income serves as a control for economic status, but also serves as a means of accounting for changes in utilization that occur with economic status. There are two economic theories behind health care spending, based on income level. Low income individuals tend to avoid health care costs until absolutely necessary, thus increasing emergency room and long term care costs in some instances, while the inverse would be that cities with a high average household income would utilize less expensive health care services, and thus not increase health care costs, or increase them at a slower rate. Middle to upper income individuals tend to feel entitled to health care, based upon the premiums they contribute to, and in some cases over utilize to make up for their perceived loss; another theory is that as disposable income increases, so does spending on more and better health care, thus also increasing costs.

#### *Property Tax Capacity Based Model: Factors in Employee Health Expenditure Budgeting and Plan Structure Decisions*

The first of the three models run involves the use of city's property tax capacities, or their ability to raise revenue based on the market values of city properties, as a means of assessing one aspect of health plan and contribution decision making.

#### Theoretical Basis:

Health Care Spending= f (Ability to Raise Revenue, Local Government Aid, Utilization, Enrollment)

$$\text{HCFP} = \beta_0 + \beta_1 \text{LGA} + \beta_2 \text{PTC} + \beta_3 \text{WAUP} + \beta_4 \text{AHI} + \beta_5 \text{FTE} + \beta_6 \text{OR} + \varepsilon$$

Model Results:<sup>xvi</sup>

$$\text{HCFP} = 0 + 0.05 \text{PTC} + 0.8 \text{LGA} + 0.16 \text{OR} + 2,174 \text{WAUP} + 0.0014 \text{AHI} + 18,506 \text{FTE} + \varepsilon$$

(1.04)***	(2.5)*	(1.53)***	(3.94)*	(1.24)***	(1.8)***	(T-score)
(.06)	(.32)	(.12)	(551)	(.001)	(9960)	(Standard Error)

Adjusted R<sup>2</sup> = 0.8, <sup>xvii</sup>  
 F Statistic = 127\*, <sup>xviii</sup>

Tests of Significance, Potential Issues, Interpretation of Results:

This model is able to explain 80% of the variation in state spending on health care premiums around its average. In addition, the model has a statistically significant fit, as is indicated by the *F* statistic, which is significant at the 1% level, with an *F* of 127, which far surpasses the *critical F* of 2.17. Therefore we can reject the null hypothesis that this model is not statistically significant. Looking at the individual explanatory variable t-scores, one interprets these as the individual slope coefficients significance to the dependent variable. A variable is considered significant if the value passes the critical value set forth for the probability that the relationship is due to chance and therefore the higher the level of significance (10, 5, or 1%), the lower the probability that the relationship is due to chance. The *critical t* denotes the value at which the variable becomes significant and for this model the significant values are 1.28, 1.64, and 2.36. Several of the variables are slightly below the *critical t* score; however, because of their strong theoretical basis and role as a control variable, these variables were left in the model.

Independent Variable Interpretation:

In 2008, for every one dollar increase in LGA received per capita, there was on average, holding all else constant, an eighty cent increase in per FTE average premium. This indicates that the trend throughout the state in 2008 was that when cities received LGA, and specifically, as the amount of LGA increased, the city on average increased their average FTE family health premium contribution a nearly equal amount. This indicates that LGA does in fact enable increased spending and generosity when it comes to employee health benefits, as is shown by the trend in the data. In 2008, for every one dollar increase in property tax capacity per capita there was on average, holding all else constant, a five cent increase in per FTE average premium contribution. This indicates that on average, cities that could spend more, did spend more, but specifically with reference to the property tax portion of spending decisions, the total was less important to expenditure planning than was LGA. In 2008, for every one dollar increase in other revenue per capita there was on average, holding all else constant, a sixteen cent increase in per FTE average premium contribution. This indicates that on average, cities that could spend more, planned to spend more on employee benefits, or at least reallocated other funds to health care spending.

### Control Variable Interpretation:

The role of the control variable in a model is to account for factors that to some extent play a role in the direct determination of the health care cost contribution by a city, previously indicated or determined based on professional research and statistical studies. This means that while these variables are significant in isolating the coefficients on the independent revenue variables, they offer little in the means of extrapolation, specifically because they are transformed into a per capita basis, thus distorting the true magnitude of the coefficients. In order to better understand the specific distortions, each of the variables is explained below.

For the demographic control variable WAUP, in 2008, for every 1% increase in the percentage of the population (as a proxy for the city's workforce) that falls into the 45-64 high utilization category, there was, on average, holding all else constant, a \$2,209 increase in the average per FTE family premium contribution.<sup>xix</sup> While the coefficient for this variable has been distorted because of the scale of the model, the significance of the variable is key; age does significantly affect increases in health care spending, reflected in the t-score for this particular variable. The distortion occurs because the WAUP variable must be transformed into a per capita WAUP, which, translates to a 1% increase in the WAUP per capita, results in a \$2,209 increase in the average per FTE contribution. Therefore the transformed WAUP variable is so small, that minute increases would, in the overall trend result in large increases in average per FTE contribution. This variable could be extrapolated on by re-transforming the per capita variable to reflect changes in the full population, but the main purpose of including the variable was to control for the demographic effect of age, and this is accomplished without the need to extrapolate. For the economic control variable, AHI, in 2008, for every one dollar increase in average household income, there was, on average holding all else constant, a \$0.001 increase in the average per FTE family premium contribution. This indicates that although this variable is statistically significant, the magnitude of the affect of household income indicates that while it does play a role in health care spending increases, it is not a prominent factor in the state of Minnesota, for employee health premium spending. Finally, for the workforce size (enrollment) control variable, FTE, in 2008, for each additional full time employee per capita, there was on average, holding all else constant, a \$3,467 increase in the average per FTE family premium contribution. This coefficient, is again, difficult to extrapolate from because very few cities had even 1 FTE per capita, in most cases, this was a very small number. This means, that while this coefficient cannot be used for an accurate analysis of the magnitude of the affect that the number of FTEs has on spending, it does show the significance of the number of full time employees, acting as a proxy for plan enrollment, in employee premium contribution increases.

### *Property Tax Levy Based Model: What Factors are Considered When Contributing to Employee Health Care Expenditures*

The second model run, utilizes the property tax levy of the city for 2008, using the actual spending figures as a means of measuring final spending decisions, in relation to revenue sources. The following results present the trend in large city spending throughout the state on average employee health care benefits relative to the three primary revenue sources.

Theoretical Basis:

Health Care Spending= f (Setting of Politically Acceptable Property Tax Rate, Local Government Aid, Utilization, Enrollment)

$$HCFP = \beta_0 + \beta_1 LGA + \beta_2 PTL + \beta_3 WAUP + \beta_4 AHI + \beta_5 FTE + \beta_6 OR + \varepsilon$$

Model Results:<sup>xx</sup>

$$HCFP = 0 + 0.43 PTL + 1.03 LGA + 0.25 OR + 2,209 WAUP + 0.001 AHI + -3,476 FTE + \varepsilon$$

(2.25)*	(3.3)*	(2.3)*	(4.5)*	(0.94)***	(0.24)***
(0.19)	(0.3)	(0.1)	(485)	(.001)	(14265)

(T-score)  
(Standard Error)

Adjusted R<sup>2</sup> = 0.8, <sup>xxi</sup>  
F Statistic = 130\*, <sup>xxii</sup>

Model Interpretation:

This model is able to explain 80% of the variation in state spending on health care premiums around its average. In addition, the model has a statistically significant fit, as is indicated by the F statistic, which is significant at the 1% level, with an F of 130, which far surpasses the critical F of 2.17. Therefore we can reject the null hypothesis that this model is not statistically significant. Looking at the individual explanatory variable t-scores, one interprets these as the individual slope coefficient, and a measure of individual variable significance to the dependent variable (Health Care Family Premium). Several of the variables in this model are below the critical t score; however, because of their strong theoretical basis, and function as a control variable, these were left in the model.

**Table 12: Checking for Multicollinearity:**<sup>xxiii</sup>

	PTL	LGA	OR	WAUP	AHI	FTE
PTL	1					
LGA	-0.26329	1				
OR	-0.57165	0.117279	1			
WAUP	0.048363	0.145797	-0.01914	1		
AHI	0.088023	-0.13382	-0.06811	0.113163	1	
FTE	0.598774	0.394705	-0.36746	0.24052	0.001548	1

Interpretation of Results:

In 2008, for every one dollar increase in LGA received per capita, there was on average, holding all else constant, a \$1.03 increase in per FTE average premium. This indicates that the trend throughout the state was that when cities received LGA, and specifically as the amount of LGA increased, the city on average increased their average FTE family health premium contribution by more than the amount of aid they received. This confirms that in 2008, as the state trend line indicates, LGA does in fact enable increased generosity of contributions when it

comes to employee health benefits. In contrast to the decision model, in 2008, for every one dollar increase in property tax levy per capita there was on average, holding all else constant, a forty three cent increase in per FTE average premium contribution. This indicates that on average, cities that could spend more, did spend more. This indicates the differences that occur between budgeting and actual expenditures, and captures employee health care spending trends in the state of Minnesota for 2008. Finally, for all other city revenues, in 2008, for every one dollar increase in other revenue per capita there was on average, holding all else constant, a twenty three cent increase in per FTE average family premium contribution. This again shows that other revenues play very little role in health care spending decisions or allocations.

#### Interpretation of Control Variables:

Again, for this model, the magnitude of the coefficients does little to provide further extrapolation on health care family premium contributions by the city; however, these variables do increase the accuracy of the three primary independent revenue variables in the model.

#### *Other Potential Issues to Address For All Multivariate Models Presented*

A linear specification was chosen because this study is based on the theory that there are constant slopes in the relationships, rather than constant elasticities. Therefore, the ordinary least squares method was chosen and utilized. Moreover, these models should have no serial correlation because this is not a time series model, and the order of observations does not matter in the calculation. Several variables were determined irrelevant based on initial sensitivity analyses. Although the region in which a city is located was suggested to affect the cost of health care, during the sensitivity analysis for this model, the regional dummy variables were determined to irrelevant, and after looking at the raw descriptive statistics from the data set, although some differences do exist, there are no statistically significant linear trends related to health care spending by cities, therefore indicating that there is no irrelevant variable bias. Omitted variable bias can be an issue when, at least, one important explanatory variable is left out of the model and therefore, some of the other coefficients pick up part of that variables explanatory power, which has the potential to result in biased coefficients. Due to the use of sound theory behind the specification of this model no significant variables were left out of the model, and therefore coefficients should not be biased. The theory behind this model is sound because all past and theorized variables are included, or have a proxy variable to represent their value. Obviously, not all of the variation in this model is explained, which would suggest that omitted variable bias is an issue; however, because of the use of proxy variables, there will be some loss of explanatory power.

Multicollinearity exists in every regression model, to some degree; the question is to what degree is multicollinearity present in this specification. There are a few ways of identifying “severe multicollinearity” but in the end, it is important to keep in mind that the majority of the times, the effects of multicollinearity are not so extreme as to merit the removal of variables or re-specification of the model. When you have multicollinearity in the model, there are some consequences, computed t-scores will drop, standard errors will increase, and thus variance will

increase, and estimates become sensitive to changes in specification; but at the same time, overall the estimates will remain unbiased and the overall fit of the equation and estimation of the coefficients will remain largely unaffected. There are several options for identifying multicollinearity one is to find the correlation between each of the independent variables, if higher than 0.8 then there is severe multicollinearity. The other approach is to assess the VIF (or variance inflation factor) of each variable, and if greater than 5 (the generally accepted VIF) you have multicollinearity. For this study, because of the limitations of regression analysis in excel, a simple correlation function was run to check for correlations between the variables. None of the variables are highly correlated or approached or passed the 0.8 threshold. Keeping these issues and limitations in mind, this study offers the following conclusions on large city spending trends in Minnesota.

#### *Levy and Capacity Model Conclusions*

While one can conclude that spending on employee medical benefits in large cities in Minnesota is varied, not only in dollar contribution, but also by the percentage of premium covered, the two regression models above, clearly indicate that not only did statistically significant linear trends exist in large Minnesota cities spending, but that differences occur due, primarily, to revenue and aid capacity and need, rather than region, age related utilization, or economic status. Moreover, differences do exist in planning and actual spending, as can be seen by comparing capacity and levy based models. Most importantly, these regression models identify and quantify the statewide trend in employee health care spending relative to the three largest sources of city revenue: property taxes, other revenue, and state aid (LGA). Although one would expect that increases in spending, in comparison to other large cities in the state, would likely be related to either increases in property tax capacity or property taxes actually levied, indicating the consensus of the jurisdiction in spending more for their public services; however, what this study finds is that property tax capacity, and even property tax levy, are not the most statistically significant, or even the factor with the largest magnitude of effect on average plan contributions.

The most significant factor in employee health care premium contributions, and thus employee health benefit spending is actually the amount of LGA that is anticipated and received by the city. To reiterate, on average, in the state of Minnesota, large cities increased per FTE average health plan premium contributions by 80 cents for every additional dollar of LGA received, compared to a 5 cent increase for every dollar increase in property tax capacity and a 16 cent increase for every additional dollar in other revenue collected. Moreover, when the actual property tax levy is considered, there was on average a \$1.03 increase in employee medical benefit contribution, for every 1 dollar of LGA received in 2008, compared to a 43 cent increase related to a dollar increase in property tax collected, and 23 cents for other revenue collected. These figures are staggering, and call into question whether the intended purpose of LGA is actually being implemented, or if it is rather, as is shown by trends in 2008 data, actually enabling significantly more spending for those cities who receive LGA. In order to better understand the role of LGA, an additional regression was run, lifting those cities in the sample

that received LGA in 2008, and applying the same model to verify the importance of LGA in employee health care spending decisions.

*Identifying Trends in LGA Receiving Cities Spending*

Based upon the initial regression findings, results indicate that there is a strong role for LGA in spending decisions throughout the state. In order to better understand the role of LGA in final spending decisions for cities that receive LGA, the original levy model was applied to a modified version of the original sample. The modified sample for this regression consists of the 141 large cities that received LGA in 2008. Running this new sample with LGA per capita against HCFP per capita, a simple correlation returns a value of .24 indicating a positive relationship.

Therefore in order to quantify differences in employee health care benefit spending among cities that receive LGA, the following model was proposed: <sup>xxiv</sup>

Theoretical Basis:

$$HCFP = \beta_0 + \beta_1 LGA + \beta_2 PTL + \beta_3 WAUP + \beta_4 AHI + \beta_5 FTE + \beta_6 OR + \epsilon$$

Model Results:

$$HCFP = 0 + 0.37 PTL + 0.94 LGA + 0.2 OR + 2,680 WAUP + 0.001 AHI + -4,240 FTE + \epsilon$$

(1.55)***	(2.38)*	(1.4)***	(3.8)*	(0.39)***	(0.25)***	(T-score)
(0.23)	(0.4)	(0.1)	(702)	(.001)	(16554)	(Standard Error)

Adjusted R<sup>2</sup> = 0.8, <sup>xxv</sup>  
 F Statistic = 86.1\*, <sup>xxvi</sup>

Model Interpretation:

This model is able to explain 80% of the variation in state spending on health care premiums around its average. In addition, the model has a statistically significant fit, as is indicated by the F statistic, which is significant at the 1% level, with an F of 86, which far surpasses the critical F of 2.17. Therefore we can reject the null hypothesis that this model is not statistically significant. Looking at the individual explanatory variable t-scores, one interprets these as the individual slope coefficient, and a measure of individual variable significance to the dependent variable (Health Care Family Premium). Several of the control variables are below the critical t score; however, because of their strong theoretical basis, and function as a control variable, these variables were left in the model. A simple correlation function was run to check for correlations between the variables and none of the variable approached or passed the 0.8 threshold.

Within the sample of LGA only cities, in 2008, for every one dollar increase in LGA received per capita, there was on average, holding all else constant, a \$0.94 increase in per FTE average premium contribution among cities that received LGA. This indicates that the trend throughout the state in 2008 was that when cities received LGA, and specifically as the amount

of LGA increased, the city on average increased their average FTE family health premium contribution more than the amount of aid they received. This confirms that in 2008, the state trend line indicates that LGA does in fact enable increased generosity when it comes to employee health benefits. In 2008, for every one dollar increase in property tax levy per capita there was on average, holding all else constant, a thirty seven cent increase in per FTE average premium contribution. This indicates that on average, cities that could spend more, did spend more. This indicates the differences that occur between budgeting and actual expenditures, and captures employee health care spending trends in the state of Minnesota for 2008. Finally, in 2008, for every one dollar increase in other revenue per capita there was on average, holding all else constant, a twenty cent increase in per FTE average premium contribution. This indicates that on average, cities that could spend more, planned to spend more on employee benefits, or at least reallocated other funds to health care spending.

Again, this model does include the three control variables for demographics, economics, and finally for the size of the workforce, but their coefficients will not be discussed. These variables' coefficients are distorted due to the need to transform these variables into a per capita basis, and therefore while their role in the model is crucial and statistically significant, this distortion makes extrapolation difficult.

#### *LGA Model Conclusions*

In segregating cities that received LGA in 2008, and applying the same model, one can clearly see that results were not only unbiased due to the clear distinction between those cities who did and did not receive LGA, but also that even within cities that received LGA, there is a significant trend towards spending increases as more LGA is received. This model further validates the hypothesis that LGA is currently the most statistically significant factor in employee health care spending decisions among large cities in Minnesota

Regression Analysis Summary

Table 16: Summary of Regression Model Results

MODEL	Adjusted R2	F-Score	Variable	$\beta$	T-score	Standard Error
<u>1</u>	0.8	127				
HCFP= 0 + 0.05 PTC + 0.8 LGA + 0.16 OR + 2,174 WAUP+ 0.0014 AHI+ 18,506 FTE+ $\epsilon$						
			LGA	0.8	2.5	0.06
			PTL	0.05	1.04	0.32
			OR	0.16	1.53	0.12
			WAUP	2174	3.94	551
			AHI	0.001	1.24	0.001
			FTE	18506	1.8	9960
<u>2</u>	0.8	130				
HCFP= 0 + 0.43 PTL + 1.03 LGA + 0.25 OR + 2,209 WAUP+ 0.001 AHI+ -3,476 FTE+ $\epsilon$						
			LGA	1.03	3.3	0.19
			PTL	0.43	2.25	0.3
			OR	0.25	2.3	0.1
			WAUP	2209	4.5	485
			AHI	0.001	0.94	0.001
			FTE	-3476	0.24	14265
<u>3</u>	0.8	86.1				
HCFP= 0 + 0.37 PTL + .94 LGA + 0.2 OR + 2,680 WAUP+ 0.001 AHI+ -4,240 FTE+ $\epsilon$						
			LGA	0.94	2.38	0.4
			PTL	0.37	1.55	0.23
			OR	0.2	1.4	0.1
			WAUP	2680	3.8	702
			AHI	0.001	0.39	0.001
			FTE	-4240	0.25	16554

Highly statistically significant results have verified the important role of LGA in city health plan benefit contributions. The question therefore becomes, is the purpose of LGA being exploited in some way? Remember that the purpose of providing LGA is for equalization in the ability to provide adequate levels of public services. Although this study cannot attempt to assess the quality of health care benefits, are benefit plans to generous in the amount of coverage they provide? Utilizing the three modes of analysis presented in this study, one can clearly see through the variation in benefits and the statistically significant relationship of various revenue sources to employee health care contribution decisions and spending, that not only are cities spending in an inefficient manner, but moreover, state LGA is enabling this inefficiency in spending and use of taxpayer dollars.

## **SUMMARY OF ANALYSIS, POLICY IMPLICATIONS, AND RECOMMENDATIONS**

Minnesota health plans provide cities with the tools and information they need to make their health plans more efficient, and in addition, make publications and employee friendly cost calculators available on their websites. Minnesota health plan providers are in a unique situation in that they are non-profit, and therefore want cities to keep costs down, because they do not generally benefit from increased spending. While the amount to which this information is communicated is not known, the information and intent are there. So, why are cities not following these recommendations, knowing that they could potentially provide better health insurance at a lower cost to the employee, overall to the city, and most of all to taxpayers?

There are several factors that are considered in this study: region, demographics, the ability to raise revenue, the introduction of state aid; as well as one factor that was not considered, political pressure to raise benefits, with little regard to the quality or need for these benefits, because in general, everyone wants more access to health care. Therefore, the two main findings of this study are that: for one reason or another, cities are far more dependent, when it comes to decision making, on state aids than their ability to raise revenues; and that the lack of object code spending data, in conjunction with the complexity of the health care system, has allowed poor decision making to go on, unchecked, and uncontested, due to a significant loss of transparency.

The descriptive statistics and various modes of analysis have shown that there is significant variation in both spending and in the generosity of plan benefits offered. The lack of cohesion between spending and generosity, called into question whether cities were spending efficiently, any why spending patterns varied so much throughout the state, what was the common factor in employee medical spending decisions in 2008? Through regression analysis, identifying linear trends in 2008 health care spending data, one can reasonably conclude that both anticipated and received LGA was the most significant controllable factor in employee health premium contribution decisions for large cities in Minnesota. What do these findings mean for cities, taxpayers, lawmakers; why are these findings important? Beyond the loss of transparency and accountability in local governments and the lack of data and research available on local government employee health care spending, there are three significant issues facing the state, taxpayers, and city budgets.

The first implication of the results of this study hits at the state level and affects taxpayers across the state. Due to the significant role that LGA plays in health care spending, both in decision making and in implementation, there is a large inequity in the tax price of some cities government services. While equity redistribution formulas are designed to allow cities to provide the same amount and quality of public services, the LGA formula is clearly flawed in that the lack of regulation in the use of funds, and the ability to reasonably pre-calculate LGA received, which is shown in the statistically significant linear trend in spending increases related to LGA increases. In short, state funds (LGA) from statewide taxpayers are paying for part of the cost of employee health care in local governments, and in many cities enabling for higher than average spending and moreover enabling cities to continue to offer excellent health care coverage and contributions, beyond what is adequate and reasonable, thus going beyond the

intended purpose of LGA. Although LGA is the main contributor to city employee health care spending increases, that does not mean that LGA isn't important in public service equalization; this study simply shows that within large cities in the state LGA is going above and beyond what is needed for equalization, and is thus not an efficient use of tax dollars, both at the state and local level.

The second major implication of the findings in this study directly affects local taxpayers. One major issue in the state this year was a loss of anticipated LGA funds and a forecasted loss in LGA distribution for the foreseeable future. Based upon the importance of LGA in employee health care funding, a loss of LGA would have three possible implications: significant increases in property taxes, significant decreases in employee health care benefits, or a need to cut spending in other areas. In other words, taxpayers will see a decrease in public services or an increase in local taxes; or city employees will see a large increase in the portion of premiums they will have to pay for, without equivalent growth in pay or a significant decrease in the breadth or quality of medical benefits and coverage. This leads to the questions of if state aid were no longer available; would taxpayers be ok with picking up that much of a property tax burden to continue to pay for their employee health care benefits? Would taxpayers be ok with the new "price of government services"?

LGA Loss Model: Would Property Tax Burdens Still be Politically Acceptable?

Referencing the case study on page 23, the average Minnesota city will see a \$5 per capita expenditure burden due to increases in employee premium contribution costs, before utilization or plan changes are taken into account. This represents the expected 8% industry wide increase in premium costs. If this cost increase is considered with a 100% loss of LGA, would taxpayers be ok with the new per capita tax burden? Using the hypothetical average city, the new per capita tax burden is presented as a proxy for overall per capita burdens for cities that receive LGA.

**Table 17: LGA Loss Model: for a Hypothetical Average Minnesota City**

<u>Cost Components</u>	<u>Totals</u>
Total Property Tax 2008	\$5,276,043
Plus Total LGA Received 2008	\$2,308,645
Equals New PT Burden 2008	\$7,584,688
Plus Estimated Industry Premium Growth	\$81,069
New Total Revenue Need	\$2,389,714
Divided by Population	16,820
Per Capita Property Tax Burden Increase	\$142
New Total Property Tax Burden	\$456

Would the average resident accept a \$142 increase in their property tax burden, especially if they received no additional government services? While a 100% LGA loss in one year is unlikely for most cities, if this were to occur, cities would be forced to deal not only with rapidly increasing benefit costs but also with rapidly decreasing revenues. One would expect that in this

situation, being able to accurately and efficiently assess spending would be crucial in identifying areas of inefficiency to better provide government services with less revenue and health expenses growing at a rate twice that of inflation.

Finally, if spending goes unchecked and plan inefficiencies are allowed to continue, in 10-20 years health care costs will overtake all other spending in most budgets. For example, cities have X amount of tax dollars, increasing with inflation at 4%. Without increasing benefits or nominal spending on benefits, the 20% increase in the cost of healthcare leaves cities with a need for 16% more tax dollars to maintain the same level of benefits, let alone increase them. So, what options will Minnesota cities have? They can increase taxes to pay for the 16% increase, as shown by the grey budget constraint below, thus increasing total spending, and choosing a mix of spending along the budget constraint. The other option is to not increase taxes, but rather cut benefits, to maintain the same level of spending.

#### *RECOMMENDATIONS: INCREASING SPENDING EFFICIENCY AND ACCOUNTABILITY*

Although employee health care finance is a complex and ever changing area, there are several ways in which cities can not only increase transparency and accountability in government, but also increase efficiency and equity in spending by making sound managerial and fiscal decisions and adopting budgeting best practices.

#### *Legislation Requiring Object Code Spending*

One of the biggest challenges with addressing health care cost growth, specifically within local governments, is that data on annual employee medical benefit spending is not available in most city budgets or annual financial reports (CAFR). While cities, no doubt, keep accounting records of employee medical benefit expenditures, there is a clear lack of analysis of spending and efficiency. With the inability to fully track employee health care spending growth, which is the fastest growing and one of the least controllable areas of the budget, city budgets are less able to effectively forecast cost increases, and make appropriate health plan choices, plan structure choices, and provide appropriate levels of premium contributions. Not only would reporting employee health care spending, as a line item in budgets or as annual totals in CAFRs, increase the ability of the city to plan for and recognize significant cost growth, but it also would increase transparency, helping taxpayers to internalize the true cost of government services

Therefore, city budgets and CAFR's should be required to report total spending on health insurance premiums, as well as total spending on salaries, and other benefits. This entails making salary and benefit data publically available and accessible, transitioning accounting data to year end totals presented in CAFR's, and including cost growth in budget forecasts, and incorporating expected cost growth into city budgets, where health premium contributions are presented as a line item, either for the city as a whole, or by department or function.

#### *Maximize Spending Efficiency: Reevaluate and Restructure City Health Plans*

Another key component to combating excessive cost growth is structuring city health plans to reduce utilization and slow spending growth by making sure that health plans utilize pay for

performance measures and incentivizing appropriate use of health care services. In other words, health plans should continue to work with cities do more with their money and cities should actively pursue measures to reevaluate health plans, and restructure to increase efficiency; especially to cope with decreased revenues and LGA. Some practical approaches to plan restructure include: shifting more responsibility for health care costs to employees; incentivize preventative and routine care; providing employee health care cost education; and ending overlapping benefit plans (excessive health coverage) First, cities have the option to shift more responsibility for health care costs to employees. While this approach does little to reduce actual health costs, beyond helping the employee (consumer) better internalize the actual cost of health care, which under economic theory suggests that will reduce consumption, thus slowing premium costs; this approach does temporarily reduce costs to the city. This approach can be achieved by either reducing the percentage of employee premiums that the city pays and, or by increasing co-payment amounts in conjunction with a tiered system based on the type of health care service. Second, cities can restructure plans to encourage preventative and routine care and discourage forgoing preventative care; which has been shown to avoid unnecessary urgent care and emergency visits, catastrophic care, and long term care, thus significantly reducing high cost risks, and reducing the risk pool. This method can be achieved by making costs related to preventative and routine care free or significantly lower than urgent or emergency care. In addition, cities can increase efficiency through techniques to reduce utilization and further internalize the total cost of health care and insurance with the employee, partially by providing employee health care cost education in conjunction with the aforementioned economic incentives, and helping to internalize the true cost of health care. Finally, one simple step to increasing efficiency is to become informed about health benefit plan options and structure benefit plans so that an excess of coverage is no longer offered, and so that health plans continue to offer high quality coverage, but in a more efficient manner. This approach requires cities to end overlapping benefit plans that offer premiums and HSAs or consumer driven health plans by transitioning fully to HSAs or CDHPs or by being fully reliant on premium plans. While HSAs and CDHPs offer a cost effective approach to employee health benefit management, their introduction was meant to be gradual and act as a replacement to premium plans, but now most employees expect and want both forms of coverage.

#### *Establish New Budgeting Best Practices: Helping Cities Do More With Revenues*

Finally, in conjunction with the recommendations above, cities should focus specifically on increased long term planning to deal with expected growth in health care costs. While cities can improve efficiency through the techniques mentioned above, there is only so much that can be done at the local level to reduce health care cost growth. This by no means suggests that there is nothing cities can do, but by budgeting for long term health care expenditure increases cities will be able to look for future means of becoming more efficient with spending, find new ways of balancing budgets, and overall be better prepared to handle the coming budgetary challenges related to health care expenditures, which are currently growing at a steady rate of 7-8% annually.

## *STUDY CONCLUSIONS*

Minnesota has always been a leader in innovative government and already offers significantly better health coverage than the rest of the US, as a whole. Government employee benefit spending and coverage still outpaces private benefit spending and coverage nationally and in Minnesota, and with the introduction of state aid, the answer to whether or not equity and efficiency in tax burdens and provision adequate government services is being attained at the local level in employee compensation is fairly clear. Not only are cities spending inefficiently on employee healthcare, but state aids are enabling this practice to some extent, and lack of state regulation for object code spending in budgets and financial statements is further reducing accountability and transparency in local governments and compounding the problem. These trends in health care costs and spending are unsustainable and represent poor budgeting practices and fiscal policies. Resolving this issue requires better regulation, government practices, and increased transparency to taxpayers.

### *Further Studies*

First and foremost, once total employee medical benefit spending data is made available, through the creation of object code spending; this study's regression models should be applied to total city spending data, as opposed to utilizing average premium contributions as a proxy for spending. This will provide a much more detailed and accurate picture of employee benefits at the local level. In addition, as has been eluded to several times in this report, when it comes to employee health care benefits, spending on health care benefits is only one part of the compensation story. There is a dynamic that exists between salary and benefits, and this dynamic is present not only within individual employers, but also between the public and private sector. In order to get a better idea about the adequacy of government benefits, another study, using data from the League of Minnesota Cities Salary and Benefits Survey should be conducted to further explore this relationship and to offer more insight into the adequacy of local government employee compensation. In addition, the Minnesota Taxpayers Association plans to develop recommendations for object code spending legislation, a city administrator's guide to efficient health benefit spending, and finally develop a model for efficient city spending based upon the data from this study and the findings and recommendations of this report.

---

<sup>i</sup> The percentage of city housing that was build prior to 1940; 5.0734908

- A proxy variable to compensate for the cost of maintaining older infrastructure; also highly correlated with poverty and other socio-economic factors that increase costs to the city.
- The city’s decline in population over the last 10 years; 19.141678
  - A variable to account for the increased burden/constraint placed on cities when the population declines and the tax base shrinks.
- Traffic accidents per capita for three years, averaged; 2504.06334
  - This variable accounts for non-resident use of city services.
- Average household size; -49.10638
  - This variable corrects for the difference in effect between population and household size, with household size having a more significant effect on city costs.
- Location (metro); -35.20915
  - This variable accounts of the differences in opportunity that occurs within the metro area, specifically with contracting services.
- ANTC: Adjusted Net Tax Capacity per capita, which functions as a control variable, which estimates how much the other variables explain need.<sup>i</sup>

<sup>ii</sup> Minnesota Health Plans: Employers. Innovators. Leaders, 2009; Improving Quality, Reducing Costs, Adding Value, 2009, the Kaiser Family Foundation estimates national costs as: 30.8% for hospital care, 21.2% for Physician clinical services, and 10.1% for prescription drugs

<sup>iii</sup> The data presented comes from the results of the Minnesota League of Cities Salary and Benefits Survey Results Data, in which the cities self reported on medical benefits spending, the data was extracted and cleaned to include only the relevant data to this study, etc. The attached methodology appendix explains this process and procedure.

<sup>iv</sup>  $0.8 \times 131 = 104.8 = 105$     $\times 852 = 89,290$     $\times 12 = 1,071,475$

<sup>v</sup>  $0.8 \times 46 \text{ FTE} = 36.8 = 37$  employees  $\times \$459$  per month  $= 16,983$

$16,983 \times 12 \text{ months} = 203,796$

<sup>vi</sup> These numbers are approximations of an average, and therefore are not an exact figure, many other factors come into play when calculating the total cost, specifically plan enrollment, and the number of FTEs actually electing to enroll in medical benefits. Spending by object code is not required by law to be publically available, so in order to get an idea of annual spending, this number was derived by taking the self reported average plan contribution for single and family plans, averaging this number and multiplying the result by the number of FTEs.

<sup>vii</sup> In order to streamline the discussion below, cities that do not receive LGA will hence forth be referred to as “non-LGA cities”, and cities that receive LGA will be referred to as “LGA cities”

<sup>viii</sup> And in this study, also represented by the city’s property tax capacity

<sup>ix</sup> Refer to Appendix D for the score card documents, full data conversions, scoring, and methodology.

<sup>x</sup> One important distinction to address before further analyzing city scores is the distinction of how cities provide medical insurance to their employees. Most Minnesota cities utilize a health insurance provider, like Blue Cross Blue Shield, Medica, or Health Partners, to provide existing health plans to their employees. The provider is responsible for paying all health expenditures, while the city and employees pay the monthly premium amounts, which the provider uses to pay insurance claims. However, a few select cities have elected to be “self funded”, which simply means they provide their own health plan, and are billed for all employee medical expenditures, and collect health care premiums themselves, and in the case of the four cities in Minnesota who are self funded, they also cover a portion of their employees medical plan premiums. This distinction was drawn in the medical benefits

---

scorecard. Providers of plans estimate that when a city elects to self fund, they are essentially doubling their costs, so in this score card the total points that could be earned for single and family premiums was given to cities who self fund, and for cities that partially self fund, half of the total premium points were added, in addition to their score for their premium contributions.

<sup>xi</sup> Refer to appendix D for the full scorecard methodology

<sup>xii</sup> Note that the scale of the generosity score card differs from the scale of the spending scorecard. Therefore scores are compared within the scorecard, and then based on the averages, compared to the other scorecard.

<sup>xiii</sup> In order to attain a more comprehensive understanding of the trends and patterns in overall employee health care spending by cities, based on qualitative and quantitative data, and in an effort to validate the ability of the health care spending score card to explain variation in health care spending between cities in Minnesota, the same model was run replacing the family premium contribution dependent variable with the calculated health care score. Therefore, the hypotheses and expected relationships remain the same, as do the theories behind the expected relationships; this model is simply expected to better explain the effects of the various explanatory variables on employee health care spending, given the inclusion of qualitative data.

The health care score model's syntax and results are available upon request. These statistics were not used for interpretation because of the complexity of converting the data on a per capita scale; moreover, because results were similar, the easier of the two models was used to extrapolate from.

<sup>xiv</sup> Prior to the development of this model, several other theoretically sound models were developed and analyzed. For multiple reasons, these models were modified into the current model, and thus some of the theoretical basis for this model can be found in the full regression appendix, which includes initial tests for correlation and significance, as well as a sensitivity analysis in order to produce the model with the best fit.

<sup>xv</sup> *Overall Model Hypotheses:*

H<sub>0</sub>: The variables are not jointly significant in explaining variation in employee health care spending.

H<sub>a</sub>: The Variables are jointly significant in explaining variation in employee health care spending.

*Simple F Test Hypothesis:*

H<sub>0</sub>: PTC=LGA=OR=WAUP=AHIFTE=0      OR      H<sub>0</sub>:PTL=LGA=OR=WAUP=AHIFTE=0

H<sub>a</sub>: H<sub>0</sub> is not true      H<sub>a</sub>: H<sub>0</sub> is not true

*Independent T-test Model Hypotheses:*

H<sub>0</sub>: t score is  $\geq$  the critical t (1.3)      H<sub>a</sub>: t score is  $<$  the critical t (1.3)

\*= significant at the 1% level

\*\*= significant at the 5% level

\*\*\*= significant at the 10% level

<sup>xvii</sup> Adjusted R<sup>2</sup> is a means of measuring the percentage of variation of Y around its mean that is explained by the regression equation, adjusted for degrees of freedom, based on sample size, and the number of variables included. A "good" Adjusted R<sup>2</sup> for the social sciences is around .5.

<sup>xviii</sup> The simple F test is a test for the overall significance of a model, it calculates the ratio of what can be explained in relation to what cannot. To calculate the critical F for this sample, you take K, the number of independent or explanatory variables, and N-K-1, the sample size-K-1, and determine the critical value using the F table. For this study, K=6, N-K-1= 182-6-1=175; so critical F= about 2.17.

<sup>xix</sup> This coefficient requires some further explanation. This variable uses a percentage value, with a very small range, and many outliers, which results in a biased coefficient. Therefore, this coefficient is not as useful in explaining trends in age related to spending increases, although it is the best variable available.

---

<sup>xx</sup> \*= significant at the 1% level, \*\*= significant at the 5% level, \*\*\*= significant at the 10% level

<sup>xxi</sup> Adjusted  $R^2$  is a means of measuring the percentage of variation of Y around its mean that is explained by the regression equation, adjusted for degrees of freedom, based on sample size, and the number of variables included. A “good” Adjusted  $R^2$  for the social sciences is around .5.

<sup>xxii</sup> The simple F test is a test for the overall significance of a model, it calculates the ratio of what can be explained in relation to what cannot. To calculate the critical F for this sample, you take K, the number of independent or explanatory variables, and N-K-1, the sample size-K-1, and determine the critical value using the F table. For this study, K=6, N-K-1= 182-6-1=175; so critical F= about 2.17.

<sup>xxiii</sup> What this chart shows is the correlation between each of the independent/explanatory variables. Multicollinearity occurs when independent variables are highly correlated and results in lower t-scores, higher standard errors, and therefore overall greater variance. Multicollinearity is said to be problematic when variables are correlated above 0.8.

<sup>xxiv</sup> This model uses all per capita independent variables, excluding AHI, and HCFP is per FTE

<sup>xxv</sup> Adjusted  $R^2$  is a means of measuring the percentage of variation of Y around its mean that is explained by the regression equation, adjusted for degrees of freedom, based on sample size, and the number of variables included. A “good” Adjusted  $R^2$  for the social sciences is around .5.

<sup>xxvi</sup> The simple F test is a test for the overall significance of a model, it calculates the ratio of what can be explained in relation to what cannot. To calculate the critical F for this sample, you take K, the number of independent or explanatory variables, and N-K-1, the sample size-K-1, and determine the critical value using the F table. For this study, K=6, N-K-1= 141-6-1=134; so critical F= about 2.17.

## REFERENCES

### *Data Sources*

Salary and Benefits Survey 2008. League of Minnesota Cities. Downloaded database and modified in Excel.

Property Tax Levy Data. State Auditors Office. Entered into Excel by hand from PDF.

Local Government Aid. Local Government Aid Look Up. House Research.

Minnesota Department of Administration Census Data. <http://www.admin.state.mn.us/>.

### *Professional Research: Meetings and Interviews*

- Minnesota Council of Health Plans Meeting:

In attendance: Mark Haveman, Aaron Twait, Kathryn Kemit, Julie Brunner, Dannette Coleman, Lin Nelson, Geoffrey Bartsh. 7 January 2009.

- Regression Procedure Meetings:

Dan Salomone, Deputy Commissioner of Revenue. 13 March 2009.

Eric Willette, Property Tax Research Director, Department of Revenue. 27 March 2009.

### *Works Cited*

“About Generic Drugs.” Blue Cross Blue Shield of Minnesota. [www.bluecrossmn.com](http://www.bluecrossmn.com).

“Being a Smart Health Care Consumer.” Minnesota Council of Health Plans. [www.nmhealthplans.org](http://www.nmhealthplans.org).

“Compensation Costs in the Private and State/Local Public Sectors: Facts from EBRI.” Employment Benefit Research Institute.

Covington, Laura. “A Reporters Toolkit: Health Care Costs.” Alliance for Health Reform. [www.allhealth.org/sourcebookcontent.asp?CHID=21](http://www.allhealth.org/sourcebookcontent.asp?CHID=21).

Cutler, David M., McClellan, Mark. “Is Technological Change in Medicine Worth it?” 2001. Health Affairs.

Cutler, David M., Zeckhauser, Richard J. “Adverse Selection in Health Insurance.” Forum for Health Economics and Policy: Frontiers in Health Policy Research. Volume 1. Article 2. 1998. Harvard University NBER.

Dalton, Pat. “Short Subjects: The City LGA Program.” House Research.

“Diagnostic Imaging, Prescription Drugs, Emergency Room Spending Rise Sharply: New Report Highlights Minnesota Health Care Spending.” Minnesota Council of Health Plans. [www.nmhealthplans.org](http://www.nmhealthplans.org).

“EBRI Data book on Employee Benefits: Employee Benefits in the United States: An Introduction.” Chapters 1, 2, 4. Employment Benefit Research Institute. 2008. [www.ebri.org](http://www.ebri.org).

“Employee Benefits in State and Local Government-September 2007.” Bureau of Labor Statistics. United States Department of Labor. [www.bls.gov/ebs](http://www.bls.gov/ebs).

“Employer Health Benefits 2008 Annual Survey.” The Kaiser Family Foundation. [www.kff.org](http://www.kff.org).

“Employer Spending on Benefits, 2002: Facts from EBRI.” Employee Benefit Research Institute.

“Employment Based Health Insurance Slides.” 2002. Minnesota Department of Health. <http://www.health.state.mn.us/>

Engelhard, Carolyn L., Garson, Arthur. “A Critical Difference. Health Care Half Truths.” University of Virginia. [www.governing.com](http://www.governing.com).

Engelhard, Carolyn L., Garson, Arthur. “You Get What You Pay For? Health Care Half Truths.” University of Virginia. [www.governing.com](http://www.governing.com).

“Fact Sheet.” Minnesota Council of Health Plans. [www.nmhealthplans.org](http://www.nmhealthplans.org).

“Facts on Health Care.” National Coalition on Healthcare. [www.nchc.org](http://www.nchc.org).

“General City Aid Calculation: Example for Aids Payable 2007-Large City.” Minnesota Revenue.

Gruber, Jonathan. 2007. *Public Finance and Public Policy*. New York: Worth Publishers.

“Health Care Costs.” Covering Health Issues 2006-2007. Chapter 8. Alliance for Health Reform. 2007. [www.allhealth.org/sourcebookcontent.asp?CHID=21](http://www.allhealth.org/sourcebookcontent.asp?CHID=21).

“Health Care Costs, A Primer: Key Information on health care costs and their impact.” The Kaiser Family Foundation. 2007. [www.kff.org](http://www.kff.org).

“Health Care Costs: Minnesota Experience.” Minnesota Council of Health Plans. [www.nmhealthplans.org](http://www.nmhealthplans.org).

“Health Care Taxes in Minnesota An Analysis.” 2000. Minnesota Taxpayers Association.

“Health Insurance Costs.” The National Coalition on Health Care. [www.nchc.org](http://www.nchc.org).

“Health Plans Slides.” Minnesota Department of Health. <http://www.health.state.mn.us>.

“Increase in Minnesota’s Health Care Tax Set for 2004.” CCHC. 2003. [www.cchconline.org](http://www.cchconline.org).

“LGA Key Terms and Definitions.” League of Minnesota Cities. [www.lmc.org](http://www.lmc.org).

“Local Government Aid 101: 2009 Distribution and Beyond. League of Minnesota Cities. [www.lmc.org](http://www.lmc.org).

“Local Government Aid: The Technical Details of Calculating a City’s Need.” League of Minnesota Cities. 2006. [www.lmc.org](http://www.lmc.org).

MacDonald, John. “How Much Value do Workers Place on Health Care: Facts and Figures.” Employee Benefit Research Institute. 2007. <http://www.ebri.org>.

MacDonald, John. Retiree Health Insurance: Facts and Figures. Fast Facts from EBRI. Employee Benefit Research Institute. 2007. <http://www.ebri.org>.

“Medical Costs Up 12%; Industry Reports Second Year of Operating Losses.” Minnesota Council of Health Plans. 2007. [www.mnhealthplans.org](http://www.mnhealthplans.org).

- “Medical Expenditure Panel Survey.” <http://www.meps.ahrq.gov/mepsweb/>.
- “Minnesota Health Care Statistics.” Minnesota Council of Health Plans. [www.mnhelathplans.org](http://www.mnhelathplans.org).
- “Minnesota Health Plans: Employers. Innovators. Leaders.” Minnesota Council of Health Plans. [www.mnhealthplans.org](http://www.mnhealthplans.org).
- “Minnesota’s Health Plans Improving Quality, Reducing Costs, Adding Value.” Minnesota Council of Health Plans. [www.mnhealthplans.org](http://www.mnhealthplans.org).
- “Pay for Performance.” Minnesota Council of Health Plans. <http://www.mnhealthplans.org>.
- “Prescription Drug Formularies.” National Health Policy Forum. George Washington University. 2004. [www.nhpf.org](http://www.nhpf.org).
- Property Tax Division. “2007 Local Government Aid.” Minnesota Revenue. [www.taxes.state.mn.us](http://www.taxes.state.mn.us).
- “Public Health.” Covering Health Issues 2006-2007. Chapter 12. Alliance for Health Reform. 2007. [www.allhealth.org/sourcebookcontent.asp?CHID=21](http://www.allhealth.org/sourcebookcontent.asp?CHID=21).
- “Registration Requirement for Provider Tax.” Minnesota Department of Revenue. [www.taxes.state.mn.us](http://www.taxes.state.mn.us).
- “Sample Company Intranet Q&A: Rising Health Care Premiums.” Minnesota Council of Health Plans. [www.mnhealthplans.org](http://www.mnhealthplans.org).
- Santerre, Rexford E., and Neun, Stephen P. 2000. *Health Economics: Theories, Insights, and Industry Studies*. The Dryden Press: Harcourt Brace College Publishers.
- “Snapshot Health Care Costs 101.” California Health Care Foundation. 2008. [www.chcf.org](http://www.chcf.org).
- “State Health Facts: Minnesota.” The Henry J Kaiser Family Foundation Sponsored: State Health Facts.org. [www.statehealthfacts.org](http://www.statehealthfacts.org).
- “The Story Behind Rising Prescription Drug Costs.” Blue Cross Blue Shield of Minnesota. [www.bluecrossmn.com](http://www.bluecrossmn.com).
- “Tax on Patients.” Citizens Council on Health Care. 2003. [www.cchconline.org](http://www.cchconline.org).
- “The True Costs of Healthcare.” Minnesota Council of Health Plans. [www.mnhealthplans.org](http://www.mnhealthplans.org).
- “Typical Health Benefit Package in Private Industry: Facts from EBRI.” Employee Benefit Research Institute. 2006. [www.ebri.org](http://www.ebri.org).
- “What’s the Story Behind Rising Health Care Costs: Sample Newsletter Article.” Minnesota Council of Health Plans. [www.mnhealthplans.org](http://www.mnhealthplans.org).

#### *Additional Research for Regression Analysis*

- Dallal, Gerard. E, Phd. “Introduction to Multiple Linear Regressions.” <http://www.Jerrydallal.com/LHSP/multireg.htm>.
- Freedman, David, Pisani, Robert, Purves, Roger. *Statistics*. W.W. Norton and Company Ltd. 2007.
- “Linear Regression.” Yale University. <http://www.stat.yale.edu/courses.htm>
- “Statsoft.” Multiple Regression. Statsoft inc. 2008. <http://www.statsoft.com/textbook/stmulreg.html>.

## APPENDICES

### *APPENDIX A: FULL METHODOLOGY*

Data for this study was collected from the Salary and Benefits Survey conducted by the Minnesota League of Cities.<sup>66</sup> Anytime data is not collected by the user, the data will not typically conform to the analysts needs. In order to make this data set useable for our purposes, we needed to carefully “clean” the data, in order to provide consistency and as much accuracy as is possible. The notes below outline the methods behind how the data was handled and cleaned.

Control Variable Data was collected from both the LMC survey (population, region, and FTE count) and from the Minnesota Department of Administration Office of Geographic and Demographic analysis: Land Management Information Center (WAP, AHI). Using the data from the LMC Salary and Benefits Survey an excel table has been made to include all cities in Minnesota with over 2500 residents in 2008. Therefore all county data was removed, as were cities under 2500.

There were 19 cities removed from the survey due to response error, they are available upon request. The same data set was used for calculating the percent of premiums paid by employers, however, some cities were missing data for amount paid by the employee for one or both categories (single and family). Three cities have reporting error. This leaves 182 cities in the percentage of premiums paid sample. This is an 83% sample of the total population (all MN cities over 2500 residents) and 89% of response rate for all cities surveyed. In the event that multiple plans were provided, the data was averaged, to determine 1 amount for each city, and if not specified, the amount given was assumed the average plan amount. Single and Family contributions are specified as monthly amounts. Some cities specify in the comments box that they provided the highest or lowest plans for their data; a variable needs to be created to compensate for this. LOGIS was removed from the sample because LOGIS is actual a government entity, the local government information systems, and does not function in the same way as the cities we are intending to look at. By removing this city from the survey, the standard deviation was only changed by 0.02, which because of rounding already performed; there was no significant impact on the calculation of the standard deviation of the sample. The WAP variable was recalculated into WAUP, workforce age utilization proxy. Using MEPS data and the Administrative Census Data, the percent increase in the highest expenditure spending for individuals age 44-64 was 11% in 2008. This becomes 1.11 to show the increasing effect that this age range has on higher expenditures and higher utilization. This was then multiplied by the total number of city residents ages 44-64. This captures the effect of the highest health expenditures due to age, relative to the city’s population. POP was removed because it was too highly correlated with WAUP, which, actually accounts for the effect of the cities population in the new calculation. Due to the need for data that is fully reported, we are essentially taking a sample of cities with a population over 2,500 and therefore, by choosing those cities that are fully or partially reporting, we will end up having some self-selection bias, because the cities who reported are the ones that are included. This is still a large sample, which should significantly reduce bias. Another important note on sample selection is that there is some bias toward regions in the sample. Once again, because we are looking at cities over 2,500 people, there is a larger concentration of cities in the central and metro region, because this is where the majority of the state’s population lives, therefore bias should be minimal. Additional Methodological Notes are available upon request

---

<sup>66</sup>For more information about the Survey: <http://www.lmc.org/page/1/resource-library.jsp?pageId=1602>  
Milanowski Appendices 1

## APPENDIX B: ADDITIONAL REGRESSION RESULTS AND ANALYSIS

The basis of this study is to quantify the relationship and affect that employee healthcare benefit costs have on city property tax levies and the LGA received (based on LGA need calculations). State law provides Minnesota cities with local government aid based upon a formula, which using regression analysis helps to identify cities with a need for aid. Property tax levies are used in conjunction with LGA from the state at the local level to fill the gap between budgeted revenues and expenditures for the year. This means that city employee health care benefits are paid in part by property tax levies, and thus taxpayer dollars, and in part by LGA, which taxpayers from the entire state are paying into. Using the property tax levy as the primary revenue source is expected and understandable, seeing as the majority of government expenses, especially at the local level are for services provided to taxpayers in the area. This study aims to quantify the affect that healthcare costs have on property tax levies of cities over 2,500 residents and because of the link between property taxes and LGA received as the main source of revenue. So, this study is not trying to say that health care costs directly determine LGA received but rather we are saying that cities can fairly accurately calculate the amount of LGA they will receive and in doing so might spend more on employee health care as a result.

In order to better understand the associations and relationships in variables considered, correlations were run using the data collected from the LMC Salary and Benefits Survey. The Variables used, expected relationships, correlation coefficients and results are listed in Table 1.

<u>Expected Relationship</u>	<u>relationship</u>	<u>r</u>	<u>(Signifanct) Associated?</u>	<u>Relationship</u>
+	LGA08 and PTL07	<b>0.862102153</b>	Yes	+
+	HCSP andPTL08	<b>-0.03486195</b>	Yes	-
+	HCSP and LGA08	<b>-0.04598359</b>	Yes	-
+	HCFP and PTL 08	<b>0.038543753</b>	Yes	+
+	HCFP and LGA 08	<b>0.116461862</b>	Yes	+
+	HCS and LGA 08	<b>0.168946173</b>	Yes	+
+	HCS and PTL 08	<b>0.080393785</b>	Yes	+
+	APS and PTL 08	<b>0.021007975</b>	Yes	+
+	APS and LGA 08	<b>0.084823331</b>	Yes	+
+	APS and PTL 08	<b>0.021007975</b>	Yes	+
+	HCS and LGA 07	<b>0.074441559</b>	Yes	+
+	HCSP and LGA 07	<b>-0.05593827</b>	Yes	-
+	HCFP and LGA 07	<b>0.09810923</b>	Yes	+
+	APS and LGA 07	<b>0.065270055</b>	Yes	+
+	HCS and LGA08+PTL07	<b>0.107712816</b>	Yes	+
+	HCS and LGA08+PT08	<b>0.106038931</b>	Yes	+

### *Important Regression Concepts*

The correlations on the previous page identify that there is indeed a linear association (not causation) and the direction of the relationship is identified in the last column above. All relationships are

significant, with the most significant being health care expenditures (measured in multiple ways to capture different aspects of calculation) and LGA received in both 2007 and 2008.

**Simple Linear Regressions:**  $Y = \beta_0 + \beta_1 X + \epsilon$

Simple linear regressions describe how one variable depends on another, so the average value of Y (the dependent variable) for each corresponding value of X (the independent variable). These simple linear regressions will assess the effect that each independent variable has on each of the dependent variables, before they are combined into a more complex regression.

**Proposed Multivariate Models and Results: Available upon request (approx. 50 pages)**

## APPENDIX C: FULL SCORECARD METHODOLOGY

There are two primary scorecards created for this study, the health care spending score card and the health care plan generosity scorecard. This study, in part, aims to identify those cities that are being fiscally responsible, by providing lower cost benefit plans, but still offering coverage. Therefore, the premise of the scorecard is that lower scores are attributed to elements of benefit plans that decrease the cost of providing benefits to city employees and higher scores are attributed to elements of benefit plans that increase the cost of providing benefits to city employees. This study assesses the effect of health benefit packages on spending in large Minnesota cities. In order to accomplish this, the 182 cities included in the study were scored on the benefit packages they provided, as reported in the LMC survey, in comparison to other Minnesota cities.

As was previously mentioned scoring was based upon the available data from LMC, and therefore there are two types of scoring, to include both quantitative and qualitative data in the scorecard. All scoring is based on cost to the city, rather than size or quality of the benefit or the benefit package.

### *Overall Scoring Method*

All scoring is based on cost to the city, rather than size or quality of the benefit or the benefit package, and two methods were used to incorporate both qualitative and quantitative data.

- A. *The first type* of scoring was for classifiable dollar amounts spent by the employer on benefit components. A scale ranking was created from 0 to 6 or 1 to 6, depending if there was a possibility of not providing the benefit. The Standard Deviation Equation, which was used in all calculations, is:

$$s = \sqrt{\left( \frac{\sum (x - \bar{x})^2}{n} \right)}$$

In order to create a standard method of scoring that would only compare cities within the state of Minnesota, over 2,500 residents, the average for all cities was calculated and then the standard deviations were calculated based upon the mean. The Standard deviation was chosen as a means of creating an unbiased scale because it is based off of the mean value in the set, and moreover it indicates the spread of the values within the data set, based on the Minnesota average.

- B. *The second type* of scoring involved survey questions which required a yes, no, and in some cases a “none” response. The variables in this format were treated as dummy variables, where the answer that would increase the cost to the city were given a 1 or 2 coding and responses that would decrease the cost of providing benefits were given a 0 coding.

\*In both scoring methods, if the answer was blank, this was given no score, and considered non-reporting\*

Based upon a literature review of national health care standards and cost drivers, and the variables available in the LMC survey a first draft of the score card was developed. It was later

rejected, but many of the underlying principles played a role in the formation of the final scorecard so this detailed description is provided to better understand the full process.

*After meeting with the Minnesota Council on Health Plans, several variables were removed from the scorecard:*

*Single and Family Coverage rates* (amount paid by individuals) was removed because this is the amount that the employee pays. This was originally included because this amount would indicate the amount employees contributed, and therefore the higher the contribution, one would assume the lower the employer contribution. In comparing the amount paid by employee to employer, there was not a consistent difference, so the amount paid by the employer for single and family coverage was the only variable of the two included because it directly measures the cost to employers. *Prescription Co-pay under Medical Benefits* was removed because the data for this variable was incomplete and difficult to consistently quantify. Moreover, the use of co-pays as an indicator is utilized under the prescription scorecard in a more detailed manner.

*Amount Paid in Lieu* was dropped because there was not enough data available within the survey to accurately scale the cities that offered an amount paid in lieu of benefits.

Other Important Notes Include:

In the cases where a city offered benefits to only specific group of employees (i.e. Union or Non-Union) the groups were recoded into “all employees” or “selected employees”. “Selected employees” was used in cases where not all employees were eligible for healthcare benefits. If not all employees are eligible for dental benefits, this is an indicator that less is spent on dental benefits.

Some cities offer different benefit amounts to different departments or classes of employees within the city government. When this occurred, benefits were averaged (mean) to develop a single amount that could have the scorecard applied to it. This method was performed in order to develop consistency among the data.

When totals were given in percentages for the single and family coverage rate (Paid by the employer) this percentage was converted to a dollar amount and replaced within the data set. The data within this data set were presented as either a dollar amount paid or a percentage. In order to maintain comparability among cities, the data was converted to dollar amounts because the majority of cities reported a dollar amount.

We determined that typically a higher deductible indicates that the employee is responsible for a larger portion of their dental costs, thus making the employer less responsible for healthcare costs. Therefore, the lack of a deductible was taken as an indicator of higher healthcare spending on the employer part, in that the employee was not responsible for any level of dental care. Therefore, a score of 6 was assigned to any deductible less than 1 cent, which was equal to 2 or 3+ standard deviations below the mean.

If benefits can be waived, but cash is not paid, in an amount or a percentage of some amounts, the city’s response was converted to a no, because we are interested in measureable cash benefits in this case, not potential benefits for waiving (i.e. additional days off, etc.) because

they are not related directly to health care costs. This also resulted in the dropping of a variable scaling waiver benefits by amount, because too much data was missing, or irrelevant.

#### *Prescription Drug Proxy Calculation*

In order to include prescription drug costs/plans in the benefits spending scorecard, the prescription drug had to be transformed to act as a proxy for overall prescription drug spending, proportionate to the cost of health care spending. Nationally prescription drug spending accounts for 12 to 16% of health care costs, and so taking the average, 14% of 29=4.1 which is rounded to 4. The total prescription drug score is 7, so in order to transform this to a maximum score of 4,  $7:4=1.75$  so  $7/1.75=4$ , thus total prescription drug score/1.75=transformed prescription drug proxy score.

**APPENDIX D: MEDICAL BENEFITS SPENDING SCORECARD OUTLINE**

	<u>Component Scores</u>	<u>Category</u>	<u>Max Score</u>	
<b>Medical</b>	Amt. Org. Pays for Single Coverage	1 to 6	6	
	Amt. Org. Pays for Family Coverage	1 to 6	6	
	Post Retirement Health Care Package	See Scorecard	2	
	More than 1 health plan available	1=No, 0=Yes	1	
	Rates are age banded	(-1)=Yes, 0=No	-1	
	City presented highest health plan	(-1)=Yes, 0=No	-1	
	Self Funded?	12=Yes,6=Partially,0=No	12	
	<b>Waiver</b>	Ability To Waive Healthcare Benefits	1=No, 0=Yes	1
		Cash in Lieu	1=Yes, 0=No	1
	<b>Prescription Drug Score Modified</b>	See Prescription Drug Coverage S.C.	Score *1.75	4
<b>Total Medical Benefit Score</b>	<b>MAX=</b>		<b>33</b>	

	<u>Component Scores</u>	<u>Category</u>	<u>Max Score</u>
<b>Prescription Drug Coverage</b>	Generic	2=No, 1=yes	2
	Brand name	2=Yes, 0=No	2
	Covers Non-Formulary	3=Yes, 0=No	3
	<b>Total Prescription Drug Coverage Score</b>	<b>MAX=</b>	

**APPENDIX E: MEDICAL BENEFITS GENEROSITY SCORECARD OUTLINE**

<u>Variable</u>	<u>Scale</u>	<u>Max Score</u>
Organization Contributes to Single Medical Coverage	Yes=1, No=0	1
Organization Contributes to Family Medical Coverage	Yes=1, No=0	1
Single Coverage Deductible	Yes=0, No=1	1
All Employees are offered Medical Benefits	Yes=1, No=0	1
Ability To Waive Healthcare Benefits (Y or N)	Yes=1, No=0	1
Cash in Lieu (Yes or No)	Yes=1, No=0	1
City offers prescription drug coverage	Yes=1, No=0	1
Brand name drugs are covered	Yes=1, No=0	1
Non-Formulary drugs are covered by the city	Yes=1, No=0	1
Medical Care Reimbursement Account offered	Yes=1, No=0	1
High Deductible HRA/HealthSavingsAccount	Yes=1, No=0	1
Wellness Program	Yes=1, No=0	1
Consumer Driven Health Plan	Yes=1, No=0	1
Post Employment Healthcare Savings	Yes=1, No=0	1
Long Term Care	Yes=1, No=0	1
Long Term Disability	Yes=1, No=0	1
Short Term Disability	Yes=1, No=0	1
More than 1 health plan is available	Yes=1, No=0	1
H.I. for retired employees over 65	Yes=1, No=0	1
H.I. for retired employees under 65	Yes=1, No=0	1
<b>Benefit Package Score</b>	<b>Max=</b>	<b>20</b>

## *APPENDIX F: ADDITIONAL HEALTH CARE FINANCE RESEARCH*

### *The Role of the Minnesota Provider Tax*

Patients in Minnesota should be pretty used to seeing a provider tax poster at their doctor's office, or at least be aware of its existence, but most Minnesotans do not think about this tax on a regular basis because of its lack of visibility. The CCHC explains that there is a 2% tax on services that health care providers perform, and that this law has been in place since 1992.<sup>67</sup> So how does this work, and how is this affecting city government budgets in Minnesota? Like any other tax on a good or a service, the provider tax ends up getting passed onto the consumer, which would first be the insurance provider, who in turn passes part of that cost down in increasing premiums. Moreover, this is a highly obscured tax in that providers do not have to itemize this tax on bills and insurers do not have to notify enrollees. All taxes have their place, but how equitable is this tax, and how big of a role in cost growth does this tax play. Unfortunately, these questions are somewhat beyond the scope of this study; however, this tax is important to note because it does play a significant role in cost determination and growth.

### *Prescription Drugs in Minnesota*

An area of specific concern to Minnesota HMOs is prescription drug costs, which are rapidly increasing. In 2007, the state of Minnesota spent 3.2 billion dollars on prescriptions drugs, just in retail sales; to put this in perspective, for total retail prescription drug spending in the US, Minnesota accounted for 1.5% of total sales.<sup>1</sup> Looking specifically at prescription drug cost components, there are several ways of classifying prescription drugs. This includes generic or brand name and formulary or non formulary. Generic and brand name drugs can both be formulary drugs, which are drugs on an approved list provided by the insurance provider. Non-formulary drugs on the other hand are drugs that are not covered by the insurance plan, and thus the cost falls on either the patient or the employer, depending on whether or not the employer covers non-formulary drugs. Generic drugs are chemically exactly the same as brand name drugs; the difference is in the price, not quality, performance, or safety; price is a result of patenting.<sup>1</sup> A drug is brand name when it is patented and when the patent expires, anyone can produce the drug, thus being generic, and cheaper. Most prescription drug plans require employees to pay a co pay towards the cost of the drug, with higher co-pays usually being placed on brand name and non-formulary drugs, to encourage the use of generic drugs, to reduce costs, but comparing plans and employers, one can see that providers and employers make a variety of combinations of co-pays and coverage options available and this greatly affects the cost imposed on the employer. In the case of Minnesota cities, this means that even if a city is not self funded, the city still incurs a significant cost related to prescription drugs, whether that is through a deductible reimbursement, 100% coverage, covered co pays or, simply the increased costs related to increasing premiums due to employee usage patterns.

## *APPENDIX G: DATA AVAILABILITY*

The Following Data is available upon request:

- Full Health Care Spending Statistics
- Full Regression Syntax
- Full Scorecard Data

---

<sup>67</sup> Increase in Minnesota's Health Care Tax Set for 2004, 2003