

**Cover Sheet**

**Event:** 2011 - 2012 National Cutting Horse Association (NCHA)  
TRIPLE CROWN of CUTTING

**Dates:** Futurity: November 14 – December 11, 2011  
Super Stakes: March 24 – April 16, 2012  
Summer Spectacular: July 9 – August 6, 2012

**Location:** Fort Worth, Texas

**Report Date:** February 2014

## **Post Event Analysis**

### **2011 - 2012 National Cutting Horse Association (NCHA) Triple Crown of Cutting**

This post-event analysis is intended to evaluate the short-term tax benefits to the state through review of tax revenue data to determine the level of incremental tax impact to the state of Texas from the event. A primary purpose of this analysis is to determine the reasonableness of the initial incremental tax estimate made by the Comptroller's office prior to the event.

The National Cutting Horse Association (NCHA) Triple Crown of Cutting was added to the Major Event Trust Fund (METF) program by the Texas legislature during the 82<sup>nd</sup> Legislative session (2011). The Triple Crown of Cutting is comprised of the NCHA Futurity (November-December), NCHA Super Stakes (April), and Summer Spectacular (July-August). These events range from 21 to 28 days in length.

The dates for the three events making up the 2011 – 2012 NCHA Triple Crown of Cutting (per the City of Fort Worth) were:

Futurity - November 14 – December 12, 2011

Super Stakes - March 26 – April 16, 2012

Summer Spectacular - July 9 – August 6, 2012

This event, while authorized under the METF statute, does not attract a large number of people, particularly when compared with the population of the area in which it was held. Tarrant County has a population of more than 1.8 million people. The impact of a several thousand "additional" people over several days in a population of 1.8 million is difficult to measure. Simply put, smaller events create fewer "ripples in the pond" than large events, and the larger the pond, the more difficult to measure the ripples. Larger events, particularly "premier events" with heavy promotion, corporate sponsorship and spending, and "luxury" spending by visitors will tend to create larger ripples, and are therefore, straightforward and less problematic to validate.

Additionally, while an analysis of tax data may shed some light on tax impact, some factors must be considered when looking at tax collections data during the time of the event. The event market area is host to many national, regional and local events during any given month. These events, while they might not bring in a significant number of out-of-state visitors, might entice many in-state residents to travel and spend their dollars in this area. Additionally, by the event dates, Texas had emerged from the recession and regained many of the jobs that were lost, which boosted consumer confidence and fueled even more endogenous (local) spending, particularly when compared to the lackluster spending during the depths of the recession.

For the 2011-12 NCHA Triple Crown of Cutting, the Comptroller analyzed data provided by the City of Fort Worth as well as independent research and analysis to determine the estimated incremental tax increase to the State of Texas as defined by the METF statute. It was estimated that the total incremental increase should be:

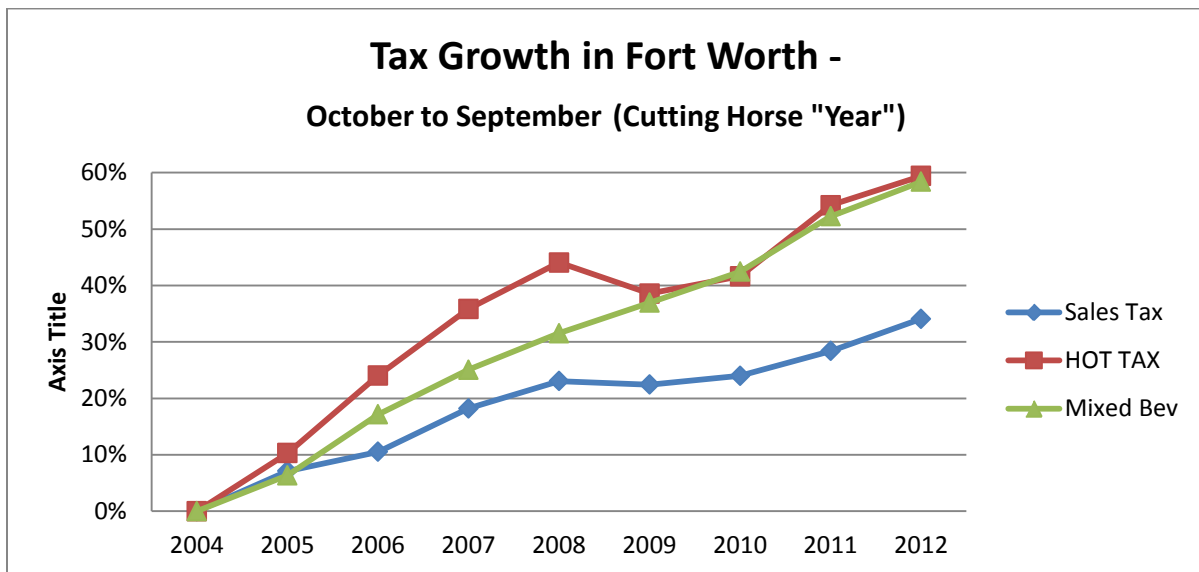
Direct tax gain to the state: \$2,244,433

Indirect tax gain to the state: \$1,313,848

**Estimate total tax gain to the state: \$3,558,281**

Local contribution: \$569,327

**Total value of the METF: \$4,127,608**



Source: Texas Comptroller of Public Accounts

The METF statute states, "After the conclusion of an event [the requestor of an METF] must provide information" that the comptroller considers necessary to evaluate the success of the trust fund program. In this case, the third party post-event independent research was prepared by Gerald L. Grotta, PhD of Grotta Marketing Research and submitted by the City of Fort Worth. This study indicated the 2011-12 NCHA Triple Crown of Cutting accounted for:

Ticketholder Visitor Days (not residents of this state): 24,507

Total Spending by participants and visitors: \$36,445,811

Estimated Direct tax gain to the state: \$1,823,144

It is important to note that in some cases the Comptroller determines that there is no incremental increase in tax receipts to the state associated with certain expenditures that a consultant calculates as having a direct tax gain.

Summary of the events making up the 2011-12 Triple Crown of Cutting:

**2011 Futurity**

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)</b>	<b>Third-Party Post-Event</b>
Sales and Use	\$726,780	\$1,676,632	\$1,197,866
HOT	\$82,146	\$109,739	\$131,431
Mixed Beverage	\$38,067	\$409,540	\$65,703
<b>Total</b>	<b>\$846,944</b>	<b>\$2,195,911</b>	<b>\$1,395,000</b>

**2012 Super Stakes**

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)</b>	<b>Third-Party Post-Event</b>
Sales and Use	\$479,207	\$7,128,248	\$431,255
HOT	\$73,592	\$181,793	\$42,877
Mixed Beverage	\$13,148	\$482,342	\$31,112
<b>Total</b>	<b>\$565,947</b>	<b>\$7,792,383</b>	<b>\$504,181</b>

**2012 Summer Spectacular**

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)</b>	<b>Third-Party Post-Event</b>
Sales and Use	\$593,628	\$3,023,244	\$426,194
HOT	\$105,111	\$128,128	\$57,819
Mixed Beverage	\$5,421	\$146,196	\$34,264
<b>Total</b>	<b>\$704,160</b>	<b>\$3,297,568</b>	<b>\$518,277</b>

The following pages break down this estimate and illustrate the 2011-12 NCHA Triple Crown of Cutting's actual impact to the State of Texas by looking at the three separate sub-events. This report will show that considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event's host city experienced positive economic activity due to this event.

**Cover Sheet**

**Event:** 2012 National Cutting Horse Association (NCHA) FUTURITY

**Date:** November 14 – December 12, 2011

**Location:** Fort Worth, Texas

**Report Date:** February 2014

## Post Event Analysis

### 2012 National Cutting Horse Association (NCHA) FUTURITY – Fort Worth, Texas

#### I. Introduction

This post-event analysis is intended to evaluate the short-term tax benefits to the state through review of tax revenue data to determine the level of incremental tax impact to the state of Texas from the event. A primary purpose of this analysis is to determine the reasonableness of the initial incremental tax estimate made by the Comptroller's office prior to the event. The initial estimate is included in Appendix A.

Determining the tax impact of the **2011 National Cutting Horse Association (NCHA) Triple Crown of Cutting - FUTURITY** is affected by the timing of the event, which coincides with the recovery from the economic recession. The agency's analysis shows that the sales and use tax increases in the market area were higher than the statistical model would have predicted, as well as higher than the percentage statewide increases. While some of this increase is certainly due to the event, it also appears that some of the increase was due to other factors, most likely the economic rebound.

Determining the tax impact from an event is dependent upon how many out-of-state participants and visitors attend the event. The tax type that is the largest contributor to the economy is the sales and use tax, but the Hotel Occupancy Tax (HOT) tax most likely is the best indicator of how many out of market and out-of-state visitors an event may have attracted.

An assessment of November and December HOT revenues from 2002 to 2011 shows that the state received \$109,739 above-average tax collections (including adjustments for atypical fluctuations that periodically occur over any given period). A post-event study provided by the event organizer estimated that 12,241 out-of-state visitors attended the event. The agency conducted a simple analysis to determine the reasonableness of the reported out-of-state attendee number, using the following assumptions:

1. Each room would cost an average of roughly \$117 per day; and
2. There were 18,963 room nights paid for by out-of-state participants and visitors (the event was a total of 20 days).

This simple analysis yields an amount of approximately \$133,120 in additional taxes to the state ((number of room nights X average room rate) X state HOT rate). While this amount is less than the initial estimate, it is also significantly less than the actual increase of state HOT taxes for the event months.

While it is impossible to attribute increased economic activity to event participants and attendees given the data readily available to the Comptroller's Office, it is reasonable to assume

that they did contribute some amount to the overall increase, and provides credence to the third party estimate of 11,200 out-of-state visitors.

Considering the attendance figure from the third-party study and actual observed HOT data, it could be inferred that the event host city experienced positive economic activity due to this event. However, it is unknown:

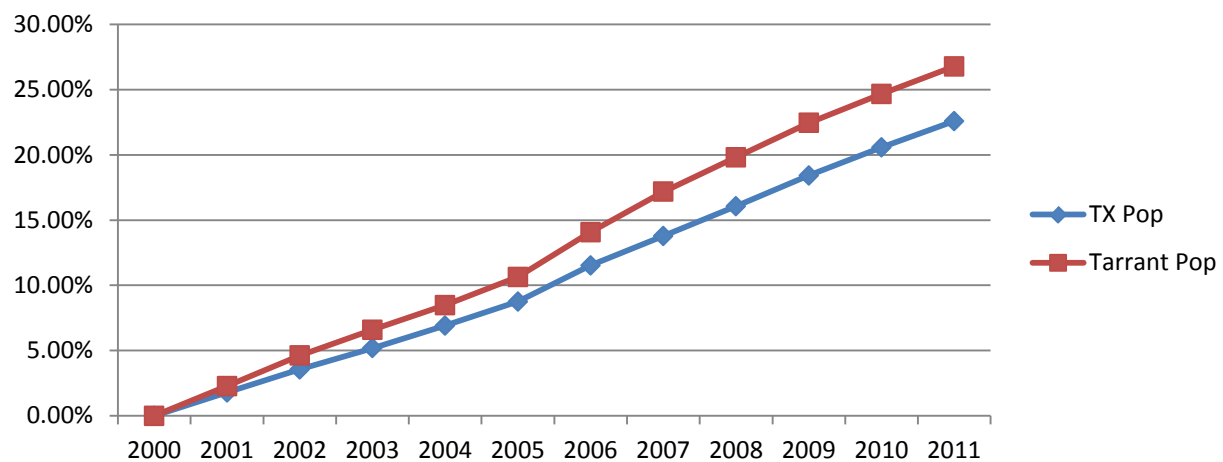
- how much each of these out-of-state visitors spent;
- how many nights they stayed; and thus
- exactly how much they contributed to observed increases in tax revenues to the state from attending the event.

While the above example using actual HOT tax receipts provides a reasonable assessment that the event performed in line with expectations, the agency also performed additional analysis' on the various state taxes to further study the tax performance during the event period.

### Overview of the Local Economy

While the rest of the United States was falling into a recession, the state of Texas was weathering the economic downturn better than most. Buoyed by the oil and gas industry and avoiding the housing crisis made Texas more economically viable than other states. Due in part to these and other factors, Texas experienced solid population growth over the past decade.

## Texas and Tarrant County Indexed Population Growth, 2000 = Base Year



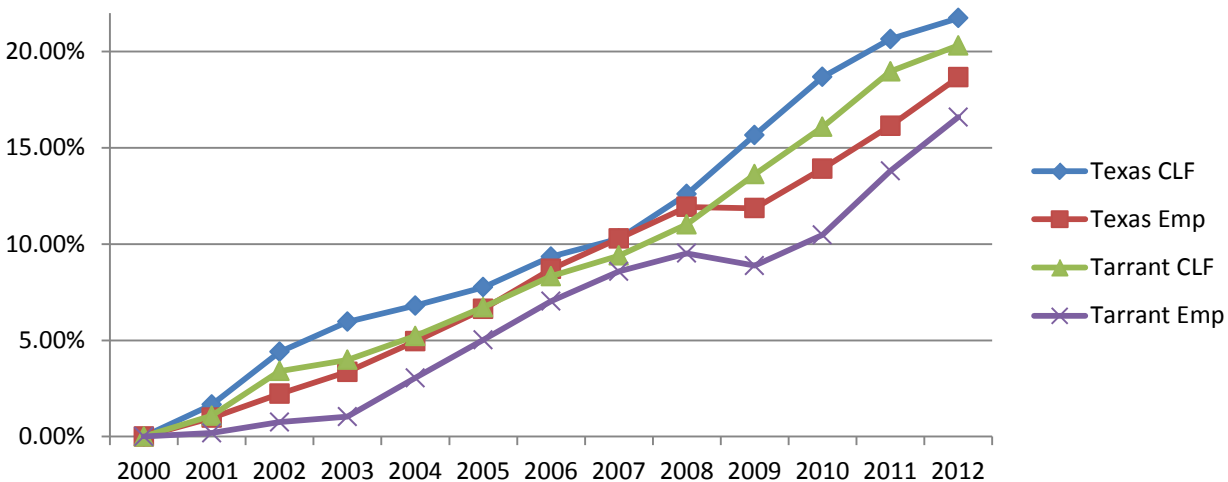
Source: U.S. Census Bureau.

From 2000 to 2011, Texas' population grew at an average of roughly two percent per year. By 2011, the Texas and Tarrant County populations had grown by 22.58 and 26.79 percent,

respectively, from their levels in 2000. The graph below illustrates that Texas and Tarrant County populations grew at a steady pace at almost the same rate for the past twelve years. And, as the population grew, more working state residents contributed to the Texas economy.

The growing population created an expanding Civilian Labor Force (CLF) and more employed people in Texas and Tarrant County. According to the Texas Workforce Commission, from 2000 to 2012, the CLF in Texas and Tarrant County had grown by 21.74 and 20.32 percent respectively. While the number of employed persons didn't keep pace with the CLF, from 2000 to 2012, employed persons in Texas and Tarrant County grew by 18.66 and 16.6 percent respectively. The graph below illustrates that the growth rates of Texas and Tarrant County CLF and employed track very close to each other. Only once during this period did the number of employed persons experience slower growth, which occurred between 2008 and 2009. The growing population and CLF provided some additional fuel to the economic engine of Texas.

### Texas and Tarrant County Civilian Labor Force (CLF) and Employment Growth Index, 2000 = Base Year



Source: U.S. Bureau of Labor Statistics

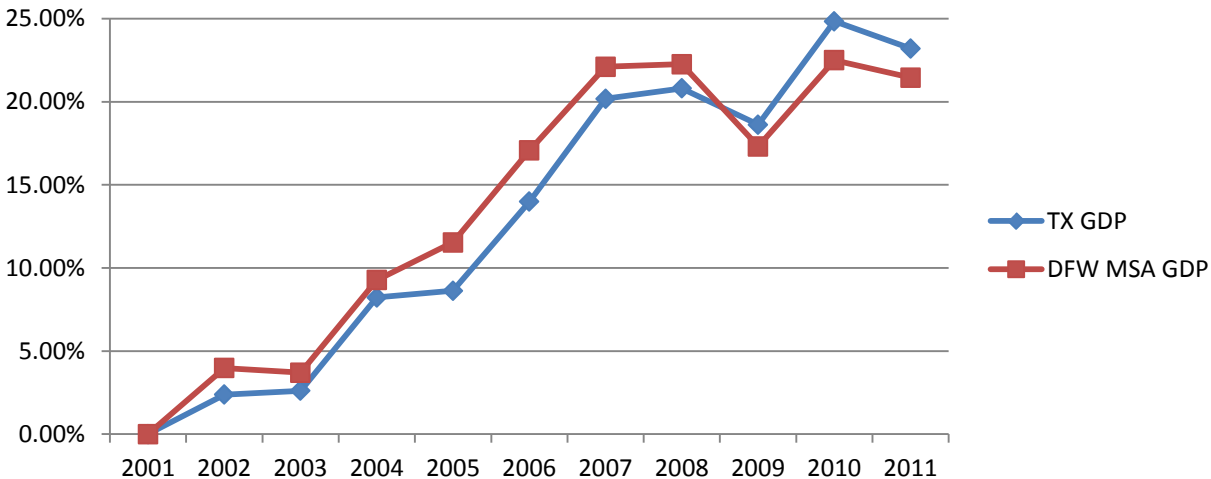
One measure of output for a state or local government area is Gross State Product (GSP) or Gross Regional Product (GRP). This is a measure of all of the value added by industries within the geographic area and is a counterpart to Gross Domestic Product (GDP)<sup>1</sup>. As the population increases and more people go to work for various industries, output grows and so does the corresponding measure of GDP. The graph below illustrates that industry output in Texas and the Dallas-Fort Worth-Arlington (DFW) Metropolitan Statistical Area (MSA) has been on an

<sup>1</sup> For the purposes of this discussion, GSP and GRP will be referred to as GDP for the state and local area.



upward trend for the past decade. While Texas and the DFW MSA experienced a few years of slower growth in output, overall growth in industrial output over this period has been similar to growth in population and CLF.

### Texas and DFW Metropolitan Statistical Area Real GDP (2005 Chained Dollars) Growth Index, 2001 = Base Year



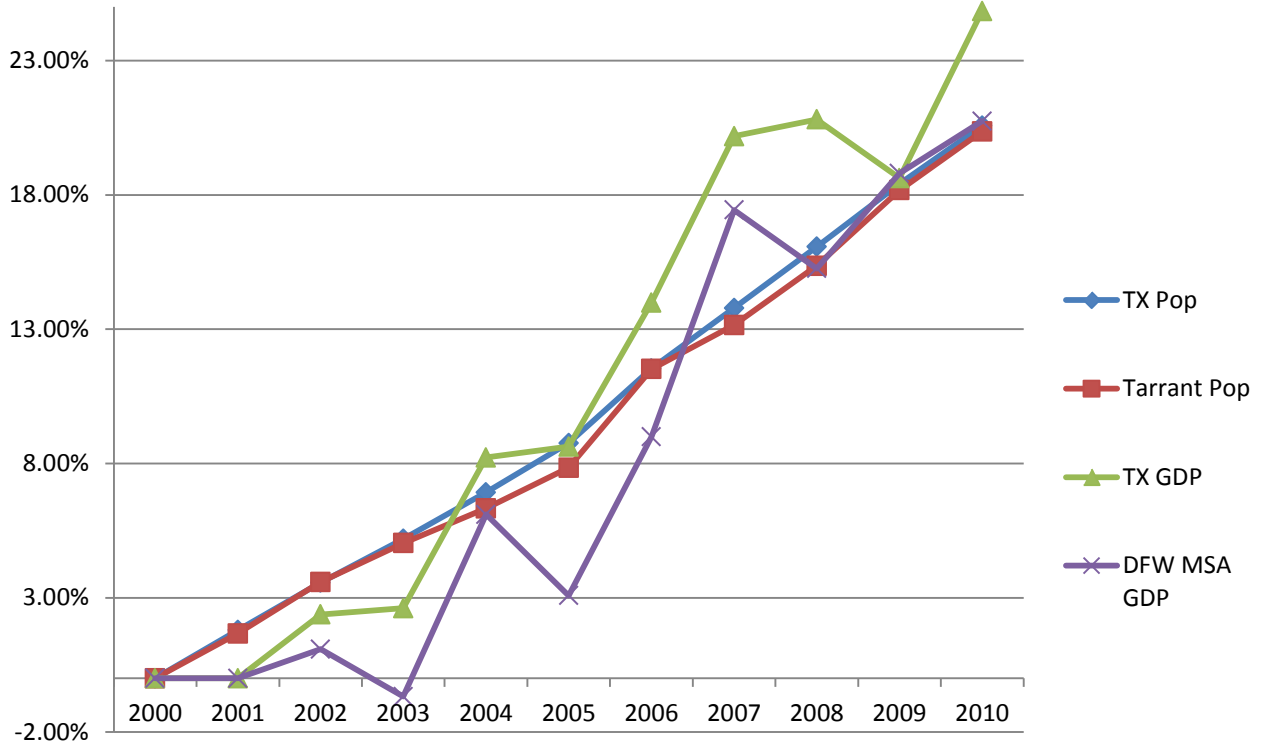
Source: U.S Department of Commerce Bureau of Economic Analysis.

When the growth index for population, CLF and GDP are compared for Texas, Tarrant County and the DFW MSA it becomes apparent how closely they track together over time. Growth for these three measures is about 20 percent higher than the base year, which also illustrates how closely these three measures are tied together.

The graph below illustrates the previous point that the Texas, Tarrant County and DFW MSA population and GDP grew at similar rates over the past decade. While population indices show a steady growth over time, GDP indices reflect the changes that occur in a more volatile and dynamic environment like the economy. The diverse economy in Texas is able to weather shocks to one or a few industry sectors and still remain viable. As one industry sheds workers and productivity, another is there to pick up some of those workers and productivity that was lost.

While taxable sales and revenues to the state may appear to rise due to a major event, the fact is that the Texas economy has been growing in terms of output and employment for many years now. Even during the recession the Texas economy was still growing relative to where it was earlier in the same decade, though that growth occurred at a slower rate. So, it is important to remember that the Texas economy has been on an upward trend. And in a state with steady population and civilian labor force growth, it's not hard to realize steady gains in output as well.

## Growth Index for Texas, Tarrant County and DFW MSA for Population and Real GDP (Population base year = 2000; Real GDP base year = 2001)



Source: U.S. Census Bureau and the U.S. Department of Commerce Bureau of Economic Analysis.

While Fort Worth and Tarrant County undoubtedly benefitted from hosting a major event, gauging that benefit within the backdrop of a growing economy can be challenging.

## II. Methodology

The METF statute requires the Comptroller's office to estimate the incremental increase in taxes for both the state and any municipality (or county) that contributes local matching funds. For the purposes of this analysis, staff attempted to determine if there was a measurable change in **state** taxes due to the event. This presents challenges for two primary reasons: the size and population of the state and the fact that taxes are remitted to the state based on receipts from 30-90 day periods, depending on the tax type. The incremental tax increase in the state due to an event in a large and dynamic tax system may not be readily distinguishable from incremental changes due to other factors.

Also, measuring the actual incremental tax increase produced as a result of a particular event with accuracy requires certain information that is not readily available. The primary determinants that would be required to accurately measure the incremental increase in taxes are:

- the number of out-of-state visitors;
- the length of stay for those visitors; and
- the expenditures per day for those visitors.

The incremental taxes attributable to the out-of-state fans for the event make up the majority of the estimate (approximately 65 to 75 percent of the total estimated incremental taxes).

Since the exact number of out-of-state visitors, length of stay, and expenditures per day is not known with certainty, our analysis relies on overall changes in tax collections to make an informed judgment as to whether the initial estimate was reasonable.

Incremental tax impact to the state, for these purposes, is estimated by gauging exogenous or out-of-state spending. It is assumed that all attendees have limited disposable income for entertainment, and that Texas residents would likely have chosen to spend their entertainment dollars at another Texas venue or event in the absence of the event in question. While it is impossible to track all out-of-state visitors and their spending habits, a noticeable increase in taxable sales points to a positive economic impact due to a major event. This analysis uses two methods for examining tax data.

Method 1 looks at the past 11 years of quarterly (or monthly) tax data to determine average collections for any given quarter (or month). Standard deviations are calculated and if collections for the period when the event occurred are beyond the average and standard deviation, it is assumed that an event must have pushed sales upward. The more the sales deviate from the average plus the standard deviation or outside the normal distribution, the stronger the indication of the magnitude of the impact.

Method 2 looks at only the quarter (or month) in question for the past 11 years (2002 to 2011). Based on sales subject to tax, average collections and standard deviations are calculated. Like the method described previously, if collections for the period when the event occurred are beyond the average and standard deviation, it is assumed that an event must have pushed sales upward. The magnitude of the impact can be gauged by measuring the amount of state taxes collected over the average plus the standard deviation.

The methodology used for this analysis focuses on direct taxes, since indirect and induced impacts are calculated using a dynamic modeling software package, and are dependent on the direct taxes.

The Comptroller's Office also ran statistical tests (Appendix B) on the three tax types that generated the most revenue which could be verified (Sales and Use, Hotel Occupancy, and

Mixed Beverage). The test indicated at the 99 percent confidence level, the amount subject to state tax was not normal during the period the event occurred and is statistically different from similar collections from the same time period in previous years. This statistical difference implies that the event was likely responsible for the difference in tax collection levels for the period.

### **Analysis**

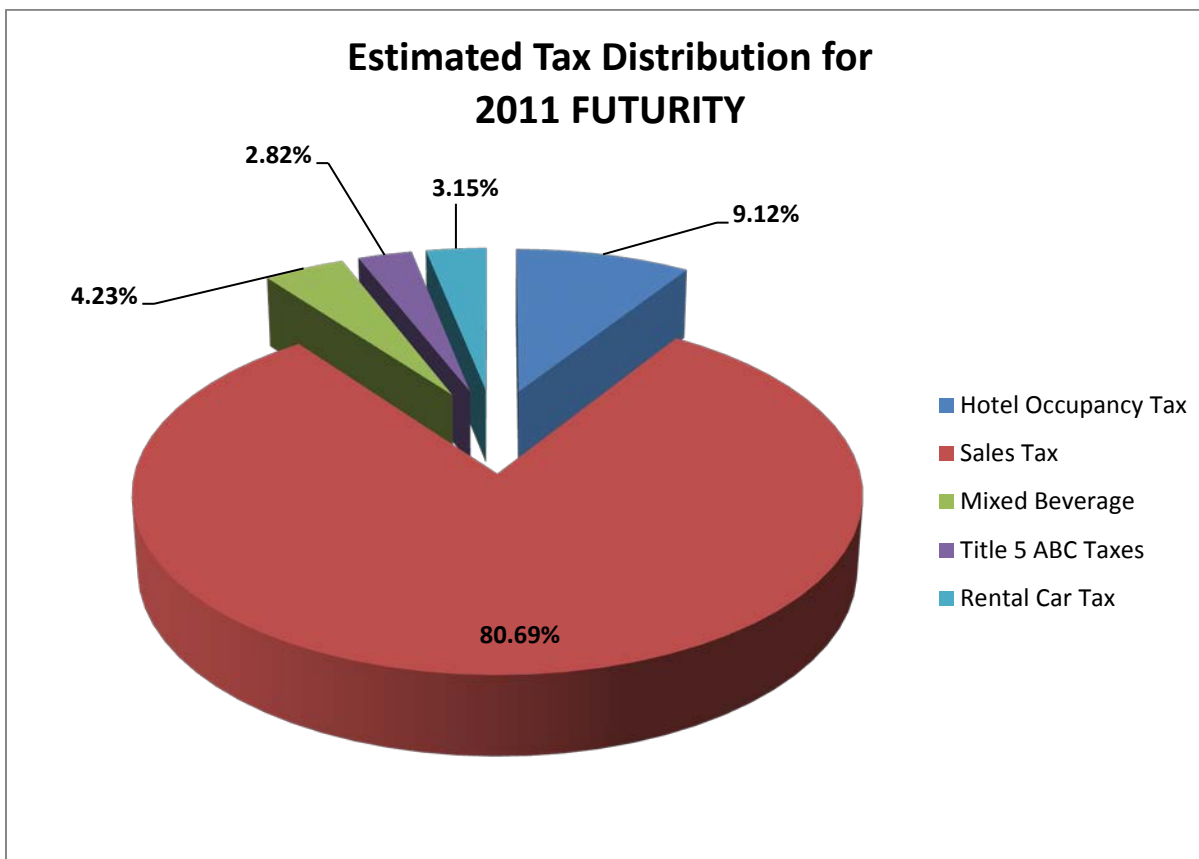
The METF statute requires that the Comptroller estimate the incremental tax increase that is expected for an event for five specific tax types:

1. Sales and Use Tax
2. Hotel Occupancy Tax
3. Rental Car tax
4. Mixed Beverage Tax
5. Title 5, Alcoholic Beverage Code tax

Of these 5 taxes, the estimate of general Sales and Use tax, Hotel Occupancy tax (HOT), and Mixed Beverage tax are the largest verifiable tax types. In the case of the event in question, the Sales and Use tax and the Mixed Beverage tax made up roughly 81 and 4 percent respectively, while the HOT made up approximately than 9 percent. Based on figures used for initial estimates, the Rental Car tax made up just over 3 percent and the Title 5 Alcohol tax made up slightly less than 3 percent.

Rental car taxes are paid by rental car companies at the state-wide level and are not attributable to specific geographic locations. Title 5 Alcohol taxes make up a small percentage of the overall estimate and due to the small amount, any change due to a specific event is difficult to calculate. Due to these challenges involved and relatively minor amounts of rental car tax and Title 5 alcohol, this analysis uses initial estimates and does not attempt to quantify changes in these two tax types.

## II A Analysis—All Tax Types

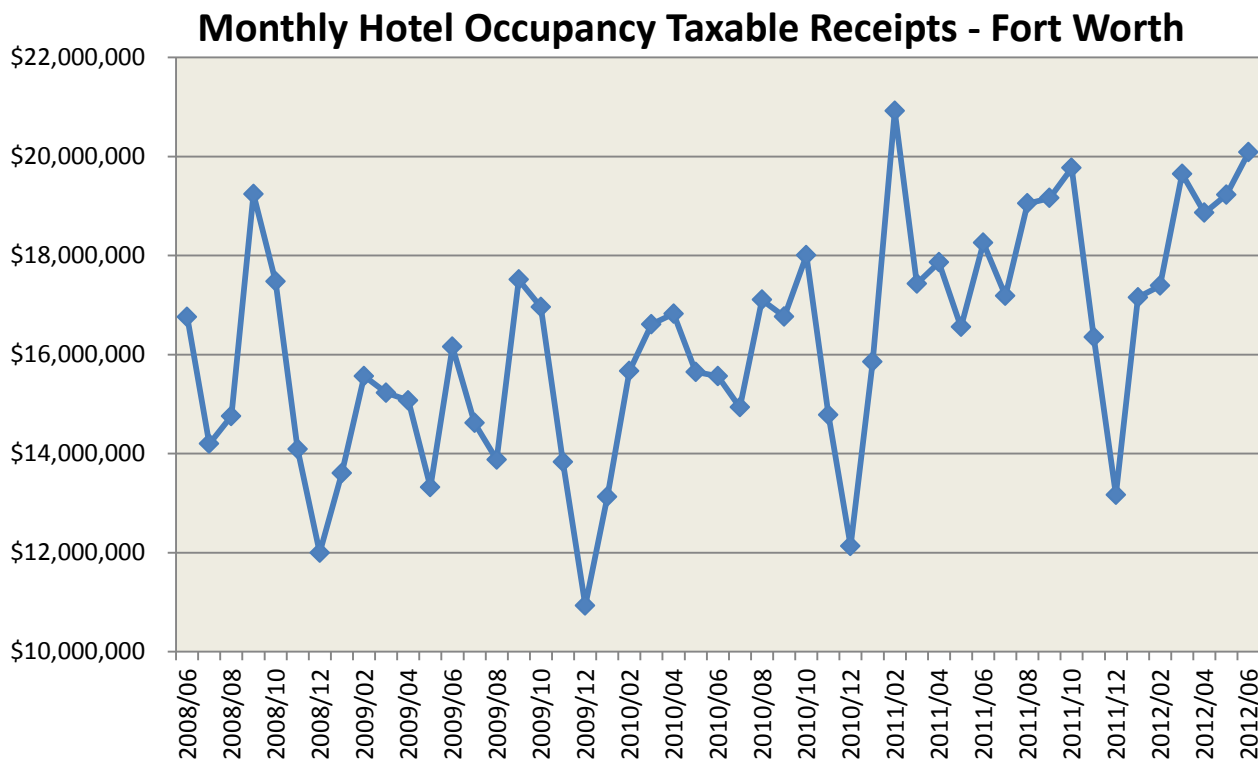


Source: Texas Comptroller of Public Accounts

The above chart illustrates that sales tax makes up the majority of additional estimated revenue to the state from major events. **Taxes collected from sales tax, mixed beverage tax, and hotel occupancy tax make up roughly 94 percent of the funds generated by the event for the 5 specific tax types that are addressed in the statute.**

## II B Analysis--Hotel Occupancy Tax:

The charts below depict HOT taxable receipts, mixed beverage tax allocations, and gross sales subject to state tax.



Source: Texas Comptroller of Public Accounts

This graph does not represent all monthly HOT receipts, but only those that are taxable. The dollar value that corresponds to any one month represents the HOT taxable receipts that are attributable to that month. This graph includes HOT taxable receipts for the event market area. The event in question took place from November 14 to December 12, 2011.

The average monthly HOT taxable receipts for this area from January 2002 to June 2012 were \$13,676,261 with a standard deviation of \$3,236,166. The peak in the graph represents taxable receipts of \$20,917,554 (February 2011), which is higher than any other month represented in this graph and going back to January 2002. The average taxable receipts plus the standard deviation is \$16,912,426, which is \$1,761,461 more than the average receipts for the months when the event occurred (November and December 2011).

Considering only November and December HOT receipts for Fort Worth from 2002 to 2011, the average amount subject to state tax was \$22,824,487 with a standard deviation of \$4,856,657. The average taxable receipts plus the standard deviation is \$27,681,143, which is \$1,828,978

less than receipts during the month when the event occurred. This represents additional tax revenue of \$109,739 during this period.

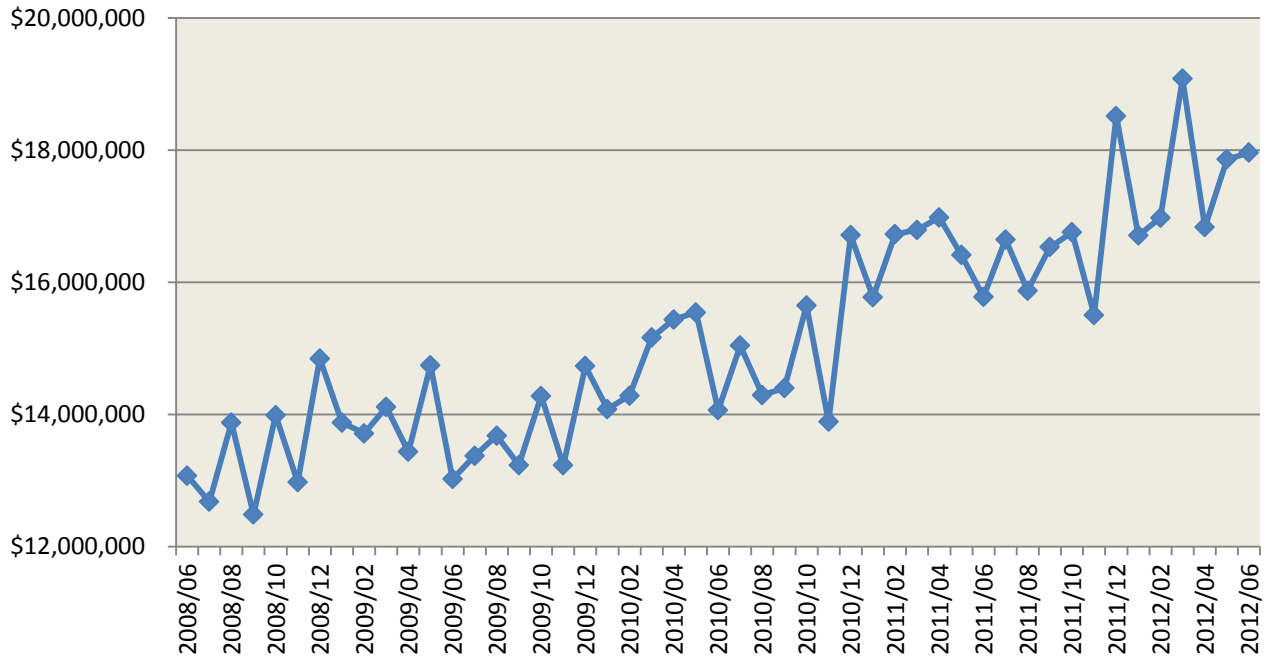
While an analysis of tax revenues might not tell how much of this spending came from out-of-state visitors, a comparison of other direct spending estimates, using different assumptions and methodologies, can help put these numbers into perspective. As stated previously, an analysis of additional HOT revenues to the state was estimated to be \$109,793. The initial pre-event estimate had predicted \$82,146 in additional HOT revenue, while a third-party post-event analysis estimated a direct spending impact to state HOT revenues of \$131,431.

Tax Type	Initial Estimate	Third-Party Post-Event
HOT	\$82,146	\$131,431

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

**II C Analysis--Mixed Beverage Tax:**

**Monthly Mixed Beverage Taxable Receipts for Fort Worth**



Source: Texas Comptroller of Public Accounts

This graph includes only historical mixed beverage taxable receipt amounts by calendar month. The monthly mixed beverage taxable amounts correspond to the month in which they were distributed. This graph includes amounts for Fort Worth.

The average monthly mixed beverage taxable receipts for this area, from January 2002 to June 2012, were \$12,368,538 with a standard deviation of \$2,732,606. The peak in the graph represents taxable receipts of \$19,081,802 (March 2012), which is higher than any other month going back to January 2002. The average monthly taxable receipts plus the standard deviation is \$15,101,144, which is \$1,910,948 less than the average monthly receipts during the two months when the event occurred (average of \$17,012,092 for November / December 2011).

The second method of analysis considered mixed beverage taxes for only the months when the event took place for Fort Worth from 2002 to 2011. The average receipts subject to tax, which are 14 percent of gross receipts for the two months combined, were \$3,526,670 with a standard deviation of \$718,312. The average taxable receipts plus the standard deviation is \$4,244,981 which is \$518,405 less than receipts during the combined two months when the event occurred (\$4,763,386). The state gets roughly 79 percent of taxable receipts. This represents additional revenue of \$409,540 during the months of the event.

The second method of analysis of mixed beverage revenues estimated that the state received an additional \$409,540. The initial pre-event estimate had predicted \$38,067 in additional revenue, while a third-party post-event analysis estimated a direct spending impact to state revenues of \$65,703.

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Mixed Beverage	\$38,067	\$65,703

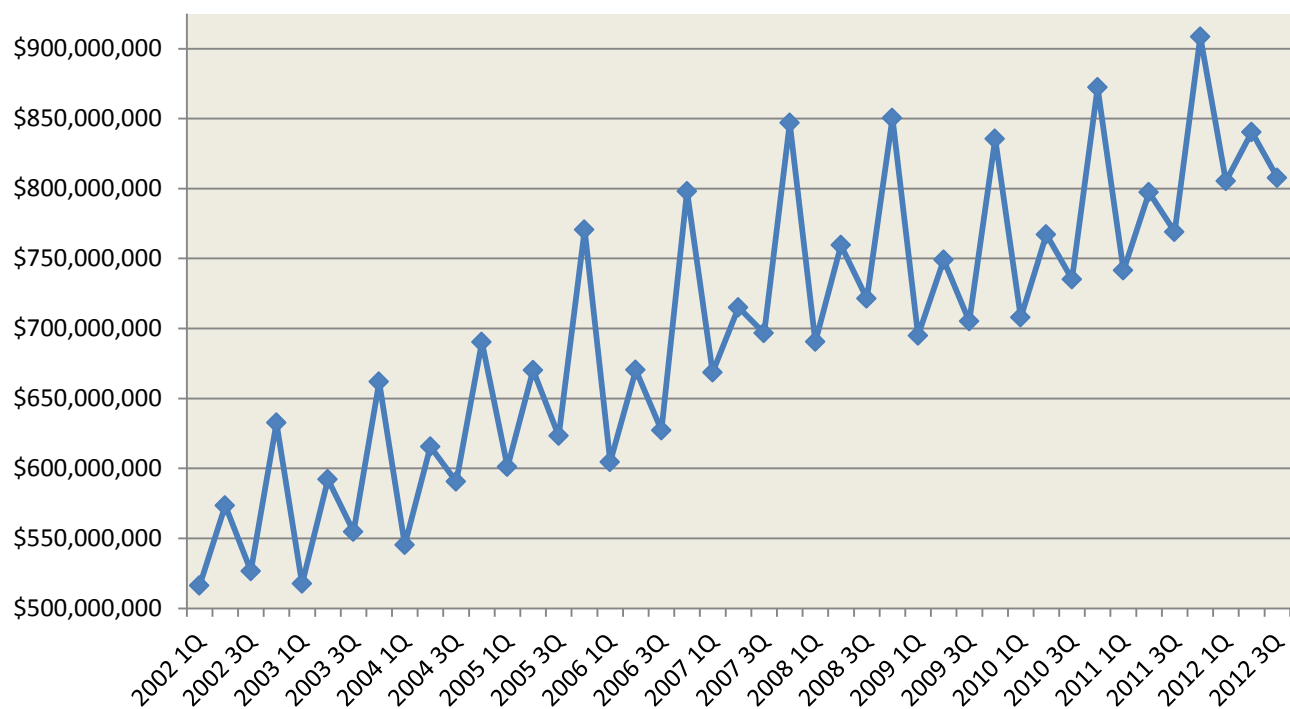
Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

#### **II D Analysis--Sales and Use Tax:**

The graph below is the sum of taxable sales within a subset of 2- and 3-digit North American Industry Classification System (NAICS) code categories applicable to major events in Texas. This graph includes taxable sales amounts for the event market area. The graph includes data only from holders of sales tax permits; businesses that sell only goods that are outside the sales tax base are not covered by these reports. A business that files yearly reports will show up only in a single quarter. The peak in this graph occurs in the fourth quarter of 2011.



## Quarterly Gross Sales Subject to State Tax in Fort Worth



Source: Texas Comptroller of Public Accounts

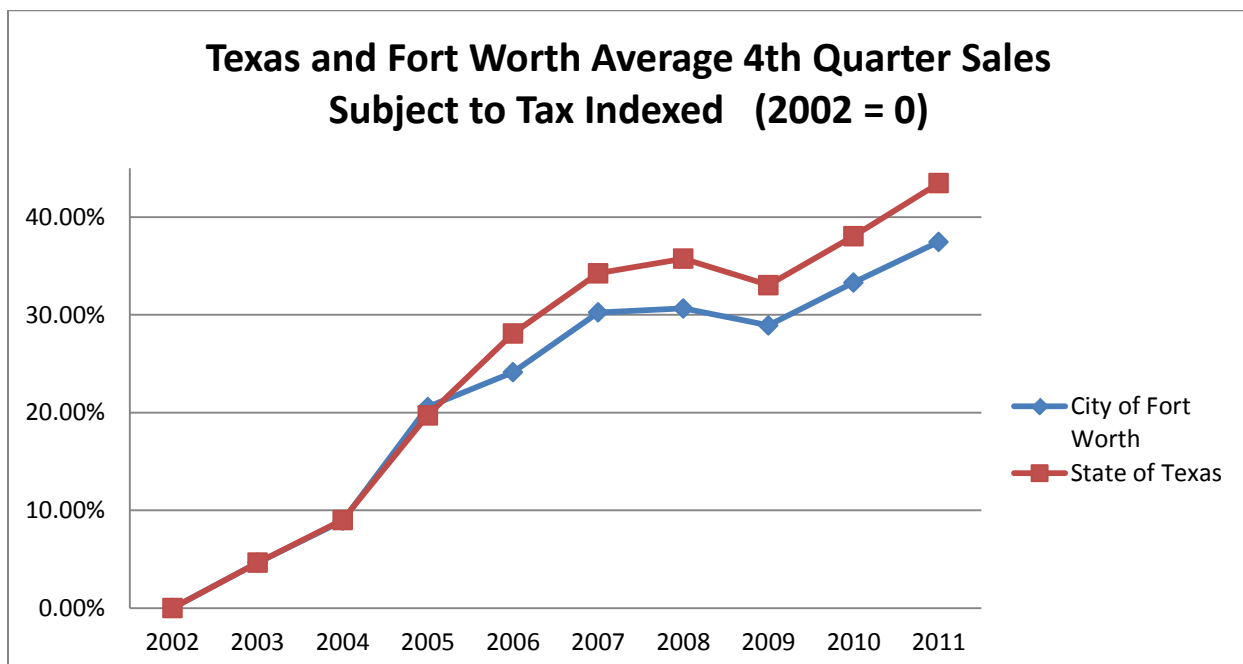
The average amount (reported quarterly) subject to sales tax for this area from 1Q 2002 to 3Q 2012 was \$699,282,585 with a standard deviation of \$103,399,955. The amount subject to sales tax in the quarter during when the event took place was \$908,589,293, which is \$105,906,793 more than the amount subject to sales tax and the standard deviation (fourth quarter of 2011).

The second method of analysis of sales tax data that looks at only the fourth quarter of each year illustrates a slightly different picture. Average collections subject to sales taxes for the industries mentioned above for the fourth quarter of each year (from 2002 to 2011) were averaged. Average collections subject to sales taxes for the fourth quarter were \$786,746,680 with a standard deviation of \$95,016,502. The average plus the standard deviation is \$881,763,181. Collections subject to sales taxes for the fourth quarter of 2011 were \$908,589,293, which is \$26,826,112 more than the average plus the standard deviation. At the state sales tax rate (6.25%), this amounts to an additional \$1,676,632 to the state as a result of increased sales.

While there clearly was increased sales tax revenue collected during the same time an event occurred in a given area, the increase is almost certainly not all due to one major occurrence (see section below titled "Texas and Fort Worth Average 4<sup>th</sup> Quarter Sales Subject to Tax Indexed, 2002 = 0"). This method of analysis estimates that the state of Texas received \$1,676,632 additional sales tax dollars from the event market area during the fourth quarter of 2011. A pre-event analysis estimated that the state would receive an additional \$726,780 in

sales and use tax due to the event, while a third-party post-event analysis estimated a direct spending impact to state revenues of \$1,197,866.

Tax Type	Initial Estimate	Third-Party Post-Event
Sales and Use	\$726,780	\$1,197,866



Source: Texas Comptroller of Public Accounts

The graph above illustrates the fourth quarter taxable sales in Fort Worth and the state as a whole where growing at comparable rates using 2002 as a base year. In fact, from 2003 through 2005, Fort Worth's taxable sales subject to sales and use tax actually grew at a faster rate than Texas'. While growth in taxable sales and corresponding tax revenue might seem uncharacteristically large for Fort Worth, the rest of the state was also experiencing this same growth.

The second method used to analyze the impact of the event that estimated a drastic jump in state revenues during the fourth quarter of 2011 can partially be explained by an overall growth in taxable sales in the state of Texas. Fort Worth and Tarrant County host many events during a given quarter, and more people from in-state and out-of-state spending their dollars at these events push tax collections up. Coupled with an overall increase in taxable sales, endogenous and exogenous spending can appear to have an even greater impact on state tax revenues.

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

### **II E Analysis--Rental Car Tax:**

The state of Texas imposes a tax on motor vehicle rentals, but the rate is based on the length of the rental contract. For contracts of 1-30 days, the state rate is 10 percent of gross receipts less discount and separately stated fees for insurance, fuel, and damage assessments.

Unlike the other tax types, rental car tax is not reported to the Comptroller by location address. For example, if a corporate taxpayer has multiple locations in the state, they file one return for all gross rental tax. Taxpayers do not report to the Comptroller's Office based on location and the Comptroller's Office does not permit the taxpayer based on each location. For this reason, an examination of this tax type by location provides no useful data for these analyses.

In order to provide a complete estimate of direct-spending tax revenue from this tax type, the CPA initial estimate number was used for this post-event analysis. A third-party post-event analysis estimated a direct spending impact to state revenues of \$22,365.

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Rental Car	\$28,364	\$22,365

### **II F Analysis--Title V Alcoholic Beverage Code Tax:**

The state of Texas also imposes a tax on the amount of alcohol that manufacturers sell to retail establishments. The tax rate varies by class on the amount of alcoholic content of beverages by class per gallon. Distilled spirits are taxed at the highest rate at \$2.40 per gallon, while beer that is 4% alcohol content and lower is taxed at \$0.193548 per gallon.

While wholesalers are not reporting wholesale alcohol sales by location, they do submit how much volume they sold to retail establishments. Determining how much volume each retail establishment in the event market area purchased for each class of alcohol, then deriving how much tax was paid based on the volume and class would be extensive. Therefore, given how much state revenue is derived from this tax type (less than one-half of one-percent of the total of all taxes collected for this analysis) comparative to the other tax types, for the purpose of this analysis, the initial estimate was used. A third-party post-event analysis offered a rough estimate as to the impact to state revenues from this tax type.

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Title V ABC Tax	\$25,378	\$3,115

### III. Conclusion

#### 1. Third-Party Post-Event Analysis

Post event analysis conducted by a third-party vendor estimated economic impact based on direct spending and multiplier effects. Based on their analysis, they estimated that the total impact to the state of Texas was **\$1,420,480** in additional state tax revenues.

#### 2. Comptroller Analysis

The Comptroller estimate of **direct impact** prior to the event was **\$900,736**.

Comptroller data suggest that the Fort Worth metro area experienced increased economic activity during the event. The precise state share of this increased economic activity due to out-of-state consumption is unknown given the inability of available data to identify the amount contributed directly from out-of-state visitors. Additionally, it is worth noting that while a large metropolitan area that hosts a large event will almost certainly see a noticeable increase in tax revenues, the additional revenues are not as identifiable with smaller events such as this one. That being said, the amount of additional tax revenue the state received from the major tax types does exceed the initial estimates. **This office concludes that the initial estimate of direct, indirect, and induced tax impact of \$1,417,020 is reasonable based on the tax increases that occurred in the market area during the period in which the event occurred.**

## APPENDIX A

The tables below show the various tax types and the additional revenue amount estimates for the Futurity. The first table illustrates the three largest verifiable tax revenue generators and the amount estimated by three different analyses. The last three tables show the analysis of additional revenue to the state from all 5 tax types as estimated by three different methods.

Tax Type	Initial Estimate	1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)	Third-Party Post-Event
Sales and Use	\$726,780	\$1,676,632	\$1,197,866
HOT	\$82,146	\$109,739	\$131,431
Mixed Beverage	\$38,067	\$409,540	\$65,703
<b>Total</b>	<b>\$846,944</b>	<b>\$2,195,911</b>	<b>\$1,395,000</b>

Initial Analysis (Pre-event)		
Tax Type	State Share of Tax	Percent of Total
1. Sales and Use Tax	\$726,780	80.69%
2. Hotel Occupancy Tax	\$82,146	9.12%
3. Rental Car tax	\$28,364	3.15%
4. Mixed Beverage Tax	\$38,067	4.23%
5. Title 5, Alcoholic Beverage Code tax	25,378	2.82%
<b>Total</b>	<b>\$900,736</b>	<b>100%</b>

Third-Party Post-Event Analysis		
Tax Type	State Share of Tax	Percent of Total
Sales and Use Tax	\$1,197,866	84.33%
HOT	\$131,431	9.25%
Rental Car	\$22,365	1.57%
Mixed Bev	\$65,703	4.63%
Title 5 Alcohol	\$3,115	0.22%
<b>Total</b>	<b>\$1,420,480</b>	<b>100%</b>

<b>1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)</b>		
<b>Tax Type</b>	<b>State Share of Tax</b>	<b>Percent of Total</b>
1. Sales and Use Tax	\$1,676,632	74.53%
2. Hotel Occupancy Tax	\$109,739	4.88%
3. Rental Car tax*	\$28,364	1.26%
4. Mixed Beverage Tax**	\$409,540	18.20%
5. Title 5, Alcoholic Beverage Code tax*	\$25,378	1.13%
<b>Total</b>	<b>\$2,249,653</b>	<b>100%</b>

\*Initial estimate used due to how this tax is reported. See "Analysis" section (II E and II F) for further explanation.

\*\*State share was derived using Gross Collections for March & April (2002-12); not quarterly

Historical averages and standard deviations were calculated and subtracted from 2012 actual figures. The tax rate was then applied to the difference to arrive at the "State Share of Sales Tax" figure.

## APPENDIX B

Given the historical amount subject to state tax, is it statistically feasible that the event caused the observed increase in taxable sales? A single sample test of hypothesis was conducted to answer this question. The steps used in conducting these tests for each tax type are as follows:

### Sales and Use Tax:

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the amount subject to state tax in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the amount subject to state tax in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>2</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

Sales and Use Tax	Are observed tax collections statistically probable?	Using Nominal Values
Hypothesis	Null (Ho)	$\mu = \$0.9 \text{ Billion}$
	Alternative (Ha)	$\mu \text{ not } = \$0.9 \text{ Billion}$
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	$t^* < -3.169$
		$t^* > 3.169$
Estimated t =	t*	4.0551
Action (result)		Reject Ho
<p><b>Based on the test, the actual collections subject to state tax for the period in question is not statistically probable. This means that the sales and use tax collected for the period is not normally seen given historical data.</b></p>		

<sup>2</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.

**Hotel Occupancy Tax (HOT):**

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the amount subject to state tax in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the amount subject to state tax in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>3</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

<b>Hotel Occupancy Tax (HOT)</b>	<b>Are observed tax collections statistically probable?</b>	Using Nominal Values
Hypothesis	Null (Ho)	u = \$29.5 Million
	Alternative (Ha)	u not = \$29.5 Million
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	t* < -3.169
		t* > 3.169
Estimated t =	t*	4.3532
Action (result)		Reject Ho
<b>Based on the test, the actual collections subject to state tax for the period in question is not statistically probable. This means that the hotel occupancy tax collected for the period is not normally seen given historical data.</b>		

<sup>3</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.



**Mixed Beverage Tax:**

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the state share of gross receipts in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the state share of gross receipts in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>4</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

<b>Mixed Beverage Tax</b>	<b>Are observed tax collections statistically probable?</b>	Using Nominal Values
Hypothesis	Null (Ho)	u = \$2.7 Million
	Alternative (Ha)	u not = \$2.7 Million
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	t* < -3.169
		t* > 3.169
Estimated t =	t*	5.4445
Action (result)		Reject Ho
<b>Based on the test, the state share of gross receipts for the period in question is not statistically probable. This means that the state share of gross receipts for the mixed beverage tax for the period is not normally seen given historical data.</b>		

<sup>4</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.

**Cover Sheet**

**Event:** 2012 National Cutting Horse Association (NCHA) SUPER STAKES

**Date:** March 24 – April 16, 2012

**Location:** Fort Worth, Texas

**Report Date:** February 2014

## Post Event Analysis

### 2012 National Cutting Horse Association (NCHA) Super Stakes – Fort Worth, Texas

#### I. Introduction

This post-event analysis is intended to evaluate the short-term tax benefits to the state through review of tax revenue data to determine the level of incremental tax impact to the state of Texas from the event. A primary purpose of this analysis is to determine the reasonableness of the initial incremental tax estimate made by the Comptroller's office prior to the event. The initial estimate is included in Appendix A.

Determining the tax impact of the **2012 National Cutting Horse Association (NCHA) Triple Crown of Cutting - Super Stakes** is affected by the timing of the event, which coincides with the recovery from the economic recession. The agency's analysis shows that the sales and use tax increases in the market area were higher than the statistical model would have predicted, as well as higher than the percentage statewide increases. While some of this increase is certainly due to the event, it also appears that some of the increase was due to other factors, most likely the economic rebound.

Determining the tax impact from an event is dependent upon how many out-of-state participants and visitors attend the event. The tax type that is the largest contributor to the economy is the sales and use tax, but the Hotel Occupancy Tax (HOT) tax most likely is the best indicator of how many out of market and out-of-state visitors an event may have attracted.

An assessment of March and April HOT revenues from 2002 to 2012 shows that the state received \$181,793 above-average tax collections (including adjustments for atypical fluctuations that periodically occur over any given period). A post-event study provided by the event organizer estimated that 4,900 out-of-state visitors attended the event. The agency conducted a simple analysis to determine the reasonableness of the reported out-of-state attendee number, using the following assumptions:

1. Each room would cost an average of roughly \$114 per day; and
2. There were 6,114 room nights paid for by out-of-state participants and visitors (the event was a total of 22 days).

This simple analysis yields an amount of approximately \$41,819 in additional taxes to the state ((number of room nights X average room rate) X state HOT rate). While this amount is less than the initial estimate, it is also significantly less than the actual increase of state HOT taxes for the event months.

While it is impossible to attribute increased economic activity to event participants and attendees given the data readily available to the Comptroller's Office, it is reasonable to assume

that they did contribute some amount to the overall increase, and provides credence to the third party estimate of 4,900 out-of-state visitors.

Considering the attendance figure from the third-party study and actual observed HOT data, it could be inferred that the event host city experienced positive economic activity due to this event. However, it is unknown:

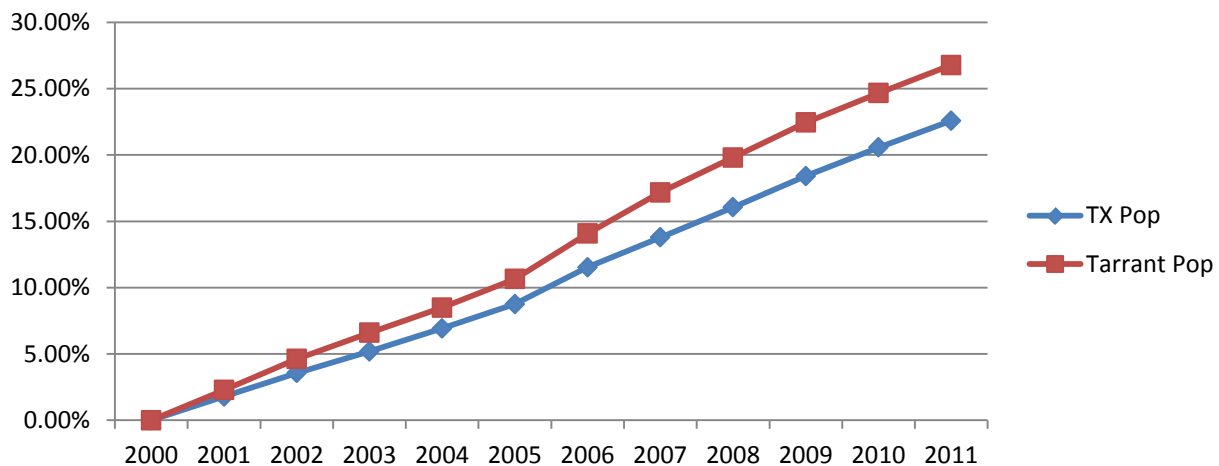
- how much each of these out-of-state visitors spent;
- how many nights they stayed; and thus
- exactly how much they contributed to observed increases in tax revenues to the state from attending the event.

While the above example using actual HOT tax receipts provides a reasonable assessment that the event performed in line with expectations, the agency also performed additional analysis' on the various state taxes to further study the tax performance during the event period.

### Overview of the Local Economy

While the rest of the United States was falling into a recession, the state of Texas was weathering the economic downturn better than most. Buoyed by the oil and gas industry and avoiding the housing crisis made Texas more economically viable than other states. Due in part to these and other factors, Texas experienced solid population growth over the past decade.

## Texas and Tarrant County Indexed Population Growth, 2000 = Base Year



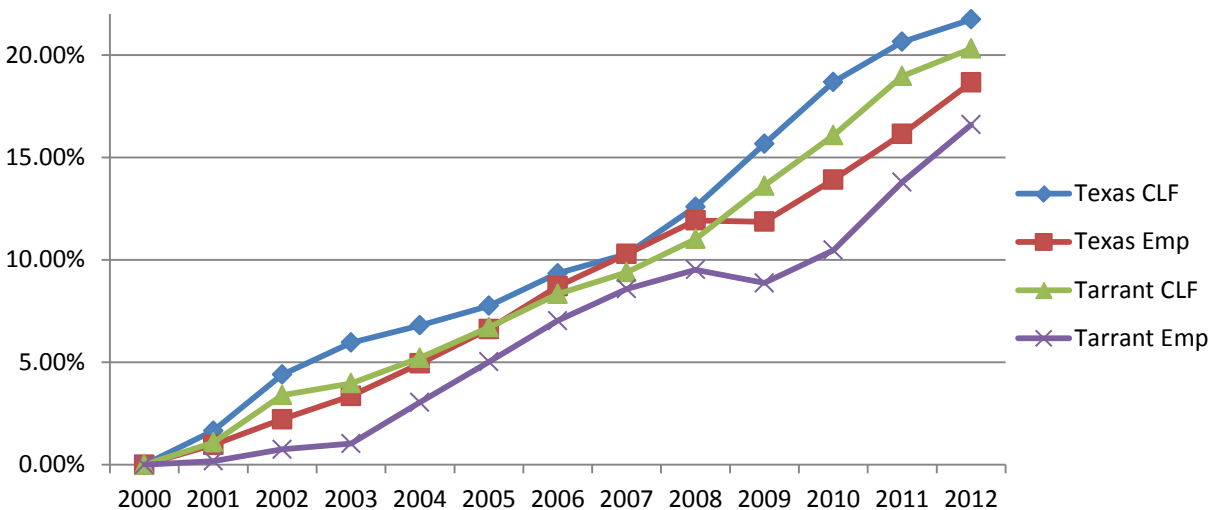
Source: U.S. Census Bureau.

From 2000 to 2011, Texas' population grew at an average of roughly two percent per year. By 2011, the Texas and Tarrant County populations had grown by 22.58 and 26.79 percent,

respectively, from their levels in 2000. The graph below illustrates that Texas and Tarrant County populations grew at a steady pace at almost the same rate for the past twelve years. And, as the population grew, more working state residents contributed to the Texas economy.

The growing population created an expanding Civilian Labor Force (CLF) and more employed people in Texas and Tarrant County. According to the Texas Workforce Commission, from 2000 to 2012, the CLF in Texas and Tarrant County had grown by 21.74 and 20.32 percent respectively. While the number of employed persons didn't keep pace with the CLF, from 2000 to 2012, employed persons in Texas and Tarrant County grew by 18.66 and 16.6 percent respectively. The graph below illustrates that the growth rates of Texas and Tarrant County CLF and employed track very close to each other. Only once during this period did the number of employed persons experience slower growth, which occurred between 2008 and 2009. The growing population and CLF provided some additional fuel to the economic engine of Texas.

### Texas and Tarrant County Civilian Labor Force (CLF) and Employment Growth Index, 2000 = Base Year



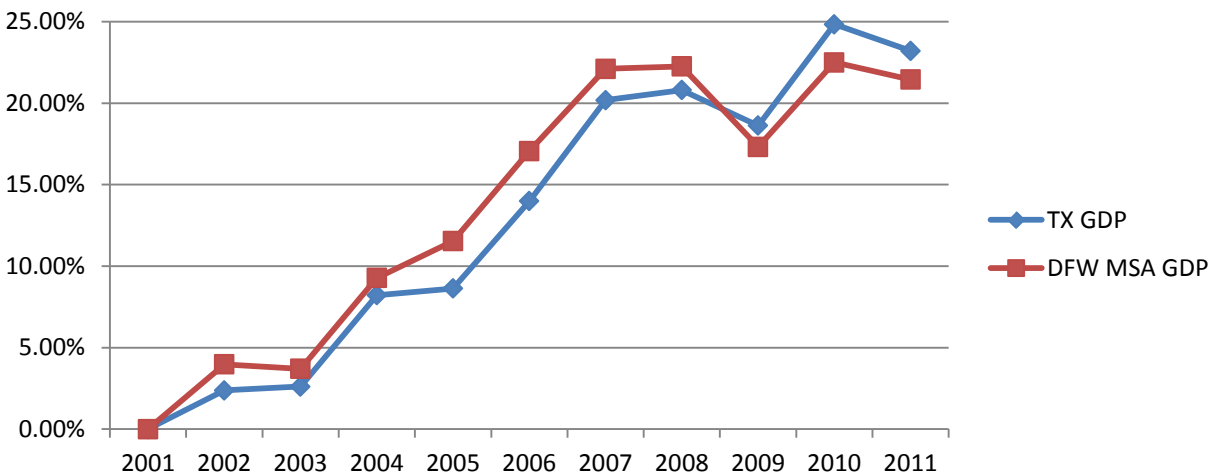
Source: U.S. Bureau of Labor Statistics

One measure of output for a state or local government area is Gross State Product (GSP) or Gross Regional Product (GRP). This is a measure of all of the value added by industries within the geographic area and is a counterpart to Gross Domestic Product (GDP)<sup>1</sup>. As the population increases and more people go to work for various industries, output grows and so does the corresponding measure of GDP. The graph below illustrates that industry output in Texas and the Dallas-Fort Worth-Arlington (DFW) Metropolitan Statistical Area (MSA) has been on an

<sup>1</sup> For the purposes of this discussion, GSP and GRP will be referred to as GDP for the state and local area.

upward trend for the past decade. While Texas and the DFW MSA experienced a few years of slower growth in output, overall growth in industrial output over this period has been similar to growth in population and CLF.

### Texas and DFW Metropolitan Statistical Area Real GDP (2005 Chained Dollars) Growth Index, 2001 = Base Year



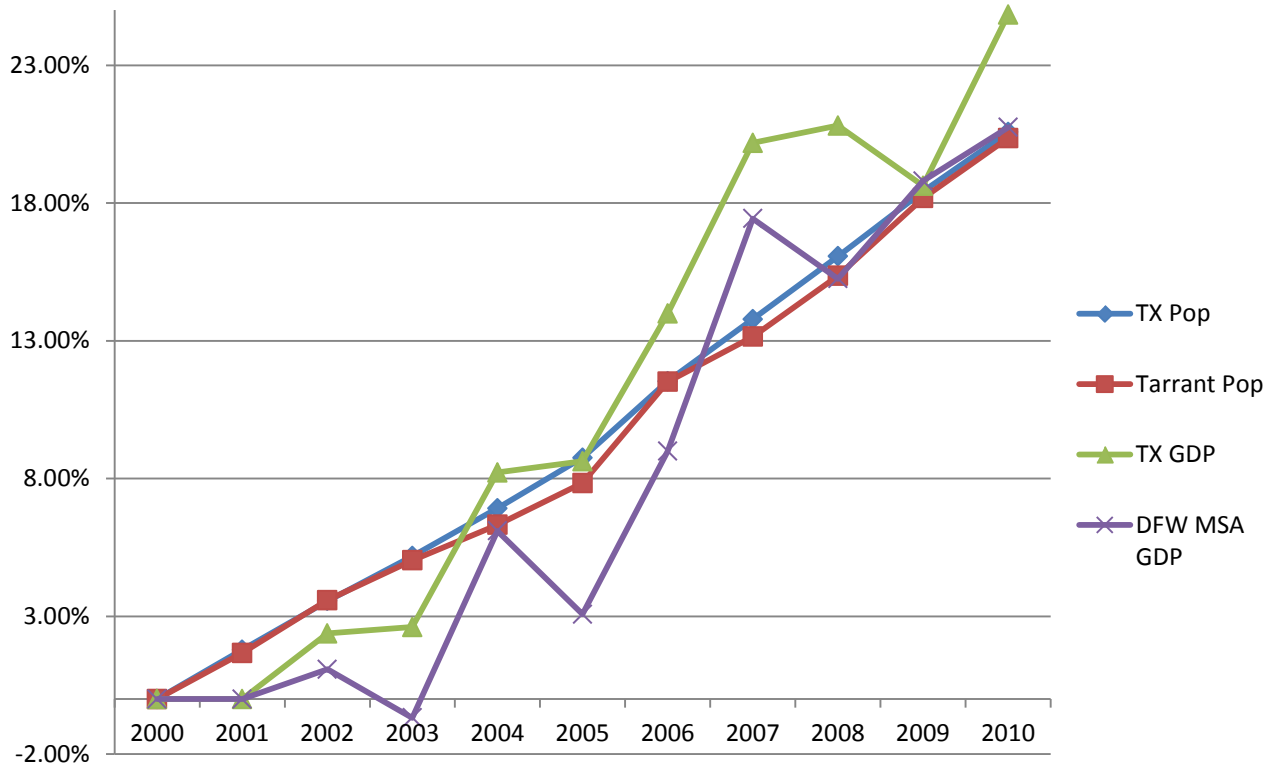
Source: U.S Department of Commerce Bureau of Economic Analysis.

When the growth index for population, CLF and GDP are compared for Texas, Tarrant County and the DFW MSA it becomes apparent how closely they track together over time. Growth for these three measures is about 20 percent higher than the base year, which also illustrates how closely these three measures are tied together.

The graph below illustrates the previous point that the Texas, Tarrant County and DFW MSA population and GDP grew at similar rates over the past decade. While population indices show a steady growth over time, GDP indices reflect the changes that occur in a more volatile and dynamic environment like the economy. The diverse economy in Texas is able to weather shocks to one or a few industry sectors and still remain viable. As one industry sheds workers and productivity, another is there to pick up some of those workers and productivity that was lost.

While taxable sales and revenues to the state may appear to rise due to a major event, the fact is that the Texas economy has been growing in terms of output and employment for many years now. Even during the recession the Texas economy was still growing relative to where it was earlier in the same decade, though that growth occurred at a slower rate. So, it is important to remember that the Texas economy has been on an upward trend. And in a state with steady population and civilian labor force growth, it's not hard to realize steady gains in output as well.

## Growth Index for Texas, Tarrant County and DFW MSA for Population and Real GDP (Population base year = 2000; Real GDP base year = 2001)



Source: U.S. Census Bureau and the U.S. Department of Commerce Bureau of Economic Analysis.

While Fort Worth and Tarrant County undoubtedly benefitted from hosting a major event, gauging that benefit within the backdrop of a growing economy can be challenging.

## II. Methodology

The METF statute requires the Comptroller's office to estimate the incremental increase in taxes for both the state and any municipality (or county) that contributes local matching funds. For the purposes of this analysis, staff attempted to determine if there was a measurable change in **state** taxes due to the event. This presents challenges for two primary reasons: the size and population of the state and the fact that taxes are remitted to the state based on receipts from 30-90 day periods, depending on the tax type. The incremental tax increase in the state due to an event in a large and dynamic tax system may not be readily distinguishable from incremental changes due to other factors.

Also, measuring the actual incremental tax increase produced as a result of a particular event with accuracy requires certain information that is not readily available. The primary determinants that would be required to accurately measure the incremental increase in taxes are:

- the number of out-of-state visitors;
- the length of stay for those visitors; and
- the expenditures per day for those visitors.

The incremental taxes attributable to the out-of-state fans for the event make up the majority of the estimate (approximately 65 to 75 percent of the total estimated incremental taxes).

Since the exact number of out-of-state visitors, length of stay, and expenditures per day is not known with certainty, our analysis relies on overall changes in tax collections to make an informed judgment as to whether the initial estimate was reasonable.

Incremental tax impact to the state, for these purposes, is estimated by gauging exogenous or out-of-state spending. It is assumed that all attendees have limited disposable income for entertainment, and that Texas residents would likely have chosen to spend their entertainment dollars at another Texas venue or event in the absence of the event in question. While it is impossible to track all out-of-state visitors and their spending habits, a noticeable increase in taxable sales points to a positive economic impact due to a major event. This analysis uses two methods for examining tax data.

Method 1 looks at the past 11 years of quarterly (or monthly) tax data to determine average collections for any given quarter (or month). Standard deviations are calculated and if collections for the period when the event occurred are beyond the average and standard deviation, it is assumed that an event must have pushed sales upward. The more the sales deviate from the average plus the standard deviation or outside the normal distribution, the stronger the indication of the magnitude of the impact.

Method 2 looks at only the quarter (or month) in question for the past 11 years (2002 to 2012). Based on sales subject to tax, average collections and standard deviations are calculated. Like the method described previously, if collections for the period when the event occurred are beyond the average and standard deviation, it is assumed that an event must have pushed sales upward. The magnitude of the impact can be gauged by measuring the amount of state taxes collected over the average plus the standard deviation.

The methodology used for this analysis focuses on direct taxes, since indirect and induced impacts are calculated using a dynamic modeling software package, and are dependent on the direct taxes.

The Comptroller's Office also ran statistical tests (Appendix B) on the three tax types that generated the most revenue which could be verified (Sales and Use, Hotel Occupancy, and



Mixed Beverage). The test indicated at the 99 percent confidence level, the amount subject to state tax was not normal during the period the event occurred and is statistically different from similar collections from the same time period in previous years. This statistical difference implies that the event was likely responsible for the difference in tax collection levels for the period.

### **Analysis**

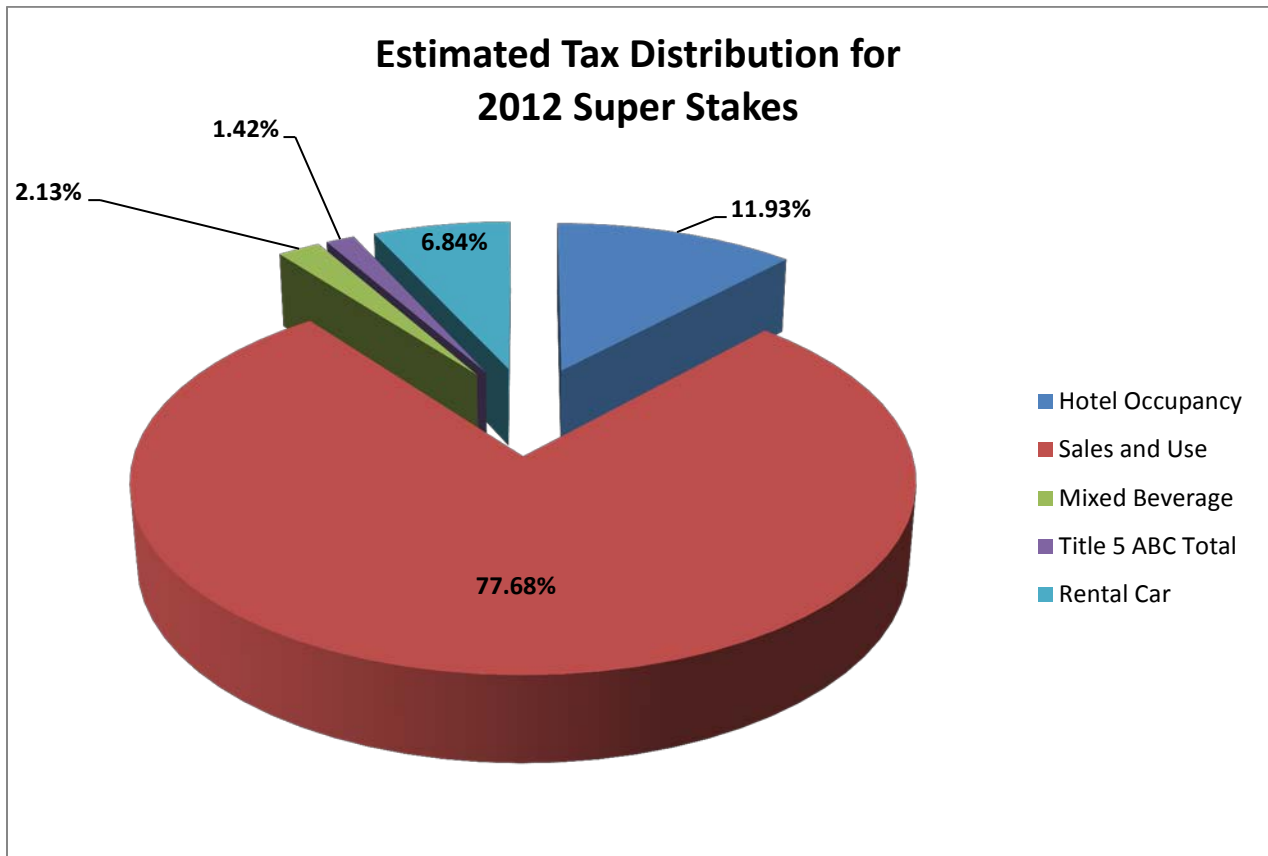
The METF statute requires that the Comptroller estimate the incremental tax increase that is expected for an event for five specific tax types:

1. Sales and Use Tax
2. Hotel Occupancy Tax
3. Rental Car tax
4. Mixed Beverage Tax
5. Title 5, Alcoholic Beverage Code tax

Of these 5 taxes, the estimate of general Sales and Use tax, Hotel Occupancy tax (HOT), and Mixed Beverage tax are the largest verifiable tax types. In the case of the event in question, the Sales and Use tax and the Mixed Beverage tax made up roughly 78 and 2 percent respectively, while the HOT made up approximately than 12 percent. Based on figures used for initial estimates, the Rental Car tax made up just less than 7 percent and the Title 5 Alcohol tax made up over 1 percent.

Rental car taxes are paid by rental car companies at the state-wide level and are not attributable to specific geographic locations. Title 5 Alcohol taxes make up a small percentage of the overall estimate and due to the small amount, any change due to a specific event is difficult to calculate. Due to these challenges involved and relatively minor amounts of rental car tax and Title 5 alcohol, this analysis uses initial estimates and does not attempt to quantify changes in these two tax types.

## II A Analysis—All Tax Types



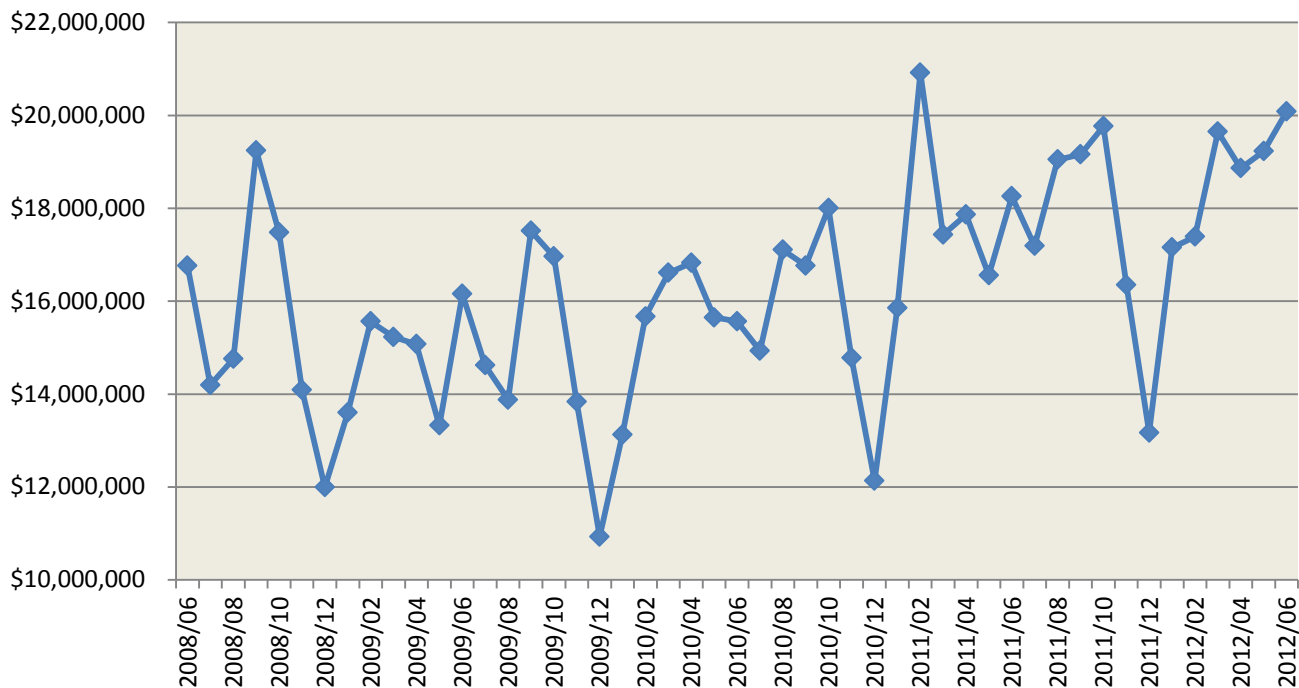
Source: Texas Comptroller of Public Accounts

The above chart illustrates that sales tax makes up the majority of additional estimated revenue to the state from major events. **Taxes collected from sales tax, mixed beverage tax, and hotel occupancy tax make up roughly 92 percent of the funds generated by the event for the 5 specific tax types that are addressed in the statute.**

## II B Analysis--Hotel Occupancy Tax:

The charts below depict HOT taxable receipts, mixed beverage tax allocations, and gross sales subject to state tax.

### Monthly Hotel Occupancy Taxable Receipts for Fort Worth



Source: Texas Comptroller of Public Accounts

This graph does not represent all monthly HOT receipts, but only those that are taxable. The dollar value that corresponds to any one month represents the HOT taxable receipts that are attributable to that month. This graph includes HOT taxable receipts for the event market area. The event in question took place from March 24 to April 16, 2012.

The average monthly HOT taxable receipts for this area from January 2002 to June 2012 were \$13,676,261 with a standard deviation of \$3,236,166. The peak in the graph represents taxable receipts of \$20,917,554 (February 2011), which is higher than any other month represented in this graph and going back to January 2002. The average taxable receipts plus the standard deviation is \$16,912,426, which is \$2,342,603 less than the average receipts for the months when the event occurred (March / April 2012).

Considering only March and April HOT receipts for Fort Worth from 2002 to 2012, the average amount subject to state tax was \$29,098,131 with a standard deviation of \$6,373,549. The average taxable receipts plus the standard deviation is \$35,471,680, which is \$3,029,879 less

than receipts during the month when the event occurred. This represents additional tax revenue of \$181,793 during this period.

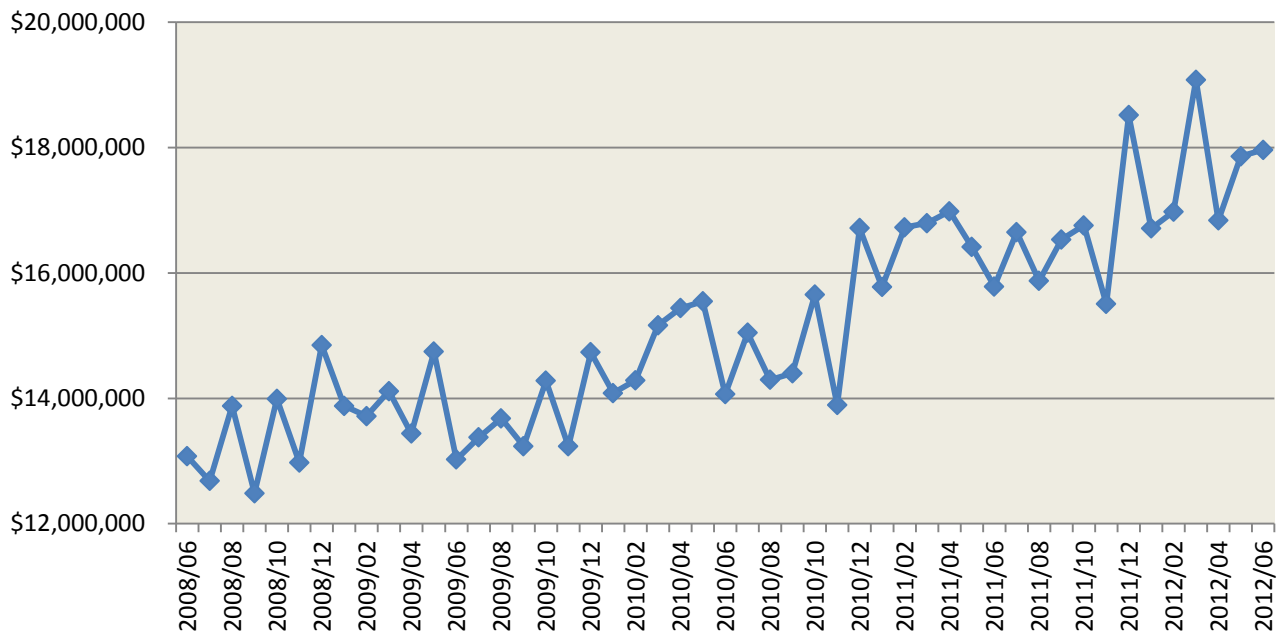
While an analysis of tax revenues might not tell how much of this spending came from out-of-state visitors, a comparison of other direct spending estimates, using different assumptions and methodologies, can help put these numbers into perspective. As stated previously, an analysis of additional HOT revenues to the state was estimated to be \$181,983. The initial pre-event estimate had predicted \$73,592 in additional HOT revenue, while a third-party post-event analysis estimated a direct spending impact to state HOT revenues of \$42,877.

Tax Type	Initial Estimate	Third-Party Post-Event
HOT	\$73,592	\$42,877

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

**II C Analysis--Mixed Beverage Tax:**

**Monthly Mixed Beverage Taxable Receipts for Fort Worth**



Source: Texas Comptroller of Public Accounts

This graph includes only historical mixed beverage taxable receipt amounts by calendar month. The monthly mixed beverage taxable amounts correspond to the month in which they were distributed. This graph includes amounts for Fort Worth.

The average monthly mixed beverage taxable receipts for this area, from January 2002 to June 2012, were \$12,368,538 with a standard deviation of \$2,732,606. The peak in the graph represents taxable receipts of \$19,081,802 (March 2012), which is higher than any other month going back to January 2002. The average monthly taxable receipts plus the standard deviation is \$15,101,144, which is \$2,857,866 less than the average monthly receipts during the two months when the event occurred (average of \$17,959,010 for March / April 2012).

The second method of analysis considered mixed beverage taxes for only the months when the event took place for Fort Worth from 2002 to 2012. The average receipts subject to tax, which are 14 percent of gross receipts, were \$3,557,568 with a standard deviation of \$860,395. The average taxable receipts plus the standard deviation is \$4,417,963 which is \$610,559 less than receipts during the month when the event occurred (\$5,028,523). The state gets roughly 79 percent of taxable receipts. This represents additional revenue of \$482,342 during the months of the event.

The second method of analysis of mixed beverage revenues estimated that the state received an additional \$482,342. The initial pre-event estimate had predicted \$13,148 in additional revenue, while a third-party post-event analysis estimated a direct spending impact to state revenues of \$31,074.

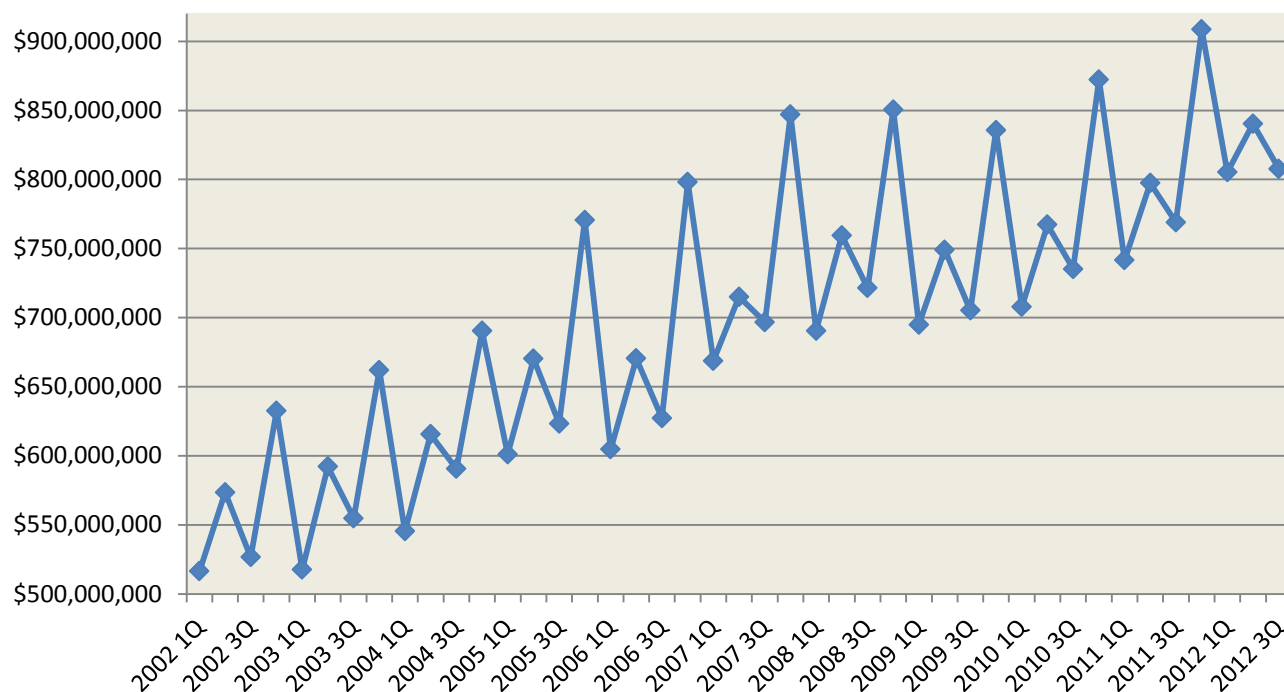
<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Mixed Beverage	\$13,148	\$31,112

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

#### **II D Analysis--Sales and Use Tax:**

The graph below is the sum of taxable sales within a subset of 2- and 3-digit North American Industry Classification System (NAICS) code categories applicable to major events in Texas. This graph includes taxable sales amounts for the event market area. The graph includes data only from holders of sales tax permits; businesses that sell only goods that are outside the sales tax base are not covered by these reports. A business that files yearly reports will show up only in a single quarter. The peak in this graph occurs in the 4<sup>th</sup> quarter of 2011.

## Quarterly Gross Sales Subject to State Tax in Fort Worth



Source: Texas Comptroller of Public Accounts

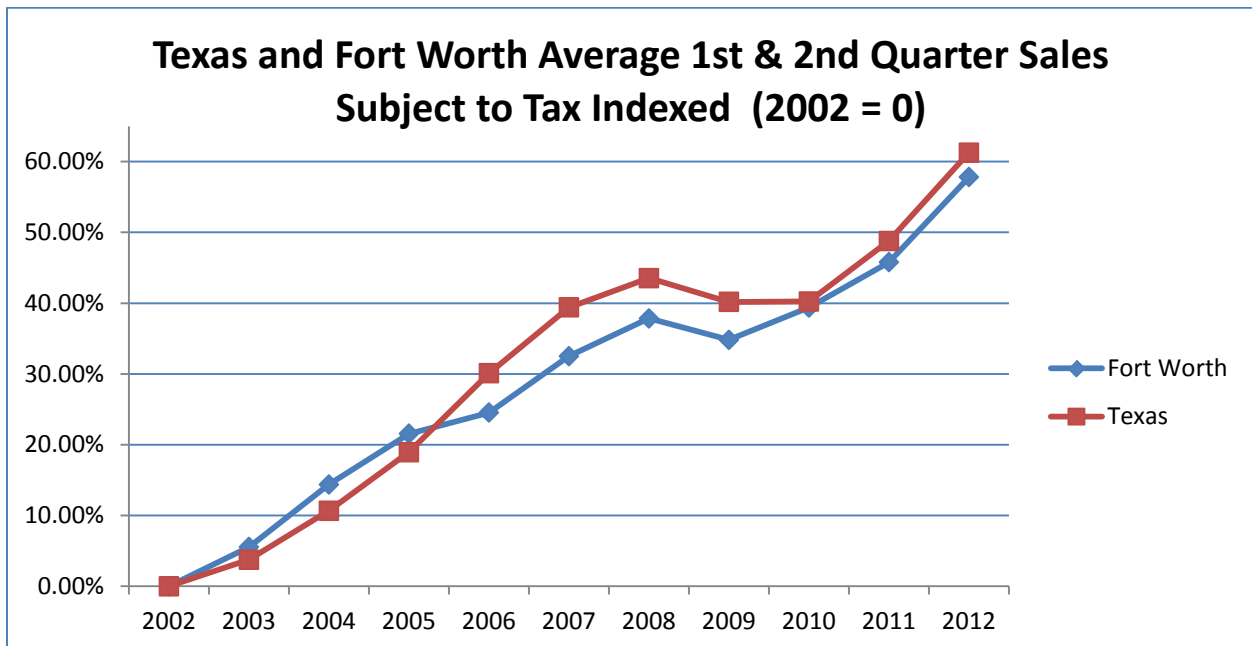
The average amount (reported quarterly) subject to sales tax for this area from 1Q 2002 to 3Q 2012 was \$699,282,585 with a standard deviation of \$103,399,955. The amount subject to sales tax in the quarters during when the event took place was \$822,814,113, which is \$20,131,573 more than the sum of the average amount subject to sales tax and the standard deviation.

The second method of analysis of sales tax data that looks at only the first two quarters of each year illustrates a slightly different picture. Average collections subject to sales taxes for the industries mentioned above for the first two quarters of each year (from 2002 to 2012) were averaged. Average collections subject to sales taxes for the first two quarters were \$1,349,471,842 with a standard deviation of \$182,104,419. The average plus the standard deviation is \$1,531,576,261. Collections subject to sales taxes for the first two quarters of 2012 were \$1,645,628,225, which is \$114,051,964 more than the average plus the standard deviation. At the state sales tax rate (6.25%), this amounts to an additional \$7,128,248 to the state as a result of increased sales.

While there clearly was increased sales tax revenue collected during the same time an event occurred in a given area, the increase is almost certainly not all due to one major occurrence (see section below titled "Texas and Fort Worth Average 1<sup>st</sup> & 2<sup>nd</sup> Quarter Sales Subject to Tax Indexed, 2002 = 0"). This method of analysis estimates that the state of Texas received \$7,128,248 additional sales tax dollars from the event market area during the first two quarters of 2012. A pre-event analysis estimated that the state would receive an additional \$479,207 in

sales and use tax due to the event, while a third-party post-event analysis estimated a direct spending impact to state revenues of \$431,255.

Tax Type	Initial Estimate	Third-Party Post-Event
Sales and Use	\$479,207	\$431,255



Source: Texas Comptroller of Public Accounts

The graph above illustrates that averaged first and second quarter taxable sales in Fort Worth and the state as a whole were growing at comparable rates using 2002 as a base year. In fact, from 2003 through 2005, Fort Worth’s taxable sales subject to sales and use tax actually grew at a faster rate than Texas’. While the growth in taxable sales and corresponding tax revenue might seem uncharacteristically large for Fort Worth, the rest of the state was also experiencing this same growth.

The second method used to analyze the impact of the event that estimated a drastic jump in state revenues during the first two quarters of 2012 can partially be explained by an overall growth in taxable sales in the state of Texas. Fort Worth and Tarrant County host many events during a given quarter, and more people from in-state and out-of-state spending their dollars at these events push tax collections up. Coupled with an overall increase in taxable sales, endogenous and exogenous spending can appear to have an even greater impact on state tax revenues.

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

### **II E Analysis--Rental Car Tax:**

The state of Texas imposes a tax on motor vehicle rentals, but the rate is based on the length of the rental contract. For contracts of 1-30 days, the state rate is 10 percent of gross receipts less discount and separately stated fees for insurance, fuel, and damage assessments.

Unlike the other tax types, rental car tax is not reported to the Comptroller by location address. For example, if a corporate taxpayer has multiple locations in the state, they file one return for all gross rental tax. Taxpayers do not report to the Comptroller's Office based on location and the Comptroller's Office does not permit the taxpayer based on each location. For this reason, an examination of this tax type by location provides no useful data for these analyses.

In order to provide a complete estimate of direct-spending tax revenue from this tax type, the CPA initial estimate number was used for this post-event analysis. A third-party post-event analysis estimated a direct spending impact to state revenues of \$9,106.

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Rental Car	\$42,172	\$9,106

### **II F Analysis--Title V Alcoholic Beverage Code Tax:**

The state of Texas also imposes a tax on the amount of alcohol that manufacturers sell to retail establishments. The tax rate varies by class on the amount of alcoholic content of beverages by class per gallon. Distilled spirits are taxed at the highest rate at \$2.40 per gallon, while beer that is 4% alcohol content and lower is taxed at \$0.193548 per gallon.

While wholesalers are not reporting wholesale alcohol sales by location, they do submit how much volume they sold to retail establishments. Determining how much volume each retail establishment in the event market area purchased for each class of alcohol, then deriving how much tax was paid based on the volume and class would be extensive. Therefore, given how much state revenue is derived from this tax type (less than one-half of one-percent of the total of all taxes collected for this analysis) comparative to the other tax types, for the purpose of this analysis, the initial estimate was used. A third-party post-event analysis did not attempt to estimate direct spending impact to state revenues from this tax type.

<b>Tax Type</b>	<b>Initial Estimate</b>
Title V ABC Tax	\$8,766



### III. Conclusion

#### 1. Third-Party Post-Event Analysis

Post event analysis conducted by a third-party vendor estimated economic impact based on direct spending and multiplier effects. Based on their analysis, they estimated that the total impact to the state of Texas was **\$514,350** in additional state tax revenues.

#### 2. Comptroller Analysis

The Comptroller estimate of **direct impact** prior to the event was **\$616,885**.

Comptroller data suggest that the Fort Worth metro area experienced increased economic activity during the event. The precise state share of this increased economic activity due to out-of-state consumption is unknown given the inability of available data to identify the amount contributed directly from out-of-state visitors. Additionally, it is worth noting that while a large metropolitan area that hosts a large event will almost certainly see a noticeable increase in tax revenues, the additional revenues are not as identifiable with smaller events such as this one. That being said, the amount of additional tax revenue the state received from the major tax types does exceed the initial estimates. **This office concludes that the initial estimate of direct, indirect, and induced tax impact of \$982,779 is reasonable based on the tax increases that occurred in the market area during the period in which the event occurred.**

## APPENDIX A

The tables below show the various tax types and the additional revenue amount estimates for the Super Stakes. The first table illustrates the three largest verifiable tax revenue generators and the amount estimated by three different analyses. The last three tables show the analysis of additional revenue to the state from all 5 tax types as estimated by three different methods.

Tax Type	Initial Estimate	1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)	Third-Party Post-Event
Sales and Use	\$479,207	\$7,128,248	\$431,255
HOT	\$73,592	\$181,793	\$42,877
Mixed Beverage	\$13,148	\$482,342	\$31,112
<b>Total</b>	<b>\$565,947</b>	<b>\$7,792,383</b>	<b>\$504,181</b>

Initial Analysis (Pre-event)		
Tax Type	State Share of Tax	Percent of Total
1. Sales and Use Tax	\$479,207	77.68%
2. Hotel Occupancy Tax	\$73,592	11.93%
3. Rental Car tax	\$42,172	6.84%
4. Mixed Beverage Tax	\$13,148	2.13%
5. Title 5, Alcoholic Beverage Code tax	\$8,766	1.42%
<b>Total</b>	<b>\$616,885</b>	<b>100%</b>

Third-Party Post-Event Analysis		
Tax Type	State Share of Tax	Percent of Total
Sales and Use Tax	\$431,255	83.84%
HOT	\$42,877	8.34%
Rental Car	\$9,106	1.77%
Mixed Bev	\$31,112	6.05%
Title 5 Alcohol	NA	0.0%
<b>Total</b>	<b>\$514,350</b>	<b>100%</b>

<b>1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)</b>		
<b>Tax Type</b>	<b>State Share of Tax</b>	<b>Percent of Total</b>
1. Sales and Use Tax	\$7,128,248	90.88%
2. Hotel Occupancy Tax	\$181,793	2.32%
3. Rental Car tax*	\$42,172	0.54%
4. Mixed Beverage Tax**	\$482,342	6.15%
5. Title 5, Alcoholic Beverage Code tax*	\$8,766	0.11%
<b>Total</b>	<b>\$7,843,321</b>	<b>100%</b>

\*Initial estimate used due to how this tax is reported. See "Analysis" section (II E and II F) for further explanation.

\*\*State share was derived using Gross Collections for March & April (2002-12); not quarterly

Historical averages and standard deviations were calculated and subtracted from 2012 actual figures. The tax rate was then applied to the difference to arrive at the "State Share of Sales Tax" figure.

## APPENDIX B

Given the historical amount subject to state tax, is it statistically feasible that the event caused the observed increase in taxable sales? A single sample test of hypothesis was conducted to answer this question. The steps used in conducting these tests for each tax type are as follows:

### Sales and Use Tax:

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the amount subject to state tax in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the amount subject to state tax in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>2</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

Sales and Use Tax	Are observed tax collections statistically probable?	Using Nominal Values
Hypothesis	Null (Ho)	$\mu = \$1.6 \text{ Billion}$
	Alternative (Ha)	$\mu \text{ not } = \$1.6 \text{ Billion}$
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	$t^* < -3.169$
		$t^* > 3.169$
Estimated t =	t*	5.3938
Action (result)		Reject Ho
<p><b>Based on the test, the actual collections subject to state tax for the period in question is not statistically probable. This means that the sales and use tax collected for the period is not normally seen given historical data.</b></p>		

<sup>2</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.

**Hotel Occupancy Tax (HOT):**

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the amount subject to state tax in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the amount subject to state tax in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>3</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

<b>Hotel Occupancy Tax (HOT)</b>	<b>Are observed tax collections statistically probable?</b>	Using Nominal Values
Hypothesis	Null (Ho)	u = \$38.5 Million
	Alternative (Ha)	u not = \$38.5 Million
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	t* < -3.169
		t* > 3.169
Estimated t =	t*	4.8933
Action (result)		Reject Ho
<b>Based on the test, the actual collections subject to state tax for the period in question is not statistically probable. This means that the hotel occupancy tax collected for the period is not normally seen given historical data.</b>		

<sup>3</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.

### Mixed Beverage Tax:

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the state share of gross receipts in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the state share of gross receipts in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>4</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

Mixed Beverage Tax	Are observed tax collections statistically probable?	Using Nominal Values
Hypothesis	Null (Ho)	$\mu = \$4$ Million
	Alternative (Ha)	$\mu \neq \$4$ Million
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	$t^* < -3.169$
		$t^* > 3.169$
Estimated t =	t*	5.6702
Action (result)		Reject Ho
<b>Based on the test, the state share of gross receipts for the period in question is not statistically probable. This means that the state share of gross receipts for the mixed beverage tax for the period is not normally seen given historical data.</b>		

<sup>4</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.

**Cover Sheet**

**Event:** 2012 National Cutting Horse Association (NCHA) SUMMER SPECTACULAR

**Date:** July 9 – August 6, 2012

**Location:** Fort Worth, Texas

**Report Date:** February 2014

## Post Event Analysis

### 2012 National Cutting Horse Association (NCHA) SUMMER SPECTACULAR – Fort Worth, Texas

#### I. Introduction

This post-event analysis is intended to evaluate the short-term tax benefits to the state through review of tax revenue data to determine the level of incremental tax impact to the state of Texas from the event. A primary purpose of this analysis is to determine the reasonableness of the initial incremental tax estimate made by the Comptroller's office prior to the event. The initial estimate is included in Appendix A.

Determining the tax impact of the **2012 National Cutting Horse Association (NCHA) Triple Crown of Cutting - SUMMER SPECTACULAR** is affected by the timing of the event, which coincides with the recovery from the economic recession. The agency's analysis shows that the sales and use tax increases in the market area were higher than the statistical model would have predicted, as well as higher than the percentage statewide increases. While some of this increase is certainly due to the event, it also appears that some of the increase was due to other factors, most likely the economic rebound.

Determining the tax impact from an event is dependent upon how many out-of-state participants and visitors attend the event. The tax type that is the largest contributor to the economy is the sales and use tax, but the Hotel Occupancy Tax (HOT) tax most likely is the best indicator of how many out of market and out-of-state visitors an event may have attracted.

An assessment of July HOT revenues from 2002 to 2012 shows that the state received \$128,128 above-average tax collections (including adjustments for atypical fluctuations that periodically occur over any given period). A post-event study provided by the event organizer estimated that 5,100 out-of-state visitors attended the event. The agency conducted a simple analysis to determine the reasonableness of the reported out-of-state attendee number, using the following assumptions:

1. Each room would cost an average of roughly \$105 per day; and
2. There were 8,483 room nights paid for by out-of-state participants and visitors (the event was a total of 21 days).

This simple analysis yields an amount of approximately \$53,443 in additional taxes to the state ((number of room nights X average room rate) X state HOT rate). While this amount is less than the initial estimate, it is also significantly less than the actual increase of state HOT taxes for the event months.

While it is impossible to attribute increased economic activity to event participants and attendees given the data readily available to the Comptroller's Office, it is reasonable to assume



that they did contribute some amount to the overall increase, and provides credence to the third party estimate of 5,100 out-of-state visitors.

Considering the attendance figure from the third-party study and actual observed HOT data, it could be inferred that the event host city experienced positive economic activity due to this event. However, it is unknown:

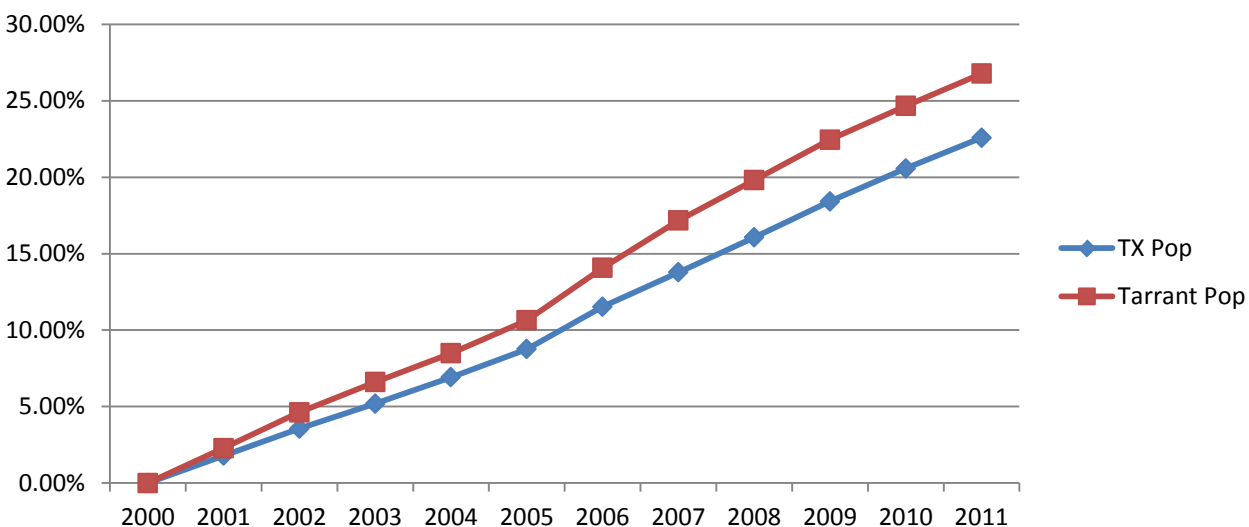
- how much each of these out-of-state visitors spent;
- how many nights they stayed; and thus
- exactly how much they contributed to observed increases in tax revenues to the state from attending the event.

While the above example using actual HOT tax receipts provides a reasonable assessment that the event performed in line with expectations, the agency also performed additional analysis' on the various state taxes to further study the tax performance during the event period.

### Overview of the Local Economy

While the rest of the United States was falling into a recession, the state of Texas was weathering the economic downturn better than most. Buoyed by the oil and gas industry and avoiding the housing crisis made Texas more economically viable than other states. Due in part to these and other factors, Texas experienced solid population growth over the past decade.

### Texas and Tarrant County Indexed Population Growth, 2000 = Base Year



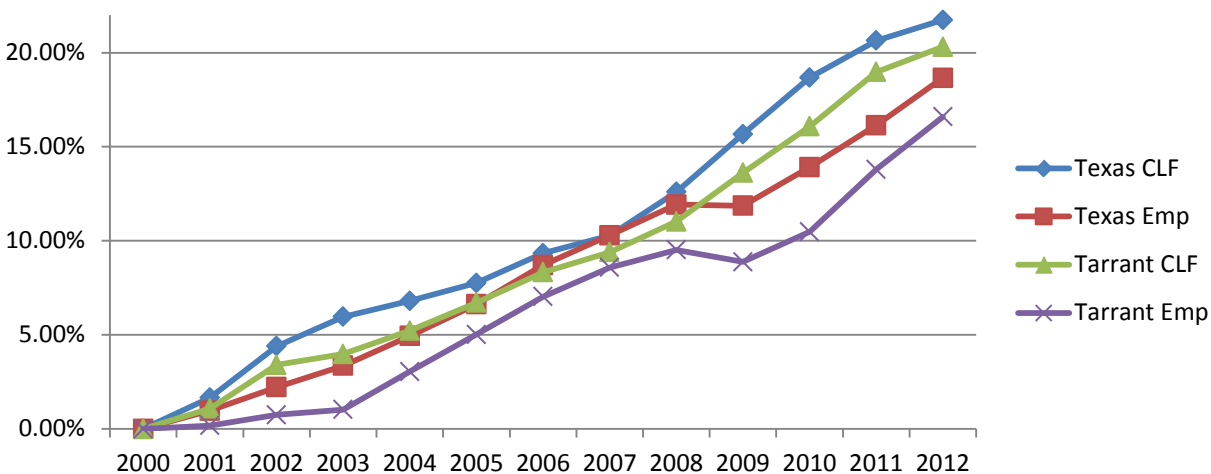
Source: U.S. Census Bureau.

From 2000 to 2011, Texas' population grew at an average of roughly two percent per year. By 2011, the Texas and Tarrant County populations had grown by 22.58 and 26.79 percent,

respectively, from their levels in 2000. The graph below illustrates that Texas and Tarrant County populations grew at a steady pace at almost the same rate for the past twelve years. And, as the population grew, more working state residents contributed to the Texas economy.

The growing population created an expanding Civilian Labor Force (CLF) and more employed people in Texas and Tarrant County. According to the Texas Workforce Commission, from 2000 to 2012, the CLF in Texas and Tarrant County had grown by 21.74 and 20.32 percent respectively. While the number of employed persons didn't keep pace with the CLF, from 2000 to 2012, employed persons in Texas and Tarrant County grew by 18.66 and 16.6 percent respectively. The graph below illustrates that the growth rates of Texas and Tarrant County CLF and employed track very close to each other. Only once during this period did the number of employed persons experience slower growth, which occurred between 2008 and 2009. The growing population and CLF provided some additional fuel to the economic engine of Texas.

### Texas and Tarrant County Civilian Labor Force (CLF) and Employment Growth Index, 2000 = Base Year



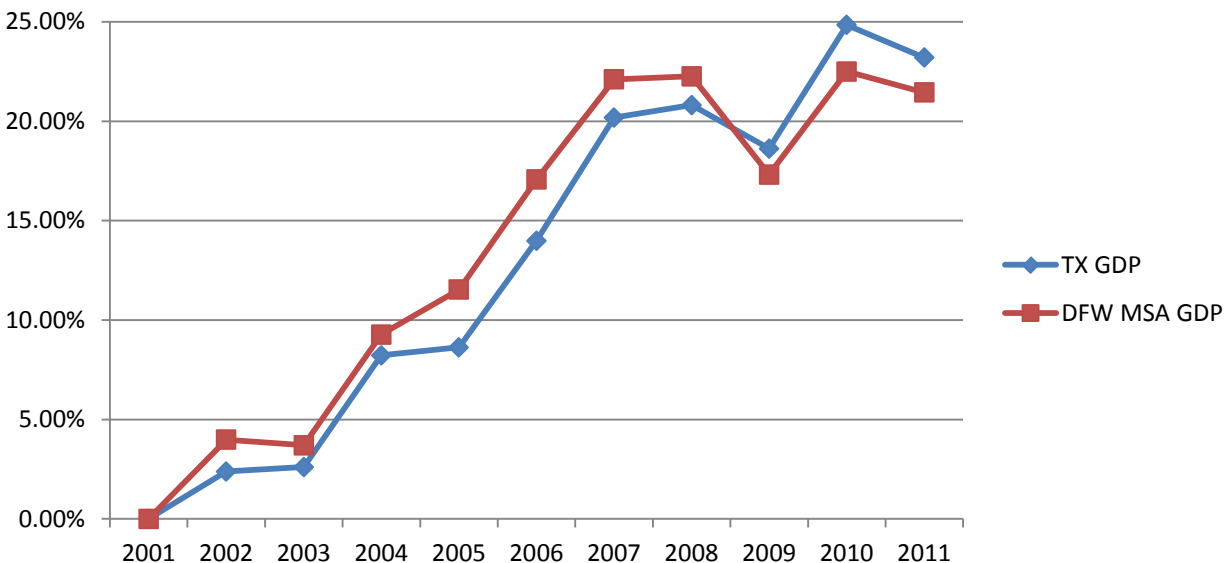
Source: U.S. Bureau of Labor Statistics

One measure of output for a state or local government area is Gross State Product (GSP) or Gross Regional Product (GRP). This is a measure of all of the value added by industries within the geographic area and is a counterpart to Gross Domestic Product (GDP)<sup>1</sup>. As the population increases and more people go to work for various industries, output grows and so does the corresponding measure of GDP. The graph below illustrates that industry output in Texas and the Dallas-Fort Worth-Arlington (DFW) Metropolitan Statistical Area (MSA) has been on an

<sup>1</sup> For the purposes of this discussion, GSP and GRP will be referred to as GDP for the state and local area.

upward trend for the past decade. While Texas and the DFW MSA experienced a few years of slower growth in output, overall growth in industrial output over this period has been similar to growth in population and CLF.

### Texas and DFW Metropolitan Statistical Area Real GDP (2005 Chained Dollars) Growth Index, 2001 = Base Year



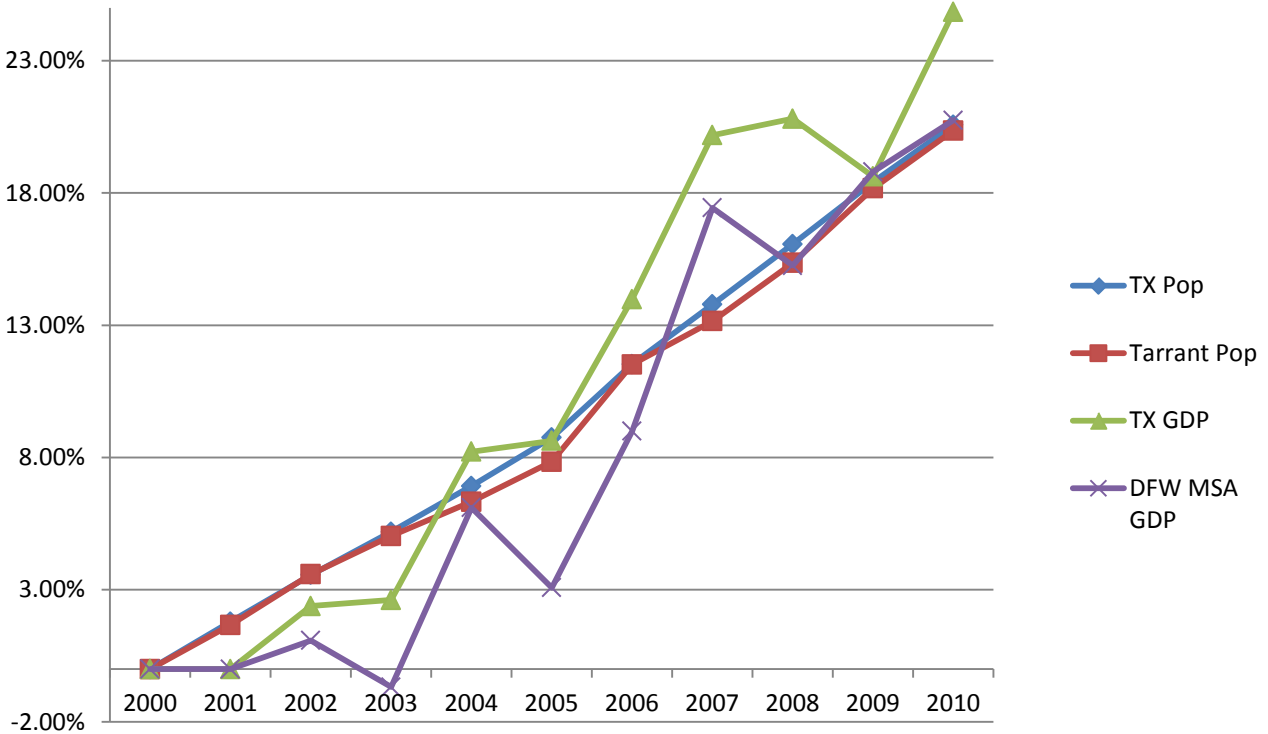
Source: U.S Department of Commerce Bureau of Economic Analysis.

When the growth index for population, CLF and GDP are compared for Texas, Tarrant County and the DFW MSA it becomes apparent how closely they track together over time. Growth for these three measures is about 20 percent higher than the base year, which also illustrates how closely these three measures are tied together.

The graph below illustrates the previous point that the Texas, Tarrant County and DFW MSA population and GDP grew at similar rates over the past decade. While population indices show a steady growth over time, GDP indices reflect the changes that occur in a more volatile and dynamic environment like the economy. The diverse economy in Texas is able to weather shocks to one or a few industry sectors and still remain viable. As one industry sheds workers and productivity, another is there to pick up some of those workers and productivity that was lost.

While taxable sales and revenues to the state may appear to rise due to a major event, the fact is that the Texas economy has been growing in terms of output and employment for many years now. Even during the recession the Texas economy was still growing relative to where it was earlier in the same decade, though that growth occurred at a slower rate. So, it is important to remember that the Texas economy has been on an upward trend. And in a state with steady population and civilian labor force growth, it's not hard to realize steady gains in output as well.

## Growth Index for Texas, Tarrant County and DFW MSA for Population and Real GDP (Population base year = 2000; Real GDP base year = 2001)



Source: U.S. Census Bureau and the U.S. Department of Commerce Bureau of Economic Analysis.

While Fort Worth and Tarrant County undoubtedly benefitted from hosting a major event, gauging that benefit within the backdrop of a growing economy can be challenging.

## II. Methodology

The METF statute requires the Comptroller's office to estimate the incremental increase in taxes for both the state and any municipality (or county) that contributes local matching funds. For the purposes of this analysis, staff attempted to determine if there was a measurable change in **state** taxes due to the event. This presents challenges for two primary reasons: the size and population of the state and the fact that taxes are remitted to the state based on receipts from 30-90 day periods, depending on the tax type. The incremental tax increase in the state due to an event in a large and dynamic tax system may not be readily distinguishable from incremental changes due to other factors.

Also, measuring the actual incremental tax increase produced as a result of a particular event with accuracy requires certain information that is not readily available. The primary determinants that would be required to accurately measure the incremental increase in taxes are:

- the number of out-of-state visitors;
- the length of stay for those visitors; and
- the expenditures per day for those visitors.

The incremental taxes attributable to the out-of-state fans for the event make up the majority of the estimate (approximately 65 to 75 percent of the total estimated incremental taxes).

Since the exact number of out-of-state visitors, length of stay, and expenditures per day is not known with certainty, our analysis relies on overall changes in tax collections to make an informed judgment as to whether the initial estimate was reasonable.

Incremental tax impact to the state, for these purposes, is estimated by gauging exogenous or out-of-state spending. It is assumed that all attendees have limited disposable income for entertainment, and that Texas residents would likely have chosen to spend their entertainment dollars at another Texas venue or event in the absence of the event in question. While it is impossible to track all out-of-state visitors and their spending habits, a noticeable increase in taxable sales points to a positive economic impact due to a major event. This analysis uses two methods for examining tax data.

Method 1 looks at the past 11 years of quarterly (or monthly) tax data to determine average collections for any given quarter (or month). Standard deviations are calculated and if collections for the period when the event occurred are beyond the average and standard deviation, it is assumed that an event must have pushed sales upward. The more the sales deviate from the average plus the standard deviation or outside the normal distribution, the stronger the indication of the magnitude of the impact.

Method 2 looks at only the quarter (or month) in question for the past 11 years (2002 to 2012). Based on sales subject to tax, average collections and standard deviations are calculated. Like the method described previously, if collections for the period when the event occurred are beyond the average and standard deviation, it is assumed that an event must have pushed sales upward. The magnitude of the impact can be gauged by measuring the amount of state taxes collected over the average plus the standard deviation.

The methodology used for this analysis focuses on direct taxes, since indirect and induced impacts are calculated using a dynamic modeling software package, and are dependent on the direct taxes.

The Comptroller's Office also ran statistical tests (Appendix B) on the three tax types that generated the most revenue which could be verified (Sales and Use, Hotel Occupancy, and

Mixed Beverage). The test indicated at the 99 percent confidence level, the amount subject to state tax was not normal during the period the event occurred and is statistically different from similar collections from the same time period in previous years. This statistical difference implies that the event was likely responsible for the difference in tax collection levels for the period.

### **Analysis**

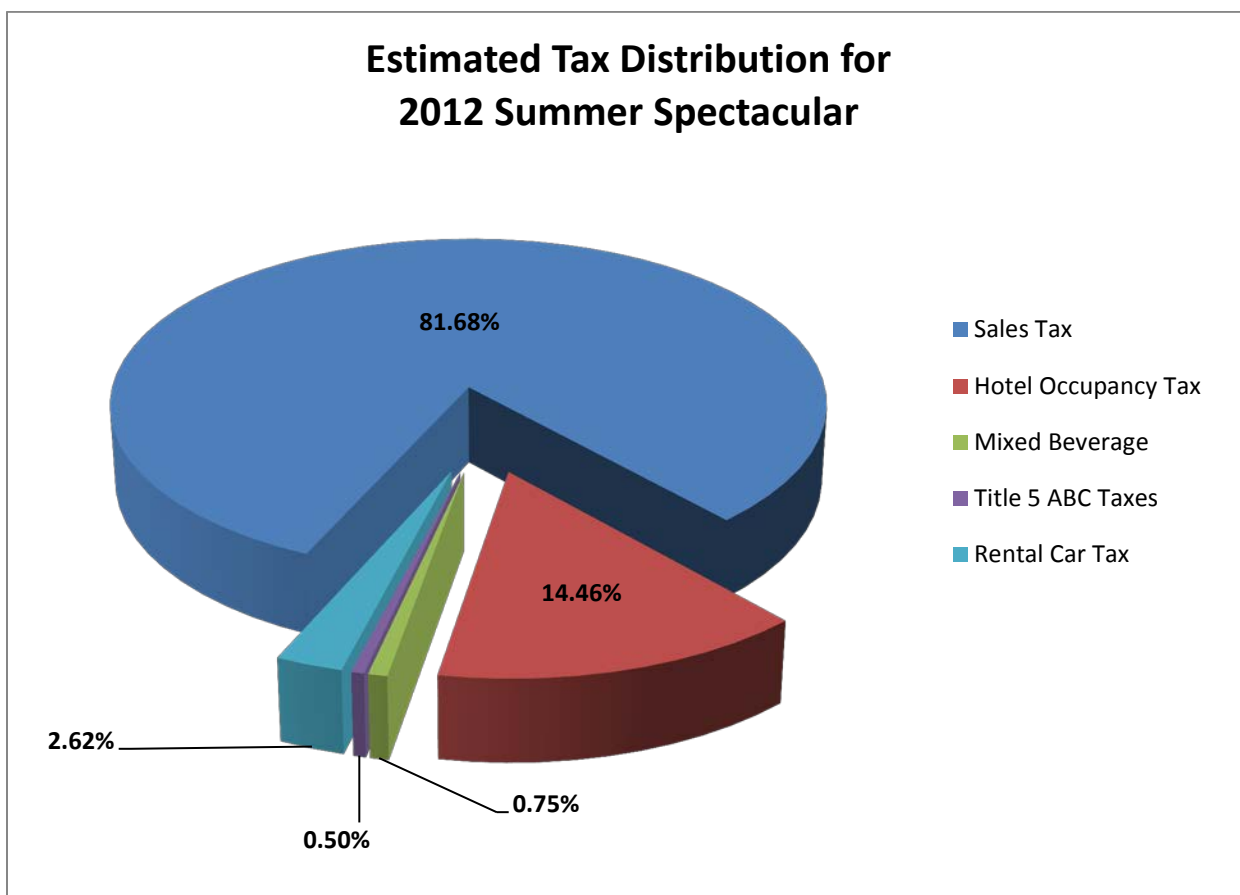
The METF statute requires that the Comptroller estimate the incremental tax increase that is expected for an event for five specific tax types:

1. Sales and Use Tax
2. Hotel Occupancy Tax
3. Rental Car tax
4. Mixed Beverage Tax
5. Title 5, Alcoholic Beverage Code tax

Of these 5 taxes, the estimate of general Sales and Use tax, Hotel Occupancy tax (HOT), and Mixed Beverage tax are the largest verifiable tax types. In the case of the event in question, the Sales and Use tax and the Mixed Beverage tax made up roughly 82 and 1 percent respectively, while the HOT made up approximately than 14 percent. Based on figures used for initial estimates, the Rental Car tax made up just less than 3 percent and the Title 5 Alcohol tax made up slightly less than 1 percent.

Rental car taxes are paid by rental car companies at the state-wide level and are not attributable to specific geographic locations. Title 5 Alcohol taxes make up a small percentage of the overall estimate and due to the small amount, any change due to a specific event is difficult to calculate. Due to these challenges involved and relatively minor amounts of rental car tax and Title 5 alcohol, this analysis uses initial estimates and does not attempt to quantify changes in these two tax types.

## II A Analysis—All Tax Types



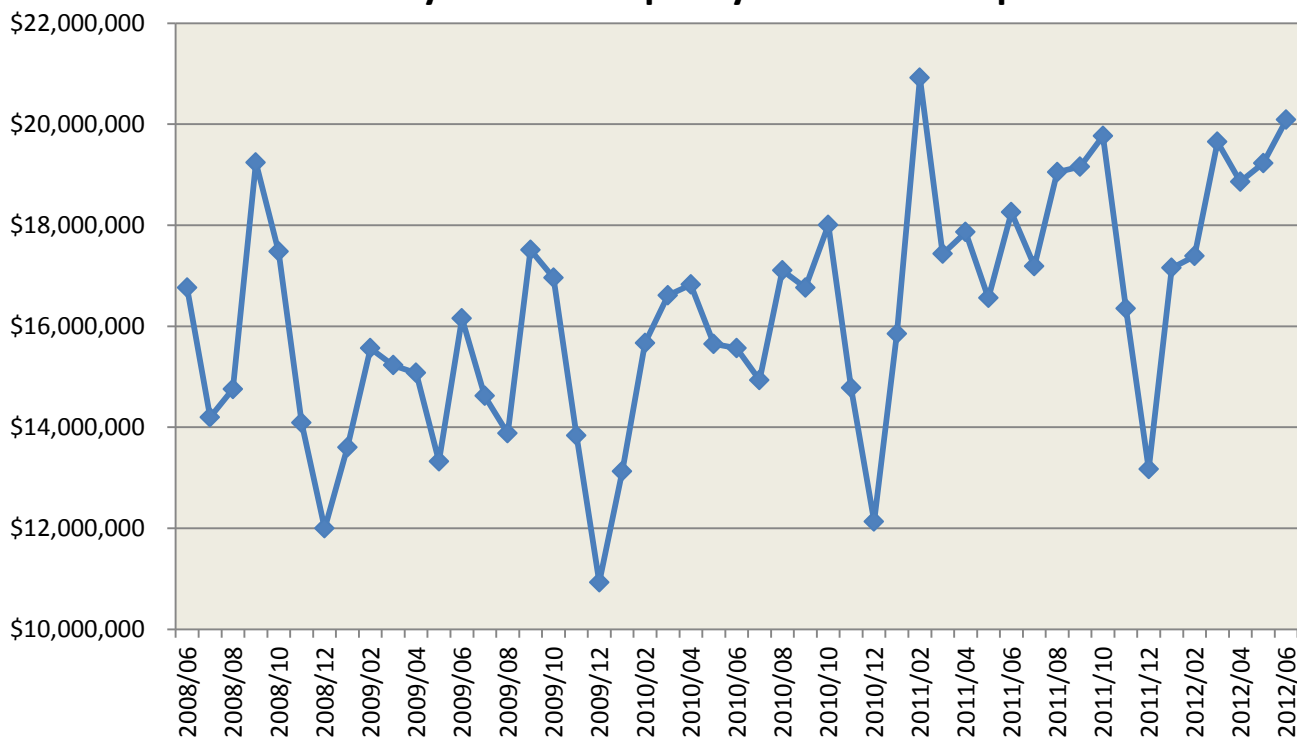
Source: Texas Comptroller of Public Accounts

The above chart illustrates that sales tax makes up the majority of additional estimated revenue to the state from major events. **Taxes collected from sales tax, mixed beverage tax, and hotel occupancy tax make up roughly 97 percent of the funds generated by the event for the 5 specific tax types that are addressed in the statute.**

## II B Analysis--Hotel Occupancy Tax:

The charts below depict HOT taxable receipts, mixed beverage tax allocations, and gross sales subject to state tax.

### Monthly Hotel Occupancy Taxable Receipts for Fort Worth



Source: Texas Comptroller of Public Accounts

This graph does not represent all monthly HOT receipts, but only those that are taxable. The dollar value that corresponds to any one month represents the HOT taxable receipts that are attributable to that month. This graph includes HOT taxable receipts for the event market area. The event in question took place from July 9 to August 6, 2012.

The average monthly HOT taxable receipts for this area from January 2002 to September 2012 were \$13,802,137 with a standard deviation of \$3,301,565. The peak in the graph represents taxable receipts of \$20,917,554 (February 2011), which is higher than any other month represented in this graph and going back to January 2002. The average taxable receipts plus the standard deviation is \$17,103,702 which is \$1,861,561 less than the average receipts for the months when the event occurred (July and August 2012).

Considering only July HOT receipts for Fort Worth from 2002 to 2012, the average amount subject to state tax was \$13,620,734 with a standard deviation of \$2,886,958. The average taxable receipts plus the standard deviation is \$16,507,692, which is \$2,135,469 less than



receipts during the July 2012 (\$18,643,161) when the event occurred. This represents additional tax revenue of \$128,128 during this period.

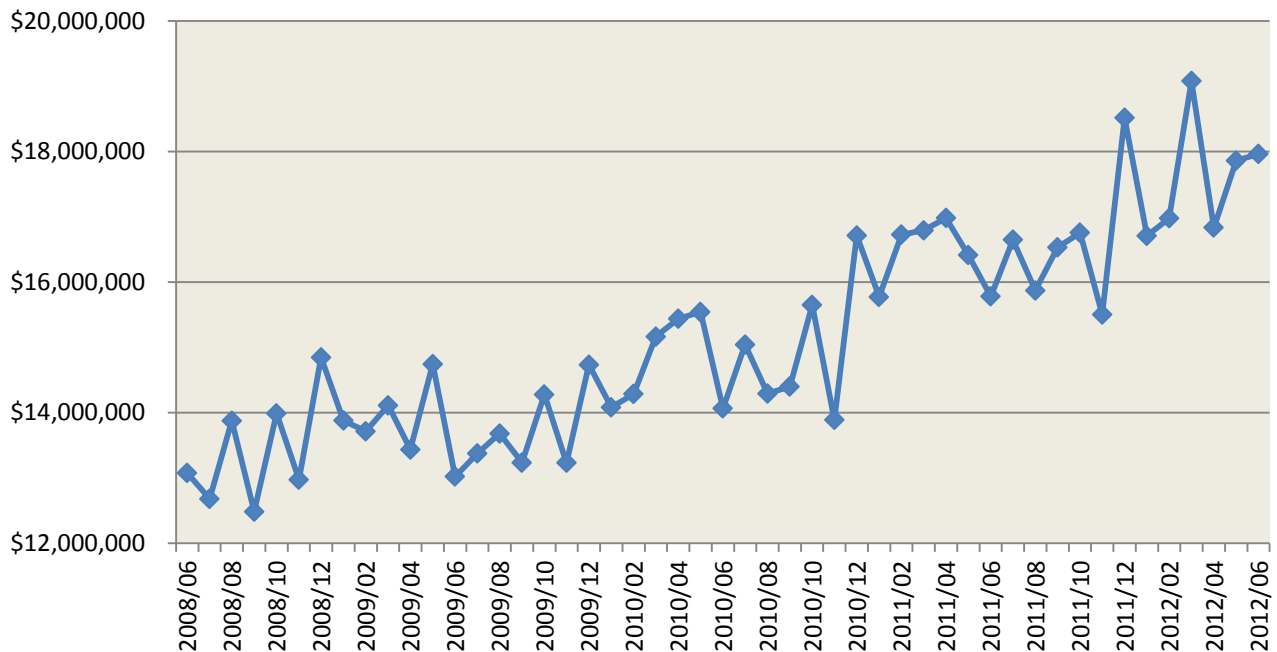
While an analysis of tax revenues might not tell how much of this spending came from out-of-state visitors, a comparison of other direct spending estimates, using different assumptions and methodologies, can help put these numbers into perspective. As stated previously, an analysis of additional HOT revenues to the state was estimated to be \$128,128. The initial pre-event estimate had predicted \$105,111 in additional HOT revenue, while a third-party post-event analysis estimated a direct spending impact to state HOT revenues of \$57,819

Tax Type	Initial Estimate	Third-Party Post-Event
HOT	\$105,111	\$57,819

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

**II C Analysis--Mixed Beverage Tax:**

**Monthly Mixed Beverage Taxable Receipts for Fort Worth**



Source: Texas Comptroller of Public Accounts

This graph includes only historical mixed beverage taxable receipt amounts by calendar month. The monthly mixed beverage taxable amounts correspond to the month in which they were distributed. This graph includes amounts for Fort Worth.

The average monthly mixed beverage taxable receipts for this area, from January 2002 to June 2012, were \$12,486,518 with a standard deviation of \$2,808,907. The peak in the graph represents taxable receipts of \$19,081,802 (March 2012), which is higher than any other month going back to January 2002. The average monthly taxable receipts plus the standard deviation is \$15,295,425, which is \$1,292,107 less than the receipts during July 2012 when the event occurred (\$16,587,532 for July 2012).

The second method of analysis considered mixed beverage taxes for only the months when the event took place for Fort Worth from 2002 to 2012. The average receipts subject to tax, which are 14 percent of gross receipts, were \$1,740,582 with a standard deviation of \$396,614. The average taxable receipts plus the standard deviation is \$2,137,196 which is \$185,058 less than receipts during the month when the event occurred (\$2,322,254). The state gets roughly 79 percent of taxable receipts. This represents additional revenue of \$146,196 during the months of the event.

The second method of analysis of mixed beverage revenues estimated that the state received an additional \$146,196. The initial pre-event estimate had predicted \$5,421 in additional revenue, while a third-party post-event analysis estimated a direct spending impact to state revenues of \$32,264.

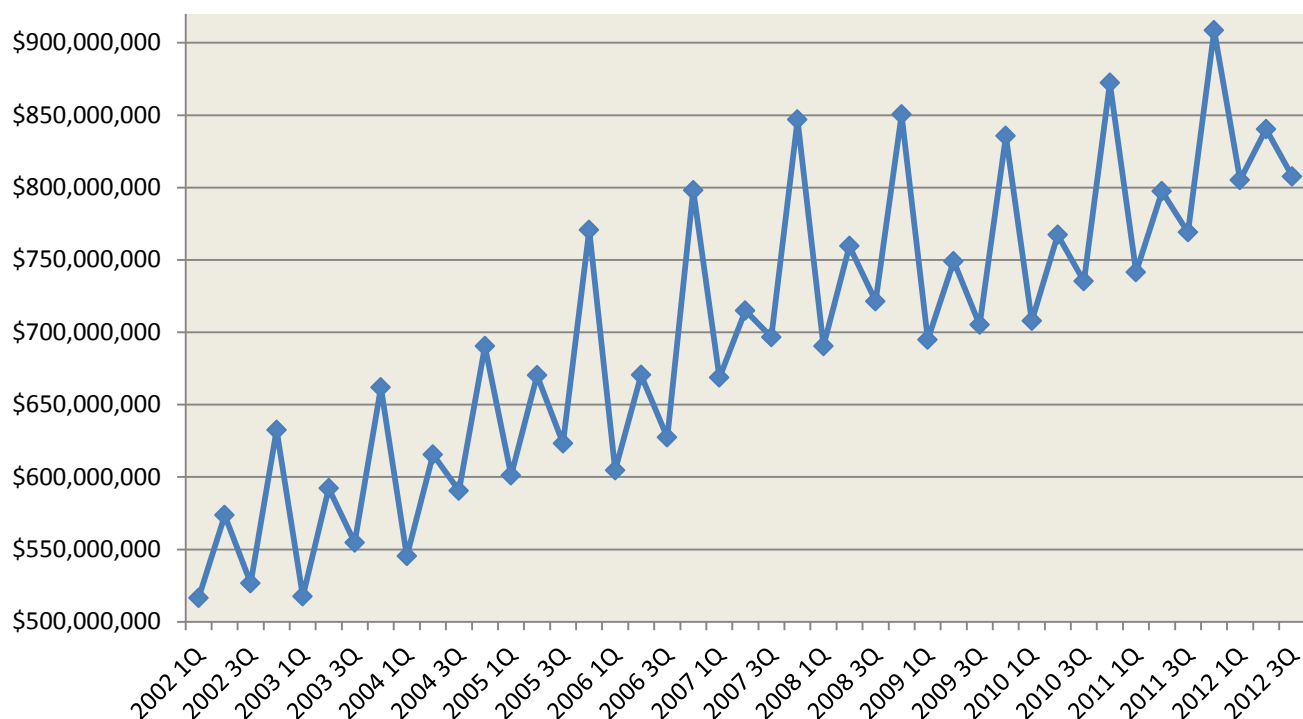
<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Mixed Beverage	\$5,421	\$34,264

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

#### **II D Analysis--Sales and Use Tax:**

The graph below is the sum of taxable sales within a subset of 2- and 3-digit North American Industry Classification System (NAICS) code categories applicable to major events in Texas. This graph includes taxable sales amounts for the event market area. The graph includes data only from holders of sales tax permits; businesses that sell only goods that are outside the sales tax base are not covered by these reports. A business that files yearly reports will show up only in a single quarter. The peak in this graph occurs in the 4<sup>th</sup> quarter of 2011.

## Quarterly Gross Sales Subject State Tax in Fort Worth



Source: Texas Comptroller of Public Accounts

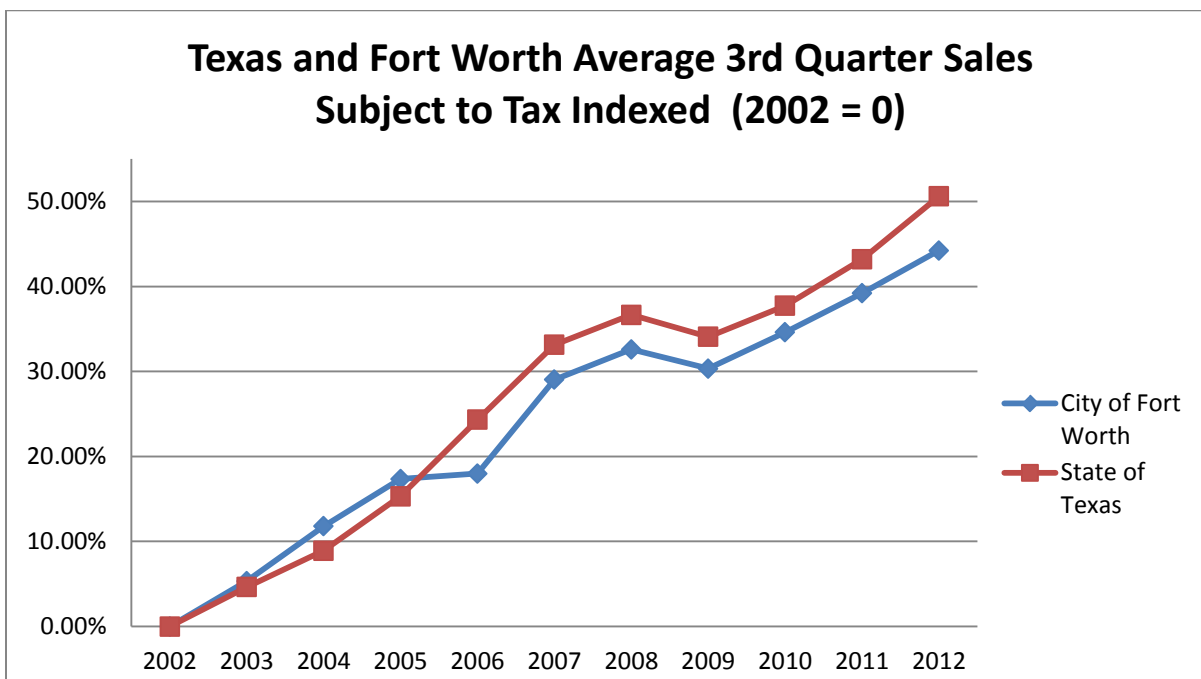
The average amount (reported quarterly) subject to sales tax for this area from 1Q 2002 to 3Q 2012 was \$699,282,585 with a standard deviation of \$103,399,955. The amount subject to sales tax in the quarter during when the event took place was \$807,648,118, which is \$4,965,578 more than the amount subject to sales tax and the standard deviation (third quarter of 2012).

The second method of analysis of sales tax data that looks at only third quarter of each year illustrates a slightly different picture. Average collections subject to sales taxes for the industries mentioned above for third quarter of each year (from 2002 to 2012) were averaged. Average collections subject to sales taxes for the third quarter were \$668,883,101 with a standard deviation of \$90,413,109. The average plus the standard deviation is \$759,276,210. Collections subject to sales taxes for the third quarter of 2012 were \$807,648,118, which is \$48,371,908 more than the average plus the standard deviation. At the state sales tax rate (6.25%), this amounts to an additional \$3,023,244 to the state as a result of increased sales.

While there clearly was increased sales tax revenue collected during the same time an event occurred in a given area, the increase is almost certainly not all due to one major occurrence (see section below titled "Texas and Fort Worth Average 3rd Quarter Sales Subject to Tax Indexed, 2002 = 0"). This method of analysis estimates that the state of Texas received \$3,023,244 additional sales tax dollars from the event market area during the third quarter of 2012. A pre-event analysis estimated that the state would receive an additional \$593,628 in

sales and use tax due to the event, while a third-party post-event analysis estimated a direct spending impact to state revenues of \$426,194.

Tax Type	Initial Estimate	Third-Party Post-Event
Sales and Use	\$593,628	\$426,194



Source: Texas Comptroller of Public Accounts

The graph above illustrates the third quarter taxable sales in Fort Worth and the state as a whole where growing at comparable rates using 2002 as a base year. In fact, from 2003 through 2005, Fort Worth's taxable sales subject to sales and use tax actually grew at a faster rate than Texas'. While growth in taxable sales and corresponding tax revenue might seem uncharacteristically large for Fort Worth, the rest of the state was also experiencing this same growth.

The second method used to analyze the impact of the event that estimated a drastic jump in state revenues during the third quarter of 2012 can partially be explained by an overall growth in taxable sales in the state of Texas. Fort Worth and Tarrant County host many events during a given quarter, and more people from in-state and out-of-state spending their dollars at these events push tax collections up. Coupled with an overall increase in taxable sales, endogenous and exogenous spending can appear to have an even greater impact on state tax revenues.

Considering the attendance figure from the third-party study and actual observed tax data, it could reasonably be stated that the event host city experienced positive economic activity due to this event.

### **II E Analysis--Rental Car Tax:**

The state of Texas imposes a tax on motor vehicle rentals, but the rate is based on the length of the rental contract. For contracts of 1-30 days, the state rate is 10 percent of gross receipts less discount and separately stated fees for insurance, fuel, and damage assessments.

Unlike the other tax types, rental car tax is not reported to the Comptroller by location address. For example, if a corporate taxpayer has multiple locations in the state, they file one return for all gross rental tax. Taxpayers do not report to the Comptroller's Office based on location and the Comptroller's Office does not permit the taxpayer based on each location. For this reason, an examination of this tax type by location provides no useful data for these analyses.

In order to provide a complete estimate of direct-spending tax revenue from this tax type, the CPA initial estimate number was used for this post-event analysis. A third-party post-event analysis estimated a direct spending impact to state revenues of \$33,276.

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Rental Car	\$19,038	\$33,276

### **II F Analysis--Title V Alcoholic Beverage Code Tax:**

The state of Texas also imposes a tax on the amount of alcohol that manufacturers sell to retail establishments. The tax rate varies by class on the amount of alcoholic content of beverages by class per gallon. Distilled spirits are taxed at the highest rate at \$2.40 per gallon, while beer that is 4% alcohol content and lower is taxed at \$0.193548 per gallon.

While wholesalers are not reporting wholesale alcohol sales by location, they do submit how much volume they sold to retail establishments. Determining how much volume each retail establishment in the event market area purchased for each class of alcohol, then deriving how much tax was paid based on the volume and class would be extensive. Therefore, given how much state revenue is derived from this tax type (less than one-half of one-percent of the total of all taxes collected for this analysis) comparative to the other tax types, for the purpose of this analysis, the initial estimate was used. A third-party post-event analysis offered a rough estimate as to the impact to state revenues from this tax type.

<b>Tax Type</b>	<b>Initial Estimate</b>	<b>Third-Party Post-Event</b>
Title V ABC Tax	\$3,614	\$5,731

### III. Conclusion

#### 1. Third-Party Post-Event Analysis

Post event analysis conducted by a third-party vendor estimated economic impact based on direct spending and multiplier effects. Based on their analysis, they estimated that the total impact to the state of Texas was **\$518,277** in additional state tax revenues.

#### 2. Comptroller Analysis

The Comptroller estimate of **direct impact** prior to the event was **\$723,812**.

Comptroller data suggest that the Fort Worth metro area experienced increased economic activity during the event. The precise state share of this increased economic activity due to out-of-state consumption is unknown given the inability of available data to identify the amount contributed directly from out-of-state visitors. Additionally, it is worth noting that while a large metropolitan area that hosts a large event will almost certainly see a noticeable increase in tax revenues, the additional revenues are not as identifiable with smaller events such as this one. That being said, the amount of additional tax revenue the state received from the major tax types does exceed the initial estimates. **This office concludes that the initial estimate of direct, indirect, and induced tax impact of \$611,603 is reasonable based on the tax increases that occurred in the market area during the period in which the event occurred.**

## APPENDIX A

The tables below show the various tax types and the additional revenue amount estimates for the Summer Spectacular. The first table illustrates the three largest verifiable tax revenue generators and the amount estimated by three different analyses. The last three tables show the analysis of additional revenue to the state from all 5 tax types as estimated by three different methods.

Tax Type	Initial Estimate	1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)	Third-Party Post-Event
Sales and Use	\$593,628	\$3,023,244	\$426,194
HOT	\$105,111	\$128,128	\$57,819
Mixed Beverage	\$5,421	\$146,196	\$34,264
<b>Total</b>	<b>\$704,160</b>	<b>\$3,297,568</b>	<b>\$518,277</b>

Initial Analysis (Pre-event)		
Tax Type	State Share of Tax	Percent of Total
1. Sales and Use Tax	\$593,628	81.68%
2. Hotel Occupancy Tax	\$105,111	14.46%
3. Rental Car tax	\$19,038	2.62%
4. Mixed Beverage Tax	\$5,421	0.75%
5. Title 5, Alcoholic Beverage Code tax	\$3,614	0.50%
<b>Total</b>	<b>\$723,812</b>	<b>100%</b>

Third-Party Post-Event Analysis		
Tax Type	State Share of Tax	Percent of Total
Sales and Use Tax	\$426,194	76.48%
HOT	\$57,819	10.38%
Rental Car	\$33,276	5.97%
Mixed Bev	\$34,264	6.15%
Title 5 Alcohol	\$5,731	1.03%
<b>Total</b>	<b>\$557,284</b>	<b>100%</b>

<b>1Q 2012 Actual minus 1Q Average and Standard Deviation (2002-11)</b>		
<b>Tax Type</b>	<b>State Share of Tax</b>	<b>Percent of Total</b>
1. Sales and Use Tax	\$3,023,244	91.06%
2. Hotel Occupancy Tax	\$128,128	3.86%
3. Rental Car tax*	\$28,364	0.57%
4. Mixed Beverage Tax**	\$146,196	4.40%
5. Title 5, Alcoholic Beverage Code tax*	\$25,378	0.11%
<b>Total</b>	<b>\$3,320,568</b>	<b>100%</b>

\*Initial estimate used due to how this tax is reported. See "Analysis" section (II E and II F) for further explanation.

\*\*State share was derived using Gross Collections for March & April (2002-12); not quarterly

Historical averages and standard deviations were calculated and subtracted from 2012 actual figures. The tax rate was then applied to the difference to arrive at the "State Share of Sales Tax" figure.



## APPENDIX B

Given the historical amount subject to state tax, is it statistically feasible that the event caused the observed increase in taxable sales? A single sample test of hypothesis was conducted to answer this question. The steps used in conducting these tests for each tax type are as follows:

### Sales and Use Tax:

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the amount subject to state tax in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the amount subject to state tax in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>2</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

Sales and Use Tax	Are observed tax collections statistically probable?	Using Nominal Values
Hypothesis	Null (Ho)	$\mu = \$0.8$ Billion
	Alternative (Ha)	$\mu \text{ not } = \$0.8$ Billion
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	$t^* < -3.169$
		$t^* > 3.169$
Estimated t =	t*	5.0911
Action (result)		Reject Ho
<p><b>Based on the test, the actual collections subject to state tax for the period in question is not statistically probable. This means that the sales and use tax collected for the period is not normally seen given historical data.</b></p>		

<sup>2</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.

**Hotel Occupancy Tax (HOT):**

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the amount subject to state tax in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the amount subject to state tax in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>3</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

<b>Hotel Occupancy Tax (HOT)</b>	<b>Are observed tax collections statistically probable?</b>	Using Nominal Values
Hypothesis	Null (Ho)	u = \$18.6 Million
	Alternative (Ha)	u not = \$18.6 Million
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	t* < -3.169
		t* > 3.169
Estimated t =	t*	5.7699
Action (result)		Reject Ho
<b>Based on the test, the actual collections subject to state tax for the period in question is not statistically probable. This means that the hotel occupancy tax collected for the period is not normally seen given historical data.</b>		

<sup>3</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.

**Mixed Beverage Tax:**

1. Stating the hypothesis:
  - a. Null Hypothesis (Ho): The increase in the state share of gross receipts in the event market area during the time of the event is equal to what would have been expected.
  - b. Alternative Hypothesis (Ha): The increase in the state share of gross receipts in the event market area during the time of the event is not equal to what would have been expected.
2. Level of Significance (probability of rejecting Ho when it is true): According to Lind, Marchal and Wathen<sup>4</sup>, it is traditional to use the following levels of significance for the following types of studies:
  - a. 0.1 (10%) for political polling;
  - b. 0.05 (5%) for consumer research projects; and
  - c. 0.01 (1%) for quality assurance.

For the purpose of this analysis, we use the 0.01 (1% level) of significance. This means that we want to be 99% confident that the Ho would not be rejected if it is true.

3. Test Statistic: 2-tailed, t-test is used to test for a population mean when the sample size is small.
4. Decision Rule: Reject Ho if the estimated t value (t\*) is less than -3.169 or greater than 3.169.
5. Test

Mixed Beverage Tax	Are observed tax collections statistically probable?	Using Nominal Values
Hypothesis	Null (Ho)	$\mu = \$1.8$ Million
	Alternative (Ha)	$\mu \neq \$1.8$ Million
Level of Significance (Confidence Interval)		0.01 (99%)
Statistical Test = 2-tailed t-test		
Decision Rule	Reject Ho if	$t^* < -3.169$
		$t^* > 3.169$
Estimated t =	t*	4.8641
Action (result)		Reject Ho
<b>Based on the test, the state share of gross receipts for the period in question is not statistically probable. This means that the state share of gross receipts for the mixed beverage tax for the period is not normally seen given historical data.</b>		

<sup>4</sup> Basic Statistics for Business and Economics (5<sup>th</sup> Edition), McGraw-Hill Irwin.