FINANCIAL FORECASTING FOR REVENUE CERTIFICATION

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INTRODUCTION

- Revenue forecasting is a fundamental part of the yearly County budget process.
- Primary goal is to estimate future revenue sources.
  - Departments, projects, and programs need to funded.
  - Aids policy makers in assessing current and future tax rates.
- Local Government Code, Chapter 111, provides guidance on County budgets and indicates who is responsible for forecasting and certifying revenue.
- NACSLB's list of 10 recommended budget practices.
- 7 step process for annual revenue forecasting.
- Qualitative and quantitative forecasting techniques.

FINANCIAL FORECASTING AND REVENUE CERTIFICATION

- Local Government Code, Chapter 111. County Budget
  - Subchapter A – Budget Preparation in Counties with populations of 225,000 or less.
  - Subchapter B – Budget Preparation in Counties with population of more than 225,000.
  - Subchapter C – Alternate method of budget preparation in Counties with populations of more than 125,000.

FINANCIAL FORECASTING AND REVENUE CERTIFICATION

- Subchapter A. Budget Preparation in Counties with Populations of 225,000 or less
  - "In preparing the budget, the county judge shall estimate the revenue to be derived from taxes to be levied and collected in the succeeding fiscal year and shall include that revenue in the estimate of funds available to cover the proposed budget (Sec 111.004(c)).
  - County Auditor only certifies revenue from the following:
    - All public or private grant or aid money (Sec. 111.0106).
    - Revenue from intergovernmental contracts (Sec. 111.0107).
    - Revenue from a new source if not anticipated in the budget for the fiscal year (Sec. 111.018).
      - If these sources of revenue were not included in the budget for the fiscal year. These can also be certified by the county judge if the county has no county auditor.

FINANCIAL FORECASTING AND REVENUE CERTIFICATION

- Subchapter B. Budget Preparation in Counties with Populations of More Than 225,000.
  - "The county auditor serves as a budget officer for the commissioners' court of the county" (Sec. 111.032).
  - County auditor estimates revenue from the preceding and ensuing fiscal years (Sec. 111.034 (b)(4)(5)).
  - County Auditor certifies revenue from the following:
    - All public or private grant or aid money (Sec. 111.043).
    - Revenue from intergovernmental contracts (Sec. 111.0431).
    - Revenue from a new source if not anticipated in the budget for the fiscal year (Sec. 111.0432).
      - If these sources of revenue were not included in the budget for the fiscal year.

FINANCIAL FORECASTING AND REVENUE CERTIFICATION

- Subchapter C. Alternate Method of Budget Preparation in Counties with Population of more than 125,000.

- Budget officer is appointed to prepare the county budget

- County auditor provides budget officer, "any information necessary to prepare a complete financial statement for inclusion in the budget"
  - County auditor provides revenue estimates for preceding and ensuing fiscal year (Sec. 111.063.b.4.5).

FINANCIAL FORECASTING AND REVENUE CERTIFICATION

- The GFOA has put our a series of monographs to assist governments in the development of budgets. The second volume in this series is entitled, *Revenue Analysis and Forecasting*.
  - This publication discusses the (National Advisory Council on State and Local Budgeting) NACSLB's list that outlines 10 recommended budget practices that should be utilized during the forecasting process.

NACSLB 10 RECOMMENDED BUDGET PRACTICES TO UTILIZE DURING THE FORECASTING PROCESS

1. Recommended Practice (RP) 4.2 – Develop policy on fees and charges.
2. Recommended Practice (RP) 4.4 – Develop a policy on use of one-time revenues.
3. Recommended Practice (RP) 4.4a – Evaluate the use of unpredictable revenue.
4. Recommended Practice (RP) 4.6 – Develop policy on revenue diversification.
   - http://intra/Policy/CountyWide/docs/03-11_FinancialPolicies.PDF
5. Recommended Practice (RP) 9.2 – Prepare revenue projections.
6. Recommended Practice (RP) 9.2a – Analyze major revenues.

7. Recommended Practice (RP) 9.2b – Evaluate the effect of changes to revenue source rates and bases. There are many resources that can aid counties in finding changes to statutorily mandated revenue sources that will be changing.

   a) Texas Legislature Online. http://www.legis.state.tx.us/

      a) Bill Lookup
      b) Track Legislation
      c) Receive bill and meeting alerts
      d) Subscribe to RSS Feeds

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NACSLB 10 RECOMMENDED BUDGET PRACTICES TO UTILIZE DURING THE FORECASTING PROCESS

7. Recommended Practice (RP) 9.2b – Evaluate the effect of changes to revenue source rates and bases (continued).

   b) Texas Association of Counties, http://www.county.org/Pages/default.aspx

      i. Legislative Analysis Report, brief analysis on county related bills listed by subject matter, http://www.county.org/member-services/legislative-updates/presentations/Documents/2013%20Legislative%20Conference%20Docs/LegisAnalysisReport.pdf

      ii. State budget updates for general appropriations that affect counties. Spreadsheet prepared by, Paul Emerson, TAC State Financial Analyst. http://www.county.org/member-services/legislative-updates/hot-topics/Documents/ConfCommitteeReport.pdf

Article I – General Government

Comptroller of Public Accounts:

Programs	Description
Gross Weight/Axle Fee: Distributions to Counties per Transportation Code section 621.353 – *Strategy: A.1.10 (CPA, Fiscal Programs)*	Funding is the same as the previous budget for FY2012-13. <u>Note</u>: Funding reflects a method-of-finance swap from State Highway Fund 6 to General Revenue Funds for distributions to counties of a portion of amounts collected from gross weight and axle weight permit fees to align with the Texas Transportation Code, Section 621.353. Committee Substitute SB 1/HCSSB 1: Stayed the same. **CCR adopted the same figures.**

		2010	2011	2012	2013	2014	2015
	House						
		$7,500,000	$7,500,000	$7,500,000	$7,500,000	$7,500,000	$7,500,000
	Senate						
		$7,500,000	$7,500,000	$7,500,000	$7,500,000	$7,500,000	$7,500,000

Programs	Description
Mixed Beverage Tax Reimbursements – *Strategy: A.1.2 (CPA, Fiscal Programs)*	Reimbursements to counties and incorporated municipalities from mixed beverage tax collections. HB 1/SB 1 will add $61.3 million <u>more</u> than the previous budget for FY2012-13. <u>Note</u>: As a result of an increase in the rate of reimbursement from 8.3065 percent to the new statutory minimum rate of reimbursement of 10.7143 percent, effective September 1, 2013. Committee Substitute - SB 1/HCSSB 1: Stayed the same. **CCR adopted the same figures.**

		2010	2011	2012	2013	2014	2015
	House						
		$128,318,000	$132,937,000	$119,714,964	$126,305,843	149,456,000	$157,840,000
	Senate						
		$128,318,000	$132,937,000	$119,714,964	$126,305,843	$149,456,000	$157,840,000

NACSLB 10 RECOMMENDED BUDGET PRACTICES TO UTILIZE DURING THE FORECASTING PROCESS

8. Recommended Practice (RP) 9.2c – Analyze tax and fee exemptions.

9. Recommended Practice (RP) 9.2d – Achieve consensus on a revenue forecast.

10. Recommended Practice (RP) 9.3 – Document revenue sources in a revenue manual.

7 STEP PROCESS FOR ANNUAL REVENUE FORECASTING

1. Establish a base year.
2. Assess revenue growth trends.
3. Specify forecasting assumptions.
4. Select a forecasting model.
   1. Qualitative methods
   2. Quantitative methods
5. Validate the forecast.
6. Monitor actual revenue against forecast and explain variances.
7. Update the forecast based on changes.

QUALITATIVE FORECASTING METHODS

- Qualitative forecasting methods
  - Do not rely on complex mathematical models or statistical data.
  - Intuitive and subjective in nature.
  - Rely on human judgment, expert knowledge, and consensus.

- Qualitative forecasting methods:
  - Naïve
  - Consensus
  - Expert
  - Delphi

NAÏVE FORECASTING

Example of naïve formula

Naïve Forecasting				
Fiscal Year	Total Revenue	Change in Revenue	Formula	Forecast
2010	$ 1,125,000.00	$ -	TR + CR	$ 1,125,000.00
2011	$ 1,125,000.00	$ -	TR + CR	$ 1,125,000.00
2012	$ 1,125,000.00	$ -	TR + CR	$ 1,125,000.00
2013	$ 1,125,000.00	$ 135,000.00	TR + CR	$ 1,260,000.00

Advantages and Disadvantages

- Advantages
  - No complex mathematical or statistical calculations.
  - No extensive historical data required.
- Disadvantages
  - Base year used may be outlier.
  - Unable to identify trends.

CONSENSUS FORECASTING

- Advantages
  - No complex mathematical or statistical calculations.
  - No large amounts of historical data needed.
  - Can be used on any type of revenue source.
  - Utilization of the entire group's knowledge and expertise.

- Disadvantages
  - Limited to the group's knowledge and subjectivity.
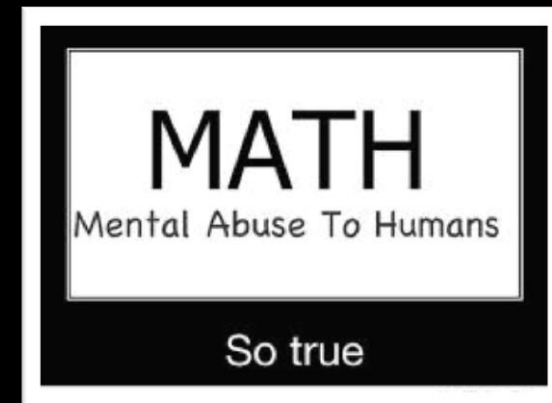 - Group think may occur.

CONSENSUS FORECASTING

- Exercises for group consensus:
  - Investigate growth trends and averages within the data.
  - Research recent articles on the economy.
  - Share ideas for calculating the projected forecast.

QUANTITATIVE FORECASTING METHODS

- Rely heavily on mathematical models and extensive historical data
- These models are objective in nature.

- Quantitative forecasting methods:
  - Simple mean (average)
  - Weighted moving average
  - Exponential smoothing
  - Trend analysis

MATH
Mental Abuse To Humans

So true

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revenue forecasting formulas

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	A	B	C	D	E	F	G	H	I	J
1	Alpha									
2	0.3			Forecast				MAD		
3		Actual	Naïve	3PMA	3PWMA	Exp	Naïve	3PMA	3PWMA	Exp
4	Dec	72045								
5	Jan	57307								
6	Feb	60561								
7	Mar	55899								
8	Apr	58585								
9	May	51150								
10	Jun	51167								
11	Jul	65993								
12	Aug	71472								
13	Sep	77077								
14	Oct	63117								
15	Nov	65113								
16	Dec	56705								
17										
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Chart1 Chart3 Chart4 Chart5 **Sheet1** Sheet2 Sheet3

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QUANTITATIVE FORECASTING METHODS

- First calculate the annualized revenue to be received in the current fiscal year.

- Second calculate the projected forecast for the next fiscal year.
  - Calculate this amount by using different quantitative formulas.
  - Compare your results to past fiscal years, current year annualized revenue, and last fiscal year's projected amount to identify trends.
  - Choose the most reliable result.

FORECASTING EXAMPLE

Example	2011 Actual	2012 Actual	2013 Annualized	2013 as of May 31, 2013	2013 Budget	2014 Draft Projection	Naïve	3PMA	3PWMA	EXPONential Forecasting	Forecast
40200 Marriage Licenses Formal	200,000	230,000	255,000	170,000	210,000	-	255,000	228,333	236,500	223,500	283,333

SIMPLE MEAN (AVERAGE)

- Uses an average of all past data as a forecast.

WEIGHTED MOVING AVERAGE

- Uses an average of a specified number of the most recent observations, with each observation receiving a different emphasis (weight).

Weights		0.2	0.3	0.5			
		Actual Collection		**Annualized**	**Forecast**		
Fiscal Year		**2011**	**2012**	**2013**	**2014**		
Master Fee/Court Fees	$ 134,999	$ 125,841	$ 139,807	$ 134,000		
Formula	98,107*.2	108,437*.3	115,032*.5	B8+C8+D8		
				$ 134,656		

EXPONENTIAL SMOOTHING

- This type of formula helps smooth fluctuations in the trends.

Fiscal Year	2013 Annualized	2013 Budget
Stormwater Collection Fee	$ 42,756	$ 42,000
Formula	42,000 + (42,756-42,000)*.3	
Possible Fiscal Year 2014 Projected Amount	**$ 42,227**	

EXCEL FORMULA - FORECASTING

- Forecasting formula that calculates a future value along a linear trend by using existing values.

- X – year to forecast.

- Known y's – past revenues to compare.

- Known x's – fiscal years of past revenues that are being compared.

Known x's	2011	2012	2013	
	Actual	Actual	Annualized	
Marriage License Formal	369,655.00	384,385.00	392,775.00	Known y's

ANNUALIZED CURRENT YEAR REVENUE

- Simple annualized formula
- Divide the revenue collected up until the period you are using to formulate the forecast, by that period. Then multiply that divisor by 12 periods.

	Revenue
Period 8	as of May 31, 2013
Alarm System Renewal	128,275
Formula for Annualized Revenue for Fiscal Year	(128,275/8)*12

ANNUALIZED CURRENT YEAR REVENUE

- Revenue collected quarterly.
- Divide the revenue collected up until that quarter, by the number of quarters collected. Then multiply that divisor by 4 quarters.

	Revenue
Collected 3 quarters	**as of May 31, 2013**
Bingo - Jackpot	**840,450**
Formula for Annualized Revenue	**(840,450/3)*4**

ANNUALIZED CURRENT YEAR REVENUE

- Average of collection rate from past fiscal years.

- To calculate the annualized amount for the current fiscal year, calculate the average collection percentage for the past 4 fiscal years and divide it by the total collected for that period in the current fiscal.

	April	May	June	July		
2009	5,224,971.53	5,684,560.46	6,526,809.25	7,461,771.34		
2010	5,146,486.72	5,932,600.42	6,615,922.64	7,365,149.35		
2011	5,290,672.22	5,936,286.48	6,512,857.85	7,333,942.91		
2012	5,808,966.00	6,635,821.00	7,504,704.00	8,185,546.00		
	April	May	June	July		
2009	0.54693	0.59504	0.68320	0.78107		
2010	0.51740	0.59643	0.66513	0.74045		
2011	0.53139	0.59623	0.65414	0.73661		
2012	0.51942	0.59335	0.67105	0.73192		
	0.52878	0.59526	0.66838	0.74752		
at June 2013						
7,103,089	revenue collected @ June 2013					
10,627,312	**annualized 2013 @ June 2013**					

CONCLUSION

- Revenue forecasting is a fundamental part of the yearly county budget process. It is nearly impossible to precisely predict revenues, but it is critical for counties to make a high-quality forecast.

- There are many sources available to counties:
  - Local Government Code
  - Texas Legislature Online
  - Texas Association of Counties
  - Publications by the GFOA
  - YouTube and other internet sources

- A combination of different forecasting techniques can be used to formulate a reliable revenue forecast.

SOURCES

- Blom B. and Guajardo S., *Revenue Analysis and Forecasting: putting recommended budget practices into action, GFOA budgeting series volume 2.* 2008.

- Texas Legislature Online. http://www.legis.state.tx.us/

- Texas Association of Counties. http://www.county.org/Pages/default.aspx

  - http://www.county.org/member-services/legislative-updates/presentations/Documents/2013%20Legislative%20Conference%20Docs/LegisAnalysisReport.pdf

  - http://www.county.org/member-services/legislative-updates/hot-topics/Documents/ConfCommitteeReport.pdf

- YouTube. http://www.youtube.com/results?search_query=revenue+forecasting+formulas