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).
The GFOA has put out 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/](http://www.legis.state.tx.us/)  
      a) Bill Lookup  
      b) Track Legislation  
      c) Receive bill and meeting alerts  
      d) Subscribe to RSS Feeds
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](http://www.county.org/Pages/default.aspx)
   
   
# Article I – General Government

## Comptroller of Public Accounts:

<table>
<thead>
<tr>
<th>Programs</th>
<th>Description</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Weight/Axle Fee: Distributions to Counties per Transportation Code section 621.353 - Strategy: A.1.10 (CPA, Fiscal Programs)</td>
<td>Funding is the same as the previous budget for FY2012-13. Note: 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/HCSB 1: Stayed the same. <strong>CCR adopted the same figures.</strong></td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
</tr>
<tr>
<td>Senate</td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
<td>2014</td>
<td>2015</td>
<td></td>
</tr>
<tr>
<td>House</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td></td>
</tr>
<tr>
<td>Senate</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td>$7,500,000</td>
<td></td>
</tr>
</tbody>
</table>

| 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 more than the previous budget for FY2012-13. **Note:** 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/HCSB 1: Stayed the same. **CCR adopted the same figures.** | $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 |
8. Recommended Practice (RP) 9.2c – Analyze tax and fee exemptions.

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

7 STEP PROCESS FOR ANNUAL REVENUE FORECASTING

1. Establish a base year.
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
Example of naïve formula

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Total Revenue</th>
<th>Change in Revenue</th>
<th>Formula</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$1,125,000.00</td>
<td>$</td>
<td>TR + CR</td>
<td>$1,125,000.00</td>
</tr>
<tr>
<td>2011</td>
<td>$1,125,000.00</td>
<td>$</td>
<td>TR + CR</td>
<td>$1,125,000.00</td>
</tr>
<tr>
<td>2012</td>
<td>$1,125,000.00</td>
<td>$</td>
<td>TR + CR</td>
<td>$1,125,000.00</td>
</tr>
<tr>
<td>2013</td>
<td>$1,125,000.00</td>
<td>$135,000.00</td>
<td>TR + CR</td>
<td>$1,260,000.00</td>
</tr>
</tbody>
</table>

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
Using Excel for Basic Forecast Smoothing

Naive forecast, moving average, weighted moving average, and exponential smoothing with monthly data and excel.

Uploaded on Feb 27, 2010

SpaceOverTime

126,791

Like

Subscribe 688

About

Share

Add to

11 views

Moving Average (MA)

by PRIMENDING

10:56

Magic Moving Average?

by TopDogTrading

218,721 views
• 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

<table>
<thead>
<tr>
<th>Example</th>
<th>2011 Actual</th>
<th>2012 Actual</th>
<th>2013 Annualized as of May 31, 2013</th>
<th>2013 Budget</th>
<th>2014 Draft Projection</th>
<th>Naïve</th>
<th>3PMA</th>
<th>3PWMA</th>
<th>EXPONential Forecasting</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>40200 Marriage Licenses Formal</td>
<td>200,000</td>
<td>230,000</td>
<td>255,000</td>
<td>170,000</td>
<td>210,000</td>
<td>255,000</td>
<td>228,333</td>
<td>236,500</td>
<td>223,500</td>
<td>283,333</td>
</tr>
</tbody>
</table>
SIMPLE MEAN (AVERAGE)

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

![Excel spreadsheet showing fiscal year data and average calculation]
WEIGHTED MOVING AVERAGE

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

<table>
<thead>
<tr>
<th>Weights</th>
<th>0.2</th>
<th>0.3</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Actual Collection</th>
<th>Annualized</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td>Master Fee/Court Fees</td>
<td>$134,999</td>
<td>$125,841</td>
<td>$139,807</td>
</tr>
<tr>
<td>Formula</td>
<td>98,107*.2</td>
<td>108,437*.3</td>
<td>115,032*.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Formula:

\[
\text{Forecast} = 98,107 \times 0.2 + 108,437 \times 0.3 + 115,032 \times 0.5 + B8 + C8 + D8
\]

Actual Collection:

- 2011: $134,999
- 2012: $125,841
- 2013: $139,807
- 2014: $134,000

Forecast:

- 2014: $134,656

Total: $528,486
EXPONENTIAL SMOOTHING

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

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>2013 Annualized</th>
<th>2013 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stormwater Collection Fee</td>
<td>$ 42,756</td>
<td>$ 42,000</td>
</tr>
</tbody>
</table>

Formula: $42,000 + (42,756-42,000) *.3

<table>
<thead>
<tr>
<th>Possible Fiscal Year 2014 Projected Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>$42,227</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Known x’s</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>Actual</td>
<td>Annualized</td>
<td></td>
</tr>
<tr>
<td>Marriage License Formal</td>
<td>369,655.00</td>
<td>384,385.00</td>
<td>392,775.00</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Period 8</th>
<th>Revenue as of May 31, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm System Renewal</td>
<td>128,275</td>
</tr>
</tbody>
</table>

Formula for Annualized Revenue for Fiscal Year

\[(128,275/8) \times 12\]
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
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Collected 3 quarters</td>
<td>as of May 31, 2013</td>
</tr>
<tr>
<td>Bingo - Jackpot</td>
<td>840,450</td>
</tr>
<tr>
<td>Formula for</td>
<td></td>
</tr>
<tr>
<td>Annualized Revenue</td>
<td>(840,450/3)*4</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>5,224,971.53</td>
<td>5,684,560.46</td>
<td>6,526,809.25</td>
<td>7,461,771.34</td>
</tr>
<tr>
<td>2010</td>
<td>5,146,486.72</td>
<td>5,932,600.42</td>
<td>6,615,922.64</td>
<td>7,365,149.35</td>
</tr>
<tr>
<td>2011</td>
<td>5,290,672.22</td>
<td>5,936,286.48</td>
<td>6,512,857.85</td>
<td>7,333,942.91</td>
</tr>
<tr>
<td>2012</td>
<td>5,808,966.00</td>
<td>6,635,821.00</td>
<td>7,504,704.00</td>
<td>8,185,546.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>0.54693</td>
<td>0.59504</td>
<td>0.68320</td>
<td>0.78107</td>
</tr>
<tr>
<td>2010</td>
<td>0.51740</td>
<td>0.59643</td>
<td>0.66513</td>
<td>0.74045</td>
</tr>
<tr>
<td>2011</td>
<td>0.53139</td>
<td>0.59623</td>
<td>0.65414</td>
<td>0.73661</td>
</tr>
<tr>
<td>2012</td>
<td>0.51942</td>
<td>0.59335</td>
<td>0.67105</td>
<td>0.73192</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.52878</td>
<td>0.59526</td>
<td>0.66838</td>
<td>0.74752</td>
</tr>
</tbody>
</table>

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


• Texas Legislature Online. [http://www.legis.state.tx.us/](http://www.legis.state.tx.us/)

• Texas Association of Counties. [http://www.county.org/Pages/default.aspx](http://www.county.org/Pages/default.aspx)

• YouTube. [http://www.youtube.com/results?search_query=revenue+forecasting+formulas](http://www.youtube.com/results?search_query=revenue+forecasting+formulas)