Forecasting School Districts’ Revenues and Expenditures
Forecasting Overview
What is forecasting?

• Predicting the future as accurately as possible, given all of the information available, including historical data and knowledge of any future events that might impact the forecasts

• Many methods - Forecasters use the one that best fits the known data.
Why is forecasting challenging?

It’s tough to make predictions, especially about the future.

(Yogi Berra)

izquotes.com
Why is forecasting challenging?

• A forecast must be based on what we know at the time, and things could change.
• Some data is predictably variable or volatile, so any forecast includes a range of possible amounts.
Why would a school district use forecasting?
Why would a school district use forecasting?

- Inform long- and short-term budget, capital, and staffing plans
  - Are expected revenues sufficient to cover expected expenditures under current conditions?
  - Are expected revenues sufficient to implement new improvement initiatives?
  - Is the district positioned to handle changes in student population?
  - And more...
How can we forecast data important to school districts?
How would a school district forecast?

• Do it yourself, based on known data sources and info about your district
  – Methods range from very basic to extremely advanced, but all will provide very useful insights and help inform decisions and planning.

• Get help from experts

Warning: A forecast should be used to inform decisions, not dictate budget planning or decisions. Budget planning and forecasting should remain separate.
Property Tax Revenue

• Importance: Primary local funding source for operations (with the exception of certain systems that have access to sales taxes for operations)
• Data Sources: Digest values, observed home sales, info from property tax assessor’s office
• Volatility: Low, relatively easy to forecast
  – Exception: The Great Recession created declining statewide property tax digests.
• Method to Try: Linear trend forecast (ordinary least squares)
Property Tax Revenue

District A

Linear trend line

Net M&O Digest in $ Millions

Tax Year

Property Tax Revenue

Which Line fits the data better? otherwise known as “goodness of fit”

Two period moving average
Sales Tax (ESPLOST)

• Importance: A major fund source for capital projects
  – Districts enter into five year plans based in part on expected collections

• Data Sources: Sales tax collections (GDOR) and information on community business activity

• Volatility: High, forecast results in a wide range
  – Seasonality and other trends generally are incorporated into forecast.

• Method to Try: An observed average over a long period of time.
Sales Tax (ESPLOST)

Sample District, 1999-2015

Goodness of fit? Not bad and its just the long term monthly average

ESPLOST Revenue $ in Thousands

Month - Year

1999-2015 monthly average
Sales Tax (ESPLOST)

Sample District 1999-2015

One Year Moving Average

ESPLOST Revenue in $Thousands

Month Year

Forecasting Districts’ Revenues and Expenditures
Sales Tax (ESPLOST) – Helpful Data

• Counties governments might be producing sales tax forecasts, even within their budget documents, which can help districts predict their portion of the sales tax revenues.
• Speak to local business owners and parents.
• Georgia budget documents forecasts state sales tax revenues into the future. Check and see how well state sales tax collections track with your counties.
Number of Students

• Importance: Drives state funding (QBE), expenditures, staffing decisions...

• Data Sources: Previous student counts, data on <5 y.o. children in your area, and historic drop out and migration info

• Volatility: Low
  – Based on steady drop outs, in and out migration

• Method to Try: Linear trend (OLS) to start – move to age specific calculations improve forecast
Number of Students

Looks like a good fit and would forecast steadily declining student counts.

Maybe we could dig a little deeper?
Number of Students

Should we expect steadily declining student counts?

Increasing early grades
Followed by Increasing older Grades

First Grade  Second Grade  Third Grade  Forth Grade
Number of Students – Helpful Data

• Georgia Office of Planning and Budget provides population by age group forecasts for all of the counties in Georgia

• Other publicly available datasets do the same by race.
Forecasting State Funding – QBE

• Predicating future student population, knowledge of proposed funding formula changes, and awareness of state budget shortfalls are the ways to forecast future QBE/State funding.
State Funding – QBE

QBE Formula Earnings $ in Millions

Schoolyear
What about expenditures?

• Forecasting expenditures – Based on revenue and student population forecasts
• Other changes would be based on district decisions on curriculum and improvement efforts.
Questions?

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