Revenue Forecasting and Cash Flow Management
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How Data Can Enhance Your Finance Office

Joe Rulison
three+one
The Marketplace Has Evolved
Three Views of Cash

How you see your cash - cash flow

How your bank sees your cash - liquidity

How the market values your cash - marketplace value
What is Data?
What is Time Horizon Data?
Benefits of Liquidity Management

1. Boost Credit rating for debt refinancing
2. Data allows ability to forecast future cash & debt needs
3. Ability to identify all cash as a revenue generating asset
4. Monitor all bank fees
5. Provide “peace of mind” in addressing financial stresses during a natural, medical or human inflicted crisis
Joe Rulison  
CEO & Co-Founder  
three+one  

jrr@threeplusone.us  
585-484-0311 X700
Modernized Approach to Revenue Forecasting

Deb Pianko, Senior Tax Industry Consultant, US Public Sector

Joe Zilka, Senior Manager, Government Solutions, US Public Sector

Bobby Gutierrez, Senior Analytic Consultant, US Public Sector

Andrew Ball, Director, Public Affairs & Policy, US Public Sector
Government is our second-largest industry by revenue

SAS supports 700+ Government Departments, Ministries, Offices, and Agencies in 134 countries around the world

100% of U.S. Government Cabinet Departments and Agencies, as well as all 50 states are SAS customers
20 NYS Agencies and Authorities are currently leveraging SAS software including:

- Supporting New York State Dept. Of Health Epidemiologists with COVID-19 Response;
- Advanced budget and revenue forecasts at New York State Division of the Budget
- Audit prioritization at New York State Department of Tax and Finance;
- Leveraging predictive analytics to improve mental health outcomes at Office of Mental Health
Phases of Disruption

01 Respond
- Achieving Situational Awareness
- Responding and Adjusting
- Mitigating Disruptions

02 Recover
- Rebuilding Organization to Operate in the New Environment

03 Reimagine
- Preparing the Organization for the Future
- Building Resilience
The global COVID-19 pandemic has a significant impact on governments’ ability to generate and forecast revenue.

**Integrate Newly Relevant Data**
- Unprecedented problems need new insights
- Identification of novel data sets and healthcare response information

**Understand Duration and Trends**
- Quickly understand “cold spots”
- Industries, regions, and operations impacted

**Accurately Forecast Revenue Streams**
- Rapidly changing economic parameters
- Scenario analysis

**Simulate Policy**
- Quickly understand legislative and policy changes
How Analytics Can Help

Provide reliable, timely data and revenue forecasting and planning

- **Leverage New Data**: Leverage multiple, previously unused data to understand trends and supports complex analysis.

- **Scenario Analysis**: Modify underlying factors to understand impact on revenues. Ex. If vehicle-miles-travelled increases next week due to easing restrictions, what is the impact?

- **Interactive Simulation**: Allow modification of tax filing rules, thresholds, deductions, etc. at return level for a complete picture of impact.

- **Visualize Trends**: Understand how quickly revenue streams are diminishing. Sales/use tax/bankruptcies by industry or sector. Licensing applications/renewals.

- **Advanced Forecasting**: Quickly identify relevant indicators to better model tax forecasts. Ex. Understand how projected unemployment forecasts and consumer confidence impact sales tax, and personal/corporate income tax.
Revenue Impact for Government
Trend Analysis and Scenario Demonstration
Example: Fuel Tax Revenue

Hypothesis: Revenue from Fuel Tax decrease due to less Vehicle Miles Traveled (or VMT)

Key Variables:

• Data Captured: Average Road Traffic by County
• Cost of Fuel: Average Fuel Cost in State
• Fuel Tax: Cost per Gallon by State
• Miles per Gallon: Average MPG for Vehicle

SAS can begin to estimate the potential loss in Fuel Tax revenue.
Example: Fuel Tax Revenue

VMT and Fuel Tax Revenue Forecast

03/01/2020 to 05/12/2020

Total VMT Reduction to January Baseline (miles)
-394,471,419,729

Revenue Shortfall from January Baseline (Pct)
-31.7%

Change in Fuel Usage (# of Gallons)
-16,300 (millions)

Fuel Tax Shortfall
($5,132,678,200)

Source: StreetLight Data, Inc. 677 Harrison St. San Francisco, CA 94107
Example: Fuel Tax Revenue

VMT and Fuel Tax Revenue Forecast

Overview  Daily Change  State Overview  County Overview  Forecast Analysis  Revenue Trends  Gas Prices  Raw Data

Total VMT Reduction to January Baseline (miles)
-13,421,249,082

Revenue Shortfall from January Baseline (Pct)
-31.6%

Change in Fuel Usage (# of Gallons)
-555 (millions)

Fuel Tax Shortfall
($200,764,139)

Source: StreetLight Data, Inc. 677 Harrison St. San Francisco, CA 94107
Example: Fuel Tax Revenue

VMT and Fuel Tax Revenue Forecast

State Trends

Total State VMT/Day  Total Daily Revenue Change

Total Revenue Change/Day

Fuel Tax Shortfall (millions)

Source: StreetLight Data, Inc. 677 Harrison St. San Francisco, CA 94107
Example: Fuel Tax Revenue

VMT and Fuel Tax Revenue Forecast

VMT Decrease by County Name

VMT Decrease by Date

Fuel Tax Shortfall by County Name

Source: StreetLight Data, Inc. 677 Harrison St. San Francisco, CA 94107
Example: Fuel Tax Revenue

VMT and Fuel Tax Revenue Forecast

Fuel Tax Shortfall, VMT Decrease, Variance from Jan Avg (miles) by County Name

All State County > North Carolina

Fuel Tax Shortfall (millions)

VMT Decrease

Variance from Jan Avg (miles) (billions)

Source: StreetLight Data, Inc. 677 Harrison St. San Francisco, CA 94107
Example: Fuel Tax Revenue

VMT and Fuel Tax Revenue Forecast

Fuel Tax Shortfall (millions)

Vehicle Miles (millions)

Date

03/01/2020 to 05/12/2020

About this forecast

- 95% forecast confidence.
- The forecast for Fuel Tax Shortfall has the following contributing factor(s): Vehicle Miles

Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon

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Example: Fuel Tax Revenue
Example: Fuel Tax Revenue

VMT and Fuel Tax Revenue Forecast

03/01/2020 to 05/12/2020

Total VMT Reduction to January Baseline (miles)
-13,421,249,082

Revenue Shortfall from January Baseline (Pct)
-31.6%

Change in Fuel Usage (# of Gallons)
-555 (millions)

Fuel Tax Shortfall
($200,764,139)

Fuel Tax Revenue Forecast based upon Reduction in VMT

Source: StreetLight Data, Inc. 677 Harrison St. San Francisco, CA 94107
Revenue Impact for Government

Property Valuation
Artificial Intelligence Property Valuation

Sales data for all properties sold

Factors of every sold property

1000 Rounds of Machine Learning

Values for every factor

Computer Aided Mass Appraisal (CAMA)

All Assessed Properties
# 2020 Reassessment Dashboard

## Summary Table by VCS - Prices and Ratios are Medians

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## Detail Table - Lists Predicted 2020 prices - Prices and Ratios are Medians

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## 2020 Performance Dashboard

### 2020 Performance Metrics

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<tr>
<th>County</th>
<th>No. of Sales</th>
<th>Median Price</th>
<th>Median Ratio</th>
<th>WCRD</th>
<th>COO, SAS</th>
<th>PRD, WCRD</th>
<th>PRD, SAS</th>
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<tr>
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### Post-Revaluation Property Sales

#### Map of Post-Revaluation Property Sales

- VCS: Enter VCS...
- Month: Select month...
- Corp. Limit: Corp Limit...
- Price Range: Price Range...

#### Bar Chart:

- Within 10%: 18.7%
- Between 10% and 20%: 48.04%
- More than 20%: 3.26%
Let’s Work Together!

Deb Pianko
Deborah.Pianko@sas.com

Joe Zilka
Joe.Zilka@sas.com

Bobby Gutierrez
Bobby.Gutierrez@sas.com

Andrew Ball
Andrew.Ball@sas.com