

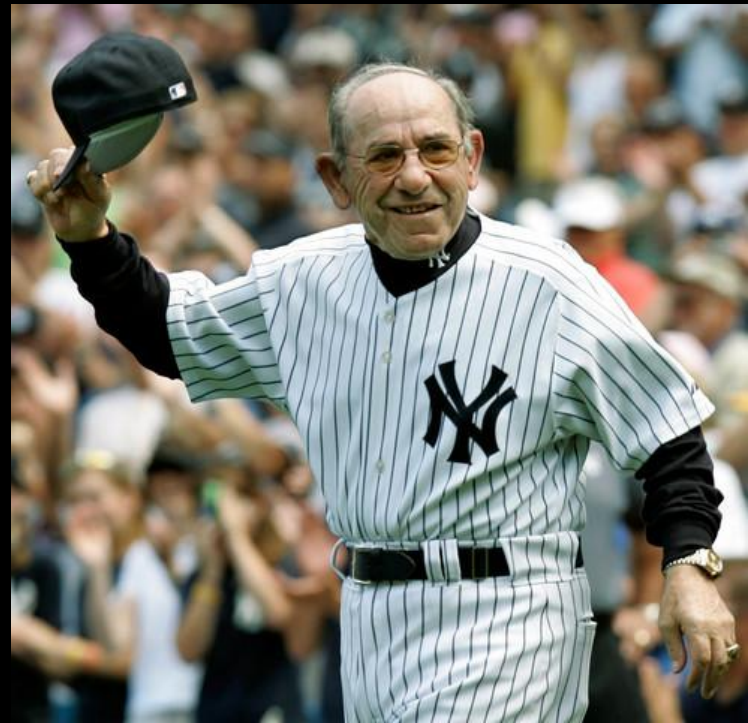
# ***Forecasting in Uncertain Times***

***A practical approach to forecasting and how to improve the accuracy of the revenue forecast.***

Presentation to the  
11th Annual KSGFOA Fall Conference

David Poynter - Public Affairs Associate  
Hugo Wall School of Urban & Public Affairs  
Wichita State University

*"It's déjà vu all  
over again".  
- Yogi Berra*



*Given a Good Strategic Long-Term Forecast...*

*Can We Predict The Turn?*

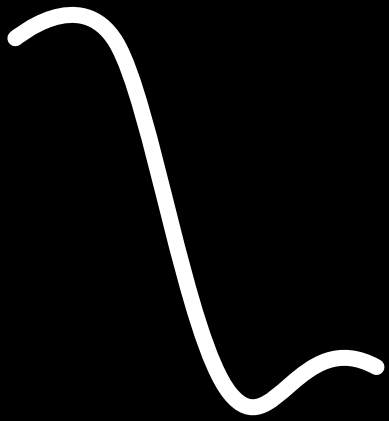
*Can a Simple Leading Revenue Indicator Be Developed?*

# *Can a Simple Leading Revenue Indicator Be Developed?*

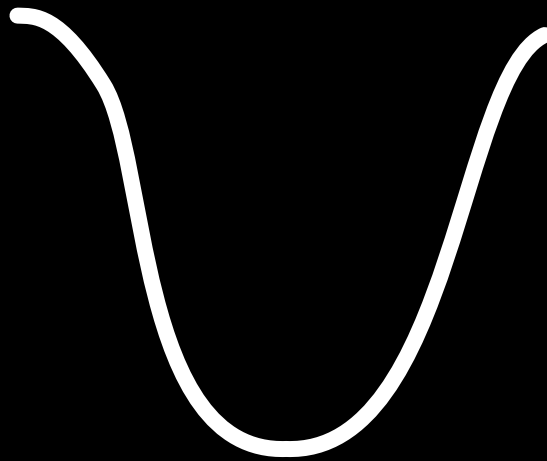
- Resources are Limited... Keep Focused*
- Forecast The Turn... Not Revenue Dollars*
- Zen Like Approach... Keep It Simple*

*Task: Develop a Leading Index of Revenue.*

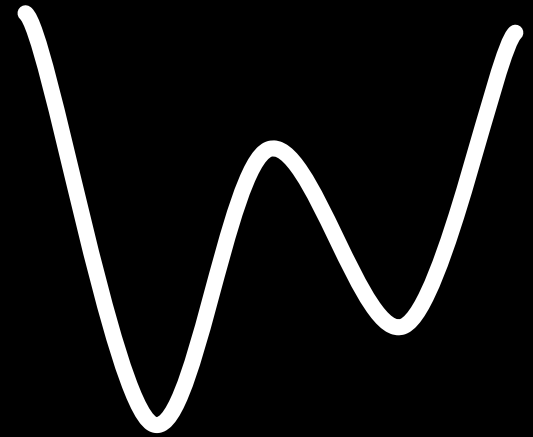
# *What Is The Turn?*



*“L”*

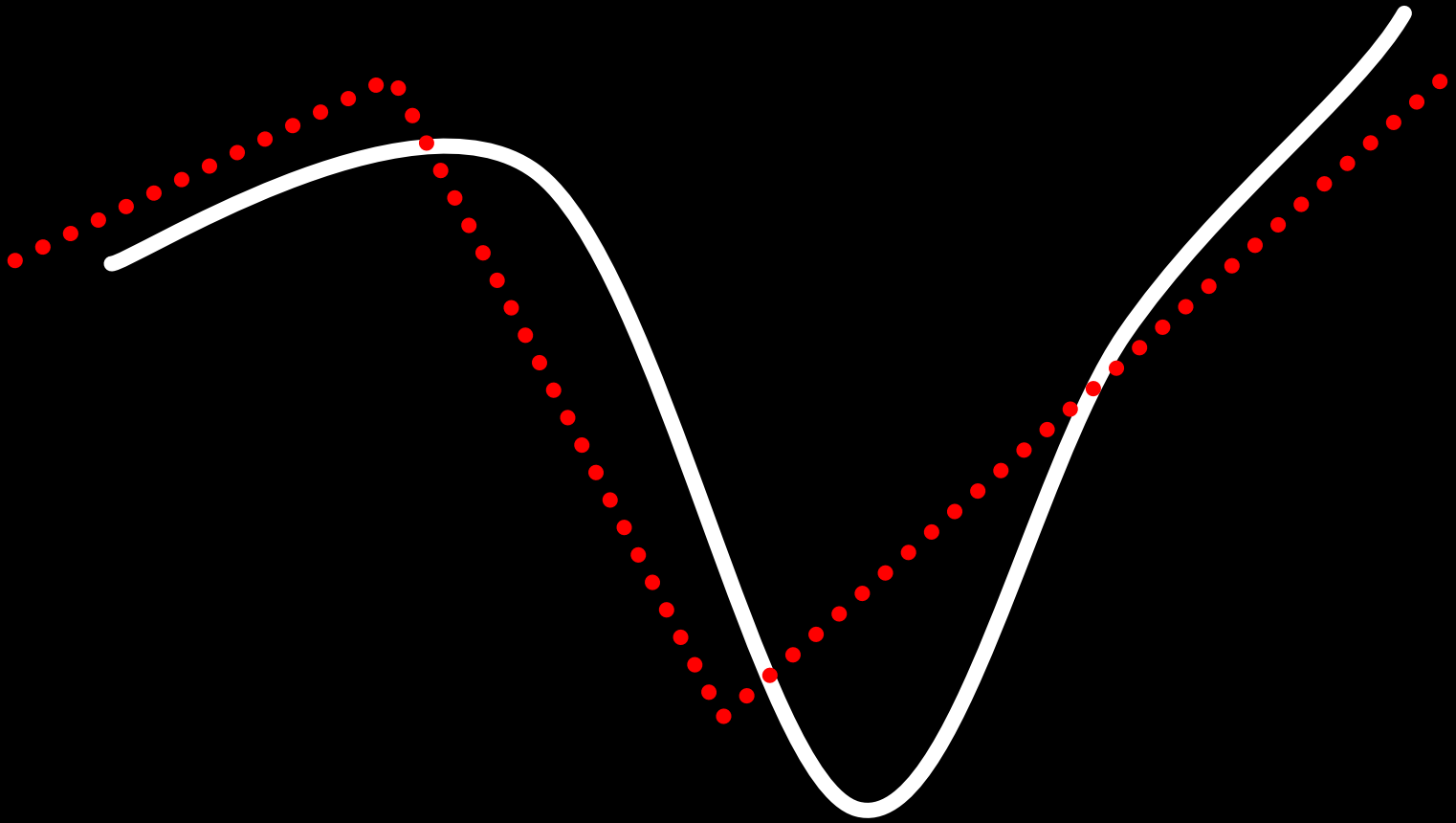


*“U”*

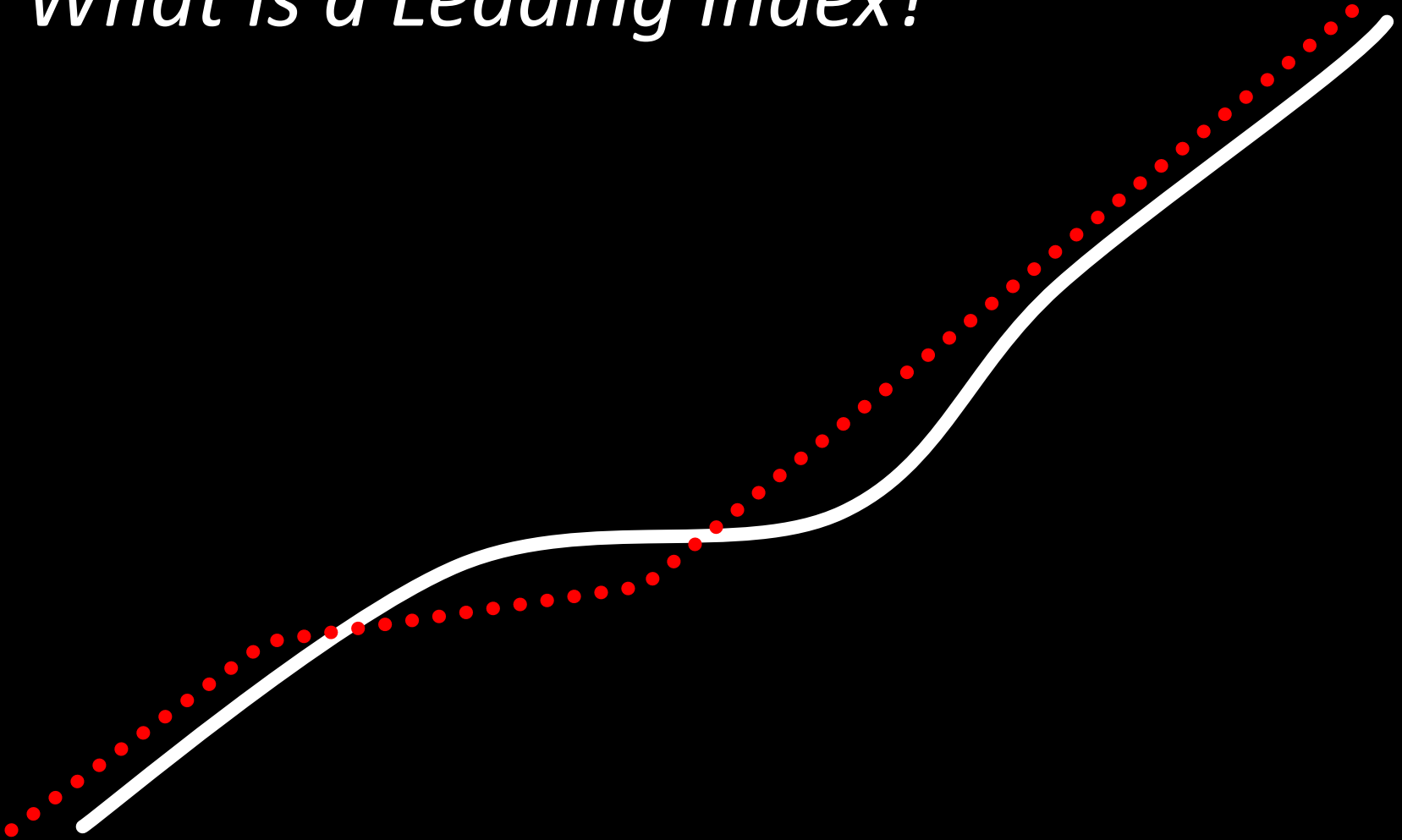


*“W”*

*What is a Leading Index?*



*What is a Leading Index?*



# *Developing a Leading Index*

- *Develop a Simple Model*
- *Collect the Data*
- *Treat the Data*
- *Analysis*
- *Results*

# *Develop A Simple Model*

***Economic  
Drivers  
“ED”***



***Government  
Revenue  
“R”***

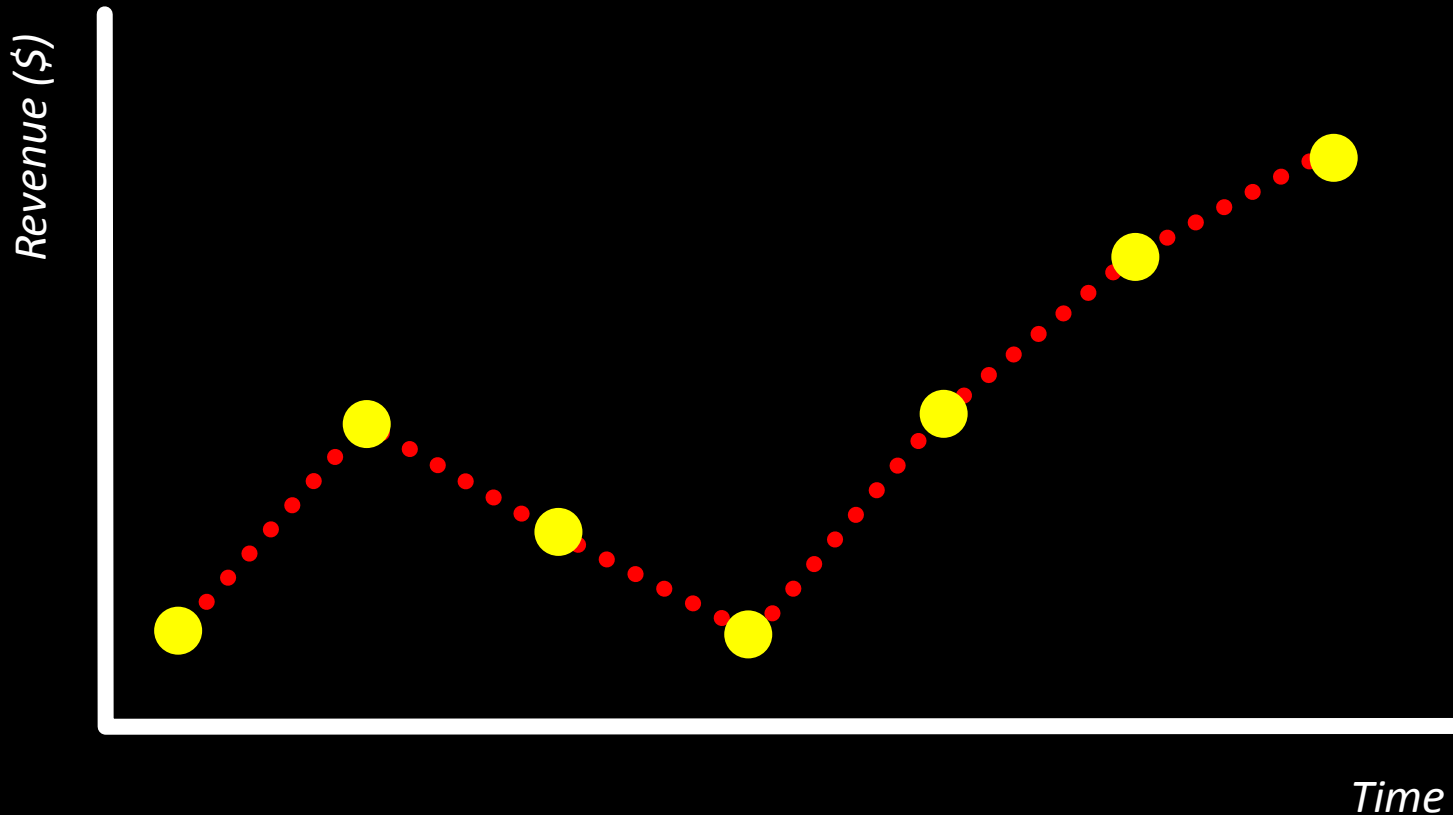
$$R_t = f(ED_{t-x})$$

# *Collection of the Data*

- *Economic Drivers (Monthly)*
  - *Wichita MSA Manufacturing Employment*
  - *CPI-U*
- *Revenue (Annual)*
  - *Ad Valorem Taxes*
  - *Motor Vehicle Taxes*
  - *Recreational Vehicle Taxes*
  - *16/20m Truck Taxes*
  - *Moving Rental Excise Tax*
  - *Local Sales Tax*
  - *Represents About 72% of Revenue*

# *Treatment of the Data*

- *Create Monthly Revenue Data*

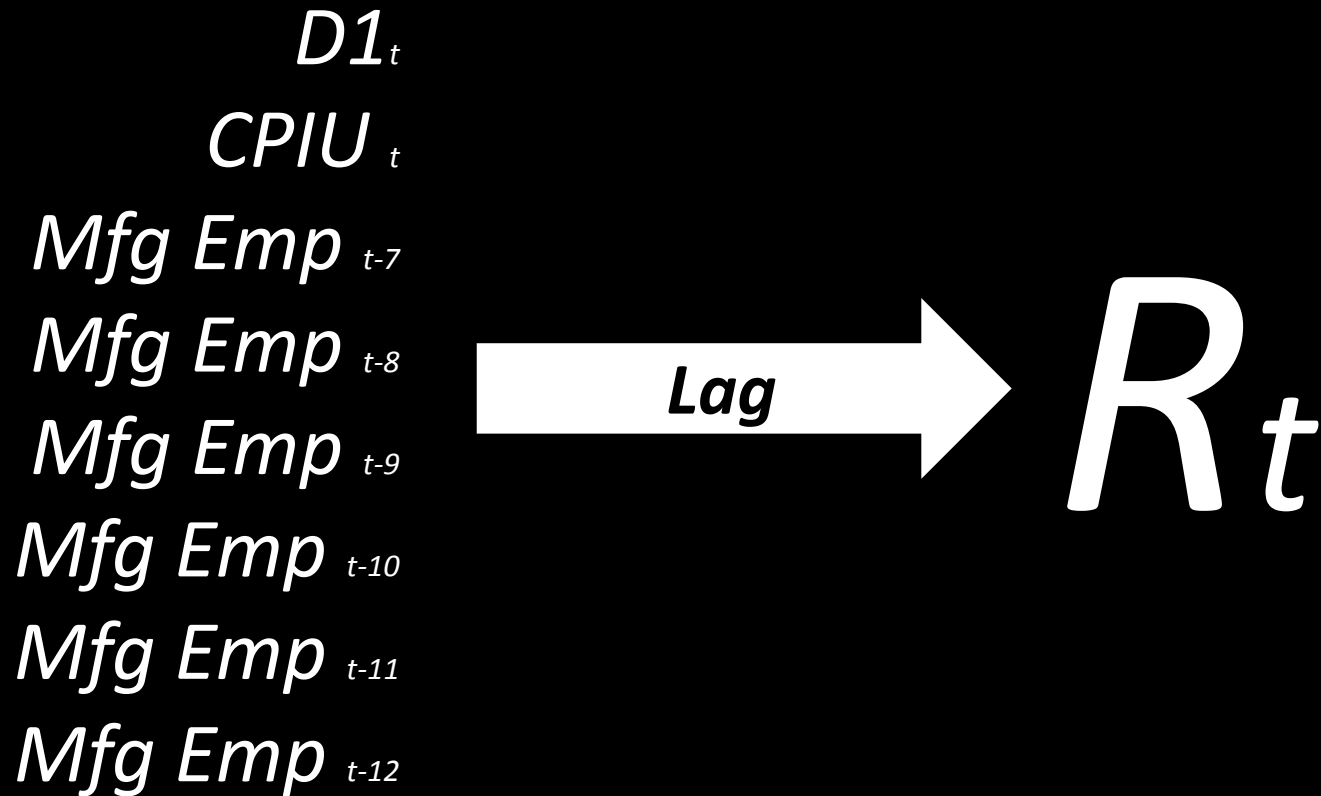


# *The Analysis*

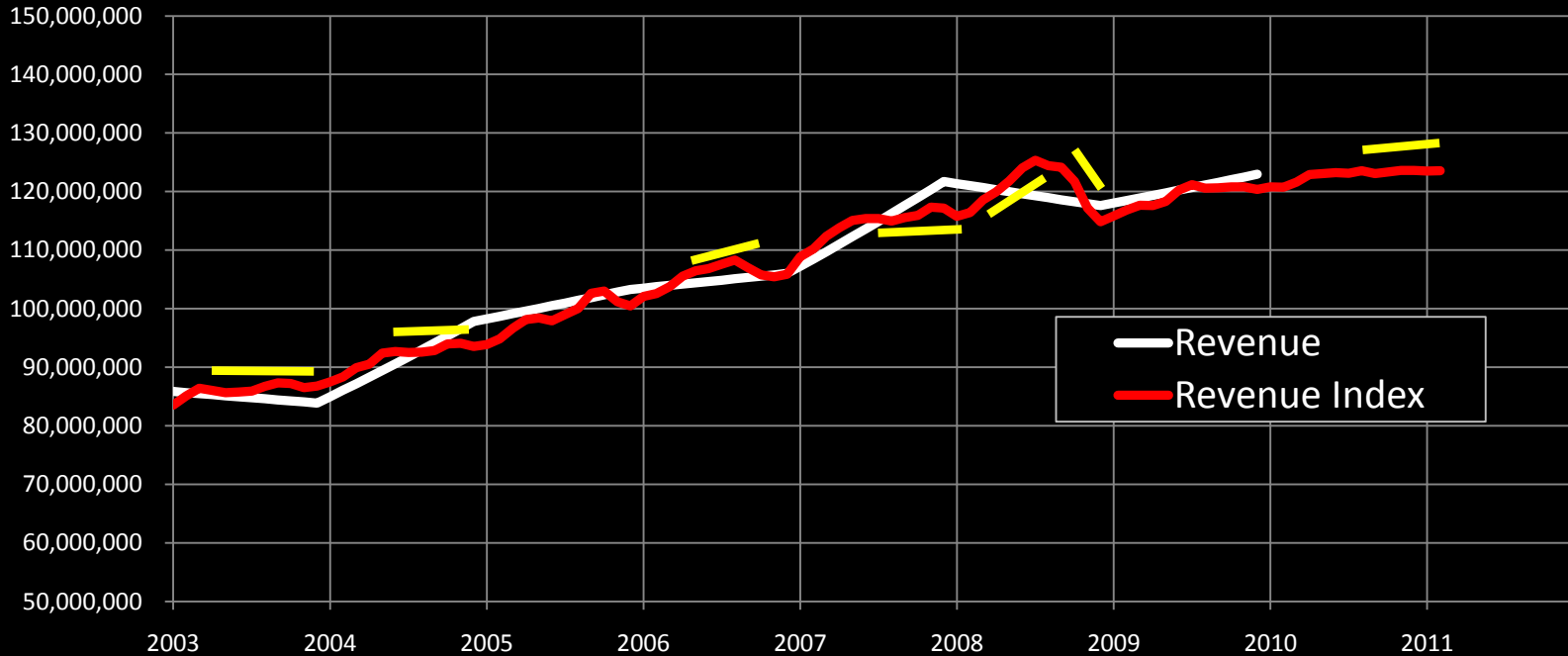
- *Used Regression Analysis*
- *The Basic Model*
  - *$R_t = f(\text{Economic Drivers}_{t-x})$*
  - *Economic Drivers*
    - *Wichita MSA Mfg Employment*
    - *Consumer Price Index*
  - *Lag TBD (t-x)*



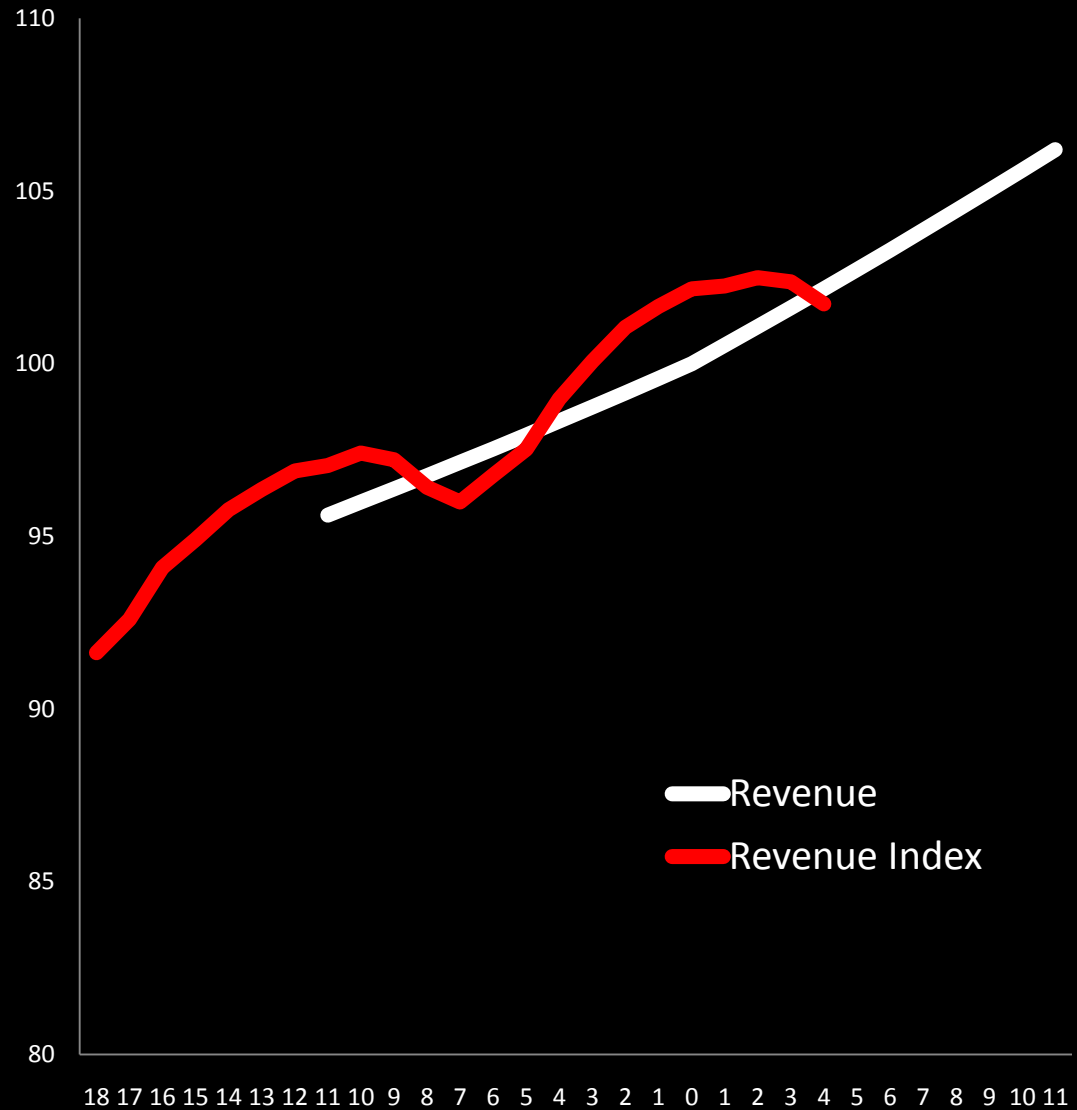
# The Results



# The Results



# *The Results*



# Assessment

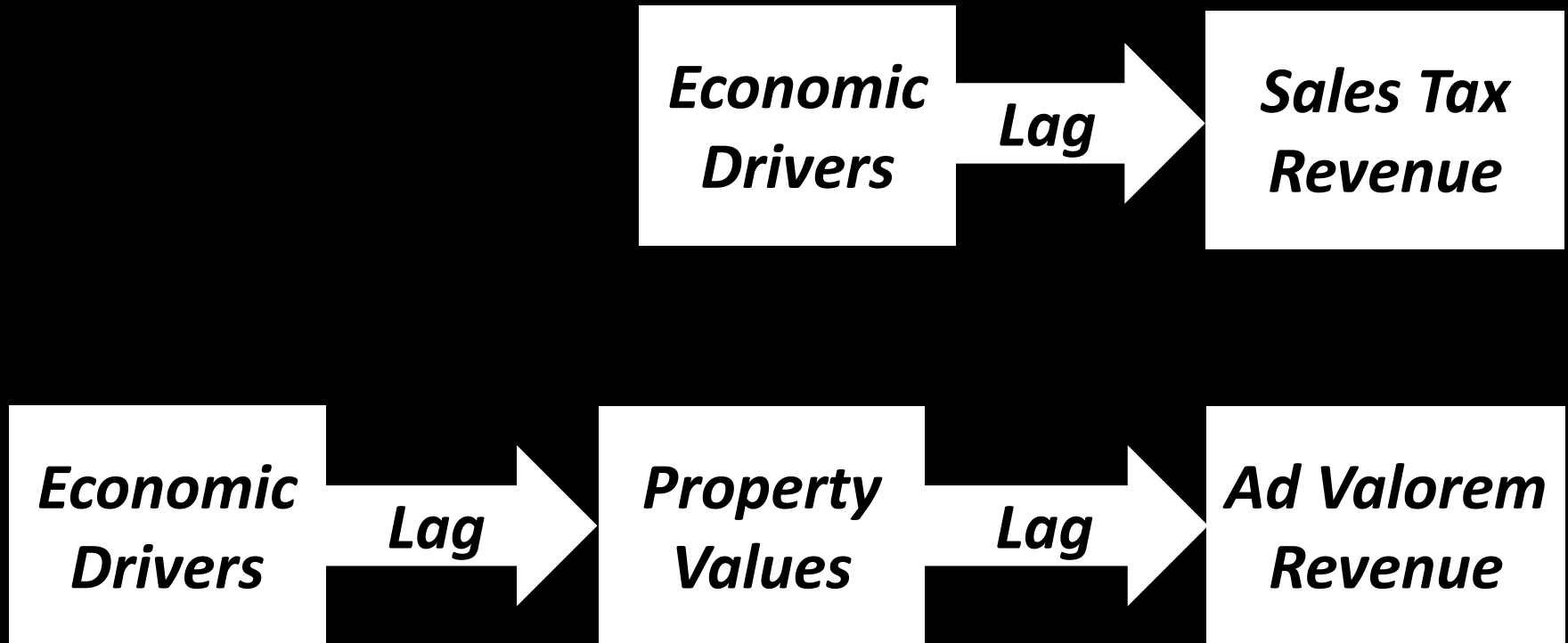
- *Pretty Good Start... A Work in Progress*
- *Simple & Robust*

*Alton Brown...  
Multi-Tasker -  
Pretty Good ST-  
Forecast Model*



- *Treatment of Monthly Revenue Data*
- *Opportunity - Lagged ED... Ease, Makes Sense*
- *Consideration - Ad Valorem / Sales Tax*

# *Develop A Simple Models*



# Where to Play

$D1_t$

$CPIU_{t-12}$

$Mfg\ Emp_{t-12}$

$Mfg\ Emp_{t-13}$

$Mfg\ Emp_{t-14}$

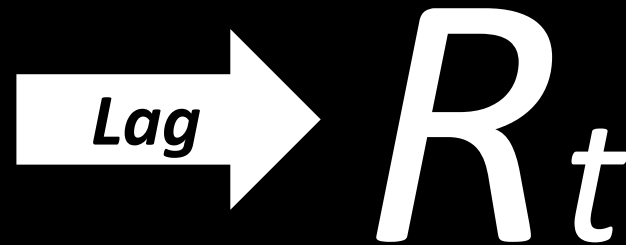
$Mfg\ Emp_{t-15}$

$Mfg\ Emp_{t-16}$

$Mfg\ Emp_{t-17}$

~~$Ad\ Valorem^*_{t-12}$~~

$Ad\ Valorem\ Tax\ Levies\ Mill_t$



\*12 MMA

# *Final Thoughts*

- *Zen Like Approach... Keep It Simple*
- *Resources are Limited... Keep Focused*
- *The Turn? “Oh Really...”*
- *So Do You Need or Want a Model?*
- *Understand :*
  - *The Market*
  - *The Community*
  - *The Environment*
  - *Your Role...*

# *The Role of the Analyst*

Senior Naval Officer: So, sir, you would have us mobilize the entire fleet, at the cost of millions of dollars, based on this 'spine-tingling' feeling of yours?

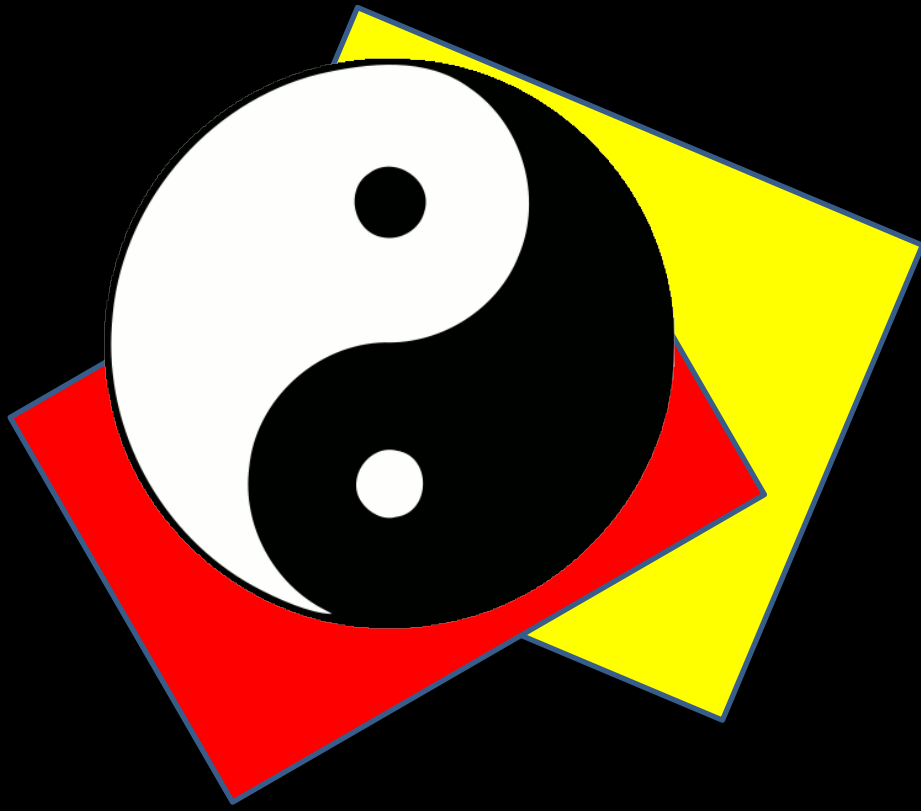


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Capt. Thurman (Character)  
Dan Aykroyd from Pearl Harbor (2001)

Captain Thurman: No, sir. I understand my job is to gather and interpret material.

Making difficult decisions based on incomplete information from my limited decoding ability is your job, sir.



*Thank You*