

2002 ICFC
Forecasting Tutorial and
Discussion

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Network Forecasting

Ask Questions As I Talk!

Outline of Tutorial

- Review Loomis 2001 Tutorial
- Disaggregating Your Forecast Series
- Open Discussion:
 - How can Forecasting Remain a Value-Added Function in the Organization?

2001 Tutorial

- Dave investigated best (most accurate) method to forecast access lines increase; inservice current period less inservice last period, increase, or inward and outward and subtract
- Conclusions (that I took away)
 - Inservice is the least accurate
 - If there is a distinct seasonal pattern in inward or outward, forecasting inward and outward separate is best
 - Otherwise, forecasting increase is the best

How detailed to Forecast?

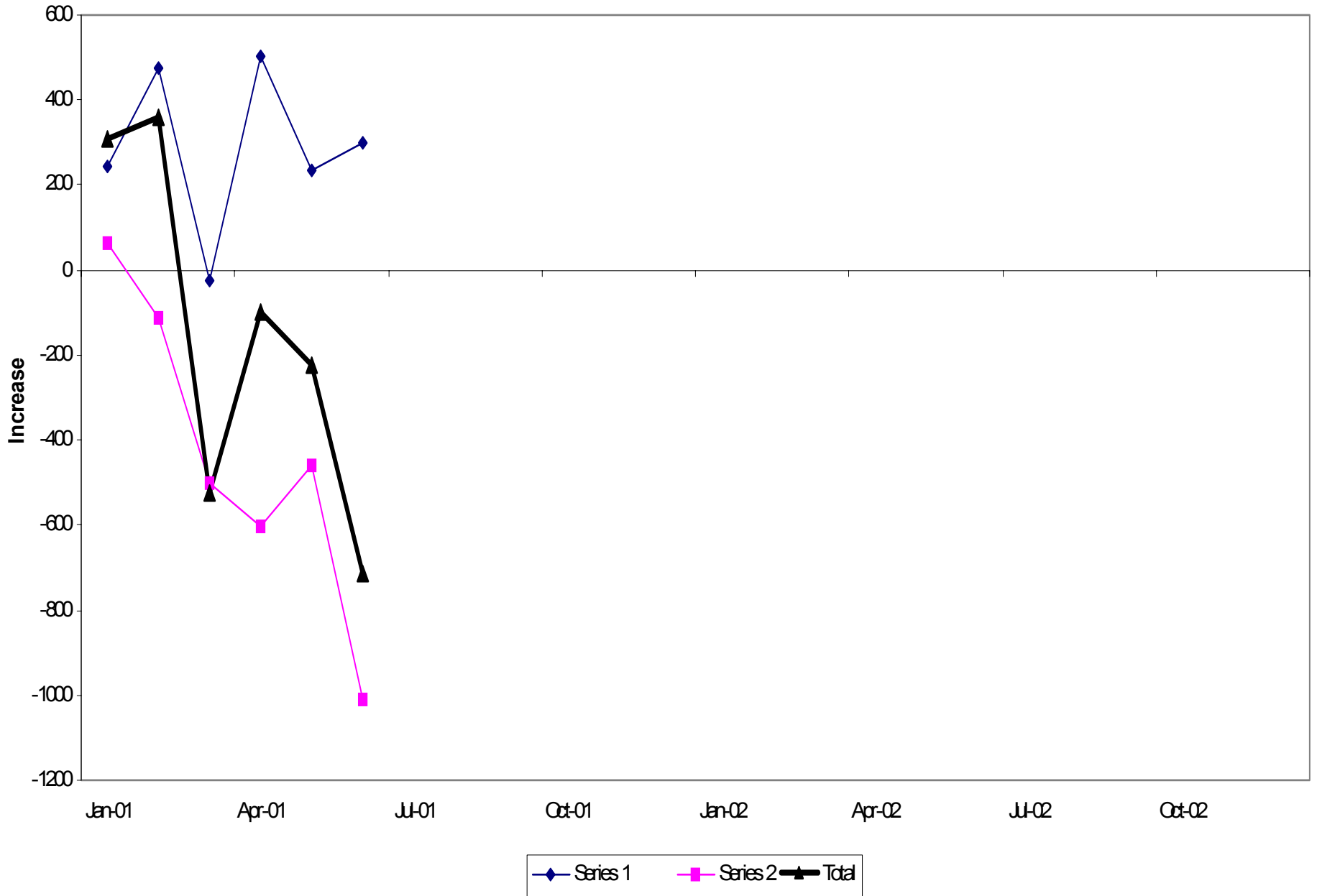
- Hypothesis: Forecast at the most disaggregate level that major trends are observed but not so low as to introduce a lot of random elements
 - Middle out forecasting
 - Forecast at middle level; allocate down and sum up

How detailed to Forecast?

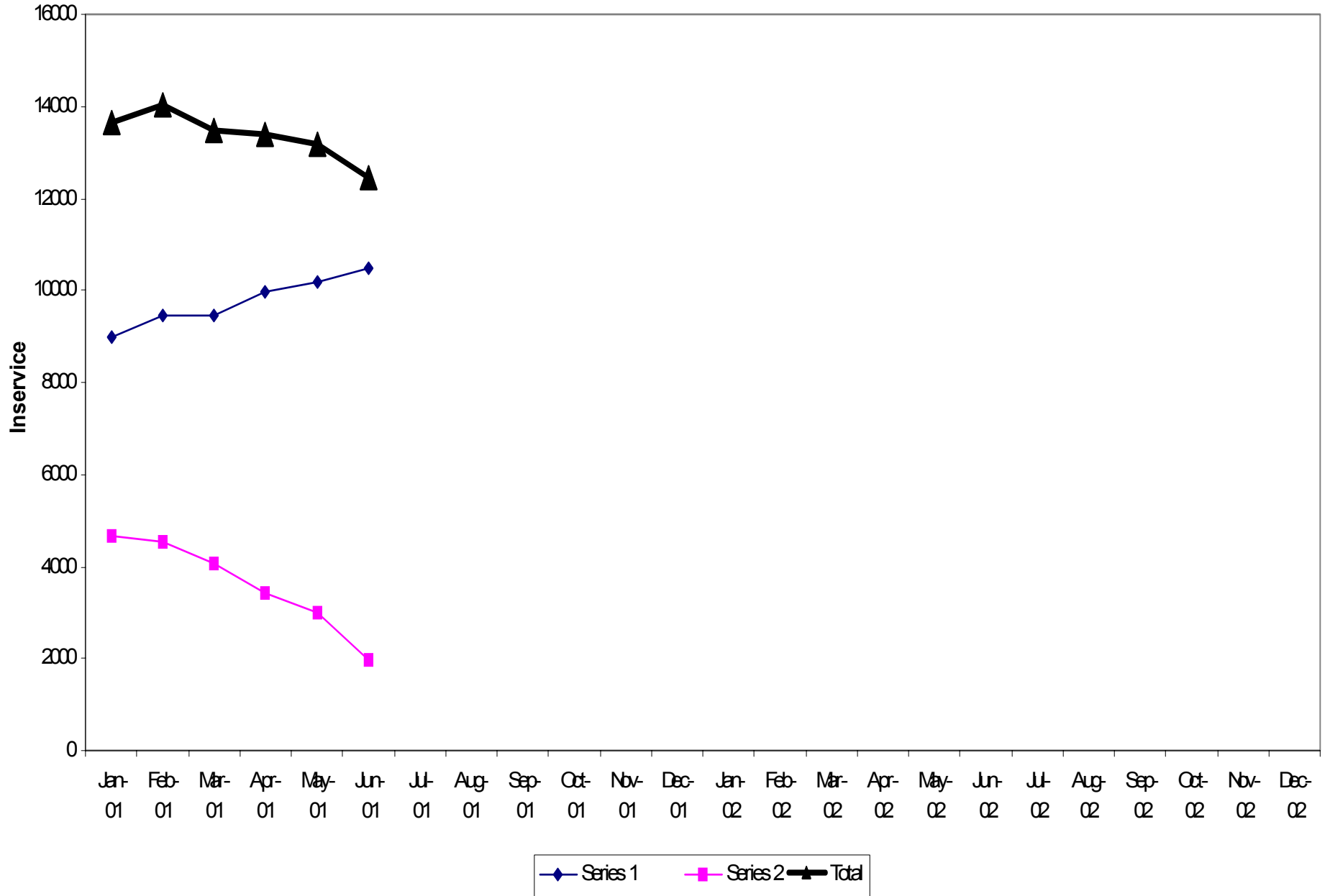
Two examples:

- State level products
- Wire Center Residence access lines

Two Underlying Series Show Very Different Patterns



Inservice of Series2 is Approaching Zero!

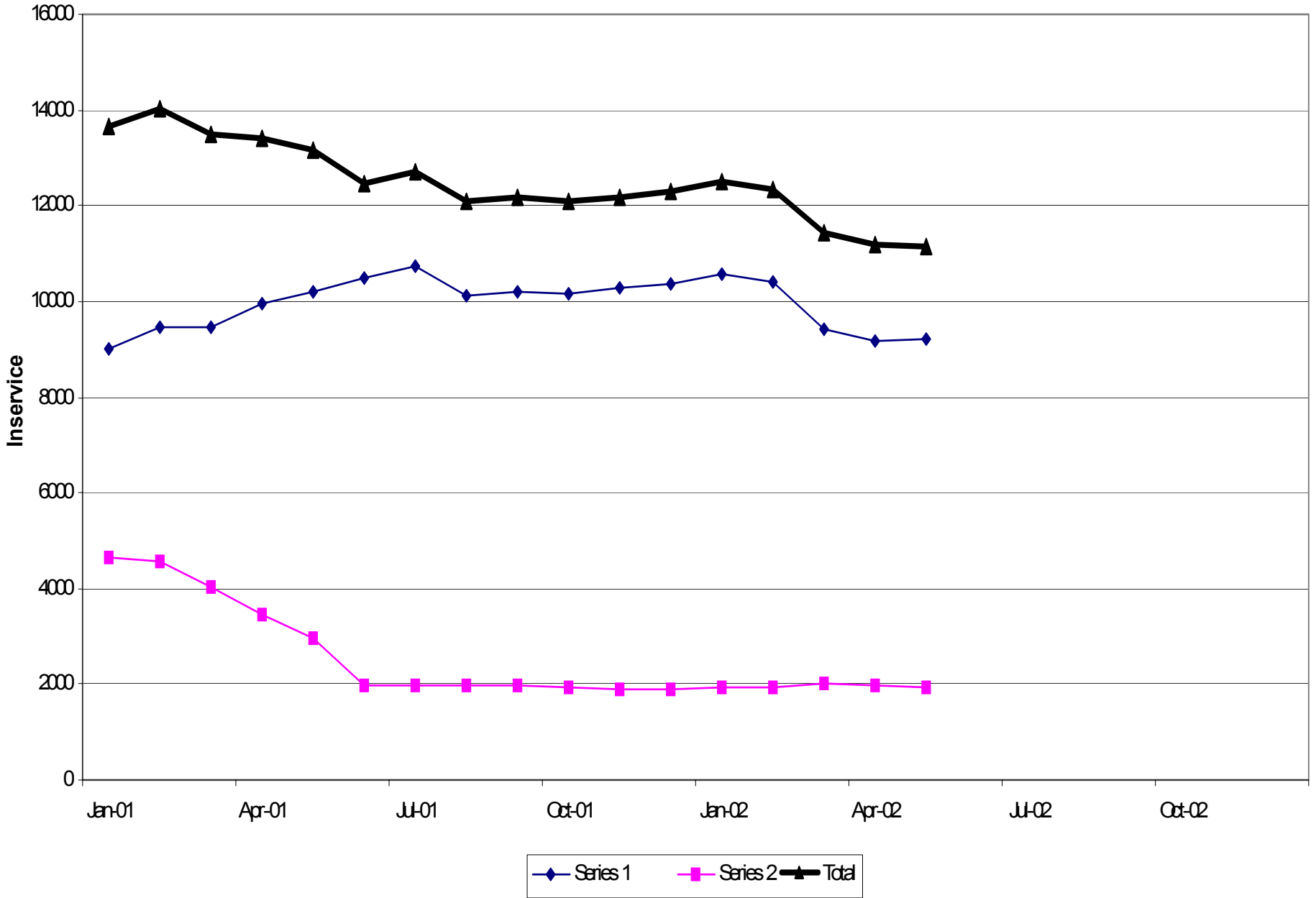


How Detailed to Forecast?

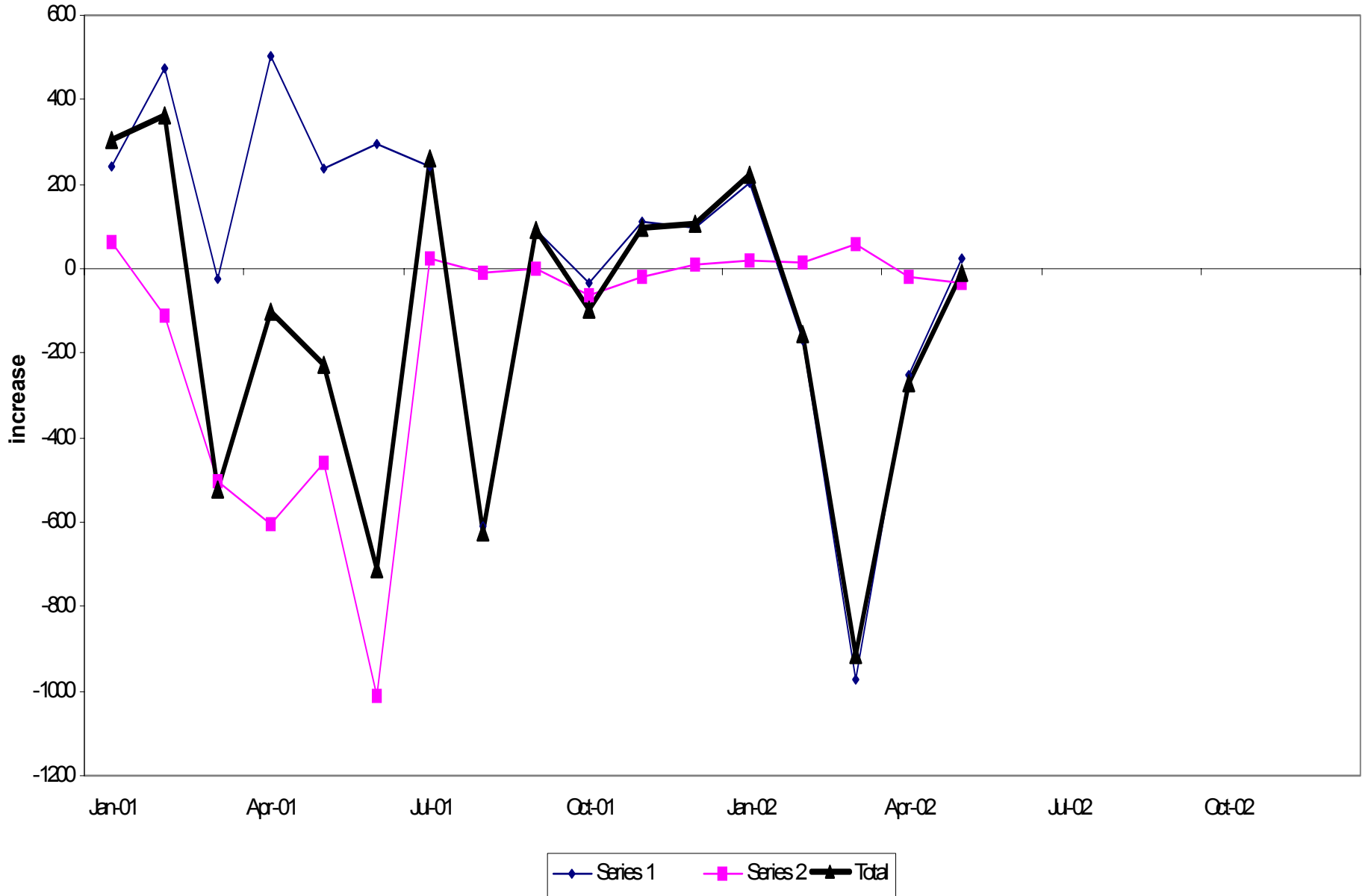
- Is there substitution going on between the underlying series?
- Are the underlying patterns correct or the total pattern?
- This decision will influence the final forecast!

The forecaster must know the data to forecast accurately!

Things Turned Out Differently Than Expected!



Forecasting the total series would make an accurate forecast,
but what if Series 2 begins to decline again?



How Detailed to Forecast

Conclusions:

- Do your homework
- Know your data; plot it; take it apart and put it back together; before you forecast
- Be in touch with the Marketing/Regulatory folks or include them in the forecast process
- Forecast at a level that makes sense and shift quickly with the changing circumstances

How Detailed to Forecast?

- Conclusions:
 - Experience counts
 - Forecasting is an art more than statistics
 - A Forecast is always wrong!
 - The risk in the forecast is important to you and the client.

How detailed to Forecast

- Ohio Wire Center Study (121) of Residence Lines
- Investigated Grouping by:
 - Engineering District
 - MSA
 - LATA
 - College/Non-College
 - Urban/Suburban/Rural/Open Spaces
 - Competitive/Non-competitive
 - College/USRO
 - College/Engineering District

How Detailed to Forecast

- Data Mining conclusions here
 - Must know your data and label it
 - Must know or guess at the key drivers to the series and sub-series
- Must decide the accuracy criteria that is critical
 - For us, forecasts by wire center are key; so accuracy at this level
 - KISS Principle: just absolute miss summed for all wire centers

How Detailed to Forecast

- Did a hold out technique:
 - Had data from January 1999 to April 2002
 - So, did time series forecasts using data from January 1999 to December 2001
 - Compared first four months actuals to forecast of first four months
- Compared 2002 forecast from middle out to time series at wire center level
- Compared 2002 forecast from middle out to last forecast that was mostly judgmental.

How Detailed to Forecast

- Results:
 - Engineering District Grouping Worked Best ; that is sub-metro area
 - Beat a total top down run as well as at the wire center level
 - Looking at the first four months; the LAF would have chosen the forecast 75% of the time
 - Looking at the annual, the LAF would have used the Grouped forecast 56% of the time.
 - The judgment forecast (last April view) would have been chosen as a tie to the Grouped forecast
 - But, this was much better than the ungrouped smoothing run that the LAF previously just dismissed.

How Detailed to Forecast

- Next Steps in the Grouping Study:
 - Use for other states and products by other LAF
 - Test over the entire year
 - Have someone do better statistics

But, the results look promising as a way to gain a better understanding of the series and to reduce forecast cycle time providing as good or even more accurate forecasts.

Open Discussion

How do Forecasters retain their jobs in an industry having a very difficult time?

- How do you add value in your organization? Is it considered a strategic asset? If not, can it be?
- How do you do that and not stretch yourself too thin?
- Who are your traditional forecast clients?

Discussion Questions

- The IBF Conferences as well as best practice studies tell us to have a forecast council or a process to involve the key people to develop the most accurate forecast. How does your organization coordinate its forecasting?
- In which organization is forecasting located? Does it matter?