

- 30 The number of cases of merlot wine sold by the Connor Owen winery in an eight-year period is as follows:

YEAR	CASES OF MERLOT WINE	YEAR	CASES OF MERLOT WINE
2002	270	2006	358
2003	356	2007	500
2004	398	2008	410
2005	456	2009	376

Using an exponential smoothing model with an alpha value of 0.20, estimate the smoothed value calculated as of the end of 2009. Use the average demand for 2002 through 2004 as your initial forecast, then smooth the forecast forward to 2009.

CASE: ALTAVOX ELECTRONICS

Altavox is a manufacturer and distributor of many different electronic instruments and devices, including digital/analog multi-meters, function generators, oscilloscopes, frequency counters, and other test and measuring equipment. Altavox sells a line of test meters that are popular with professional electricians. The model VC202 is sold through five distributors to retail stores in the United States. These distributors are located in Atlanta, Boston, Chicago, Dallas, and Los Angeles and have been selected to serve different regions in the country.

The model VC202 has been a steady seller over the years due to its reliability and rugged construction. Altavox does not consider

this a seasonal product, but there is some variability in demand. Demand for the product over the past 13 weeks is shown in the following table.

These data are contained in an Excel spreadsheet *Altavox Data*. The demand in the regions varies between a high of 40 units on average per week in Atlanta and 48 units in Dallas. This quarter's data are pretty close to the demand last quarter.

Management would like you to experiment with some forecasting models to determine what should be used in a new system being implemented. The new system is programmed to use one of two models: simple moving average or exponential smoothing.

WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13	AVERAGE
Atlanta	33	45	37	38	55	30	18	58	47	37	23	55	40	40
Boston	26	35	41	40	46	48	55	18	62	44	30	45	50	42
Chicago	44	34	22	55	48	72	62	28	27	95	35	45	47	47
Dallas	27	42	35	40	51	64	70	65	55	43	38	47	42	48
LA	32	43	54	40	46	74	40	35	45	38	48	56	50	46
Total	162	199	189	213	246	288	245	204	236	257	174	248	229	222



Excel:
Altavox Data

QUESTIONS

- Consider using a simple moving average model. Experiment with models using five weeks' and three weeks' past data. The past data in each region is given below (week -1 is the week before week 1 in the table, -2 is two weeks before week 1, etc.). Evaluate the forecasts that would have been made over the 13 weeks for each distributor using the mean absolute deviation, mean absolute percent error, and tracking signal as criteria.

WEEK	-5	-4	-3	-2	-1
Atlanta	45	38	30	58	37
Boston	62	18	48	40	35
Chicago	62	22	72	44	48
Dallas	42	35	40	64	43
LA	43	40	54	46	35
Total	254	153	244	252	198

- Next, consider using a simple exponential smoothing model. In your analysis, test two alpha values, .2 and .4. Use the same criteria for evaluating the model as in question 1. Assume that the initial previous forecast for the model using an alpha value of .2 is the past three-week average. For the model using an alpha of .4, assume that the previous forecast is the past five-week average.
- Altavox is considering a new option for distributing the model VC202 where, instead of using five distributors, only a single distributor would be used. Evaluate this option by analyzing how accurate the forecast would be based on the demand aggregated across all regions. Use the model that you think is best from your analysis of questions 1 and 2. What are the advantages and disadvantages of aggregating demand from a forecasting view? Are there other things that should be considered when going from multiple distributors to a single distributor?