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T.I.M 125

Homework 3

Homework 3

Plan

- Monday – Review Notes, Read SCM,
- Tuesday – Work on Homework problems 1 &2
- Wednesday – Finish homework problems 3 &4
- Turn in assignment t

Problem 1: Seven Eleven Japan

Define

Seven-Eleven Japan, SCM, 4th Edition, Chapter 3, "7-11 Japan" Case Study, Study Questions 3, 6

#3 What has Seven-Eleven done in its done in its choice of facility location, inventory management, transportation, and information infrastructure to develop capabilities that support its supply strategy in Japan?

#6 Seven-Eleven in attempting to duplicate the supply chain structure that has succeed In Japan and the United States with the introduction of CDs. What are the pros and cons of the approach? Keep in mind that stores are also replenished by wholesalers and DSD by manufactures.

Plan

Read Chapter 3

Look over the case study Questions

Contact the previous group members

Execute

3. What has Seven-Eleven done in its done in its choice of facility location, inventory management, transportation, and information infrastructure to develop capabilities that support its supply strategy in Japan?

Japan in a very advance country that is populated by an increasingly amount of people. Due to this fact, Seven-Eleven can easily by opened across locations that have a high density of people all the time. A high-populated country is a great place to locate the store because it ensures bust business. Seven-

Eleven is chained store, which links together in headquarters, suppliers, and distributors. This allows the store to be more efficient. Due to its mass and centralized system, it is easier to transport in order to supply all the stores. Seven-Eleven is a highly responsive supply chain that allows customers to receive their goods in the most productive way possible. It can easily restore its suppliers as soon as its in stock. Seven-Eleven inventory system runs on an information system that contacts the distributor and suppliers though periods of delivery. The Transport system is adjustable and allows stores to be efficiently stocked.

6. Seven-Eleven in attempting to duplicate the supply chain structure that has succeed In Japan and the United States with the introduction of CDs. What are the pros and cons of the approach? Keep in mind that stores are also replenished by wholesalers and DSD by manufactures.

Pros	Cons
Duplicating the supply chain sttucture in Japan and the US with the introduction of CDs - Keep stock - Pack larger shipments - Transport can carry multiple items to different stores - Products would be categorized per truck.	Duplicating the supply chain structure in Japan and the US with the introduction of CD's - There is a higher cost for labor and overstock - Companies don't want to use CDC system - Not centralized in certain locations - There would be two separate systems

Check your work
Learn and Generalize

After reading the case study, I saw how Seven-Eleven is a common convenience store. The store is a blue print for many other corner stores everywhere. Seven-Eleven has a productive operating system that finds the balance in efficiency and responsiveness spectrum which gives them tremendous business. Their cost are efficient where it is not high or low. There are also very efficient with replanting their items once they notice a particular low in stock, however the systems are different in countries.

2 Demand Forecasting

Define

Demand Forecasting: SCM 4th Edition, D 7.1, 7.2, 7.9, 7.10
D7.1: What role does forecast play in the supply chain of a build-to -order manufacture such as Dell
D7.2: How could Dell use collaborative forecasting with its suppliers to improve its supply chain>
D7.9: what information does the MAD and MAPE provide to a manager? How can the manager use this information?
D7.10: What information does the bias and TS provide to a manager? How can the manager use this information?

Plan

What information is available for solving the problem
What assumptions need to be made to make the solution process manageable?

- Read Chapter 7
- Lecture 7

Execute

D7.1 : What roles does forecasting play in the supply chain of a build-to-order manufacture such as Dell?

Forecasting in the supply chain of a build-to-order manufacture allows the company to analyze their sales within a given time period. The company such as Dell uses a build-to-order supply chain. This process allows them to see the different types of products that are popular during types of seasons. This is a productive tool for Dell because it allows the supplier to increase the purchase of their producers. For example, during school seasons, Dell would be allowed to increase laptops or notebooks. With this advantage, Dell can warm suppliers what needs to be made when, This for casting method cuts cost through increasing efficiency. If products are overstocked. They can notify suppliers of the excess product and allocate it elsewhere.

D7.2: How could Dell use collaborative forecasting with its suppliers to improve its supply chain?

Dell could use collaborative forecasting with its suppliers to improve the supply chain by allowing the manufacture amount of a product more precisely. This leave less inventories behind for storage. It uses the max capacity to allow a better understanding between the supplier and the company in regards of their demands for the specific products. If there is a high demand for a product, The collaborative forecast would allow Dell to manufacture and sell more. This gives customers less wait time. Dell overestimates sales, which proceeds to overstock in their products. This allows the company to have more storage and makes sales more efficient.

D7.9 What information does the MAD and MAPE provide to a manager? How can the manager use this information?

MAD(Mean Absolute Demand) is a tool which estimates the standard deviation of a random component while assuming the data is normal distribution with a bell mean and what the error is. The manager to see how fare the forecast is from the described mean and what the error is. The manager can use this information to see how many standard deviations their forecast are away form the mean. It allows the manager to get a high-level understanding on how accurate the forecast is. MAPE(Mean Absolute Percentage Error) is a tool that I used to estimate the error percentage of demand made during a forecast This tool also allows the manager to increase their accuracy in regards of their future demands and future sales.

D7.10 What information does the bias and TS provide to a manager? How can the manager use this information?

Bias -allows the manager to see if the method they use to forecast the demand is underestimating or overestimating. This allows managers to fix their forecast results. The manager would be able to increase or decrease their stock depending on demands. The manager can plot the data points and construct a best fit line.

TS (Tracking Signal)
The Tracking signal is a method to see how acceptable the forecast results are. In order to see how on track the forecast data is, there is a guideline that managers must follow. If the forecast is in rage either greater or less than six. It is acceptable. If is less than six, the forecast is underestimated. If the signal is more in a sense that will give information on how bias the estimates are.

Check your Work

Learn and Generalize

After further looking into demand forecasting and focusing on Dell. I learned that Dell is a build-to-order company where they have small inventory of their products. The customers can choose the products and altar them into their own preference. This is how Dell takes it as an advantage. Dell being a build-to-order helps saves money in the sense that they do not overstock a certain product as much as other companies may do.

Forecasting is an important factor because it allows companies to determine the future demands and helps efficiency.

3 Tahoe salt (Chapter 7 continued) Forecast demand

Define

Tahoe salt (Chapter 7 continued) Forecast demand using the 1) static method (make sure to include the appropriate error analysis) and 2) moving average and simple Exponential soothing forecasting methods.

Plan

- Review notes
- Textbook
- Static forecasting method & error analysis
- Moving average & simple Exponential smoothing forecast method

Execute

Systemic Component = (level + trend) x seasonal factor

L= Level Estimate at t=0
T= Trend Estimate
St= seasonal factor Estimate
Dt= actual demand observed
Ft= Forecast of demand for period t

$F(T+L) = [L+(t+L)T]\ St+l$

1. Create a quarterly demand

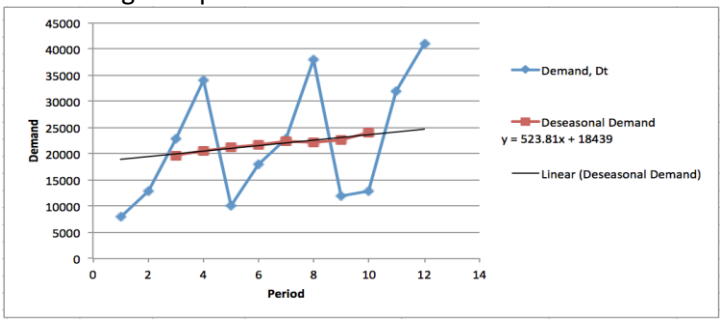
Year	Quarter	Period	Demand, Dt
1	2	1	8000
1	3	2	13000
1	4	3	23000
2	1	4	34000
2	2	5	10000
2	3	6	18000
2	4	7	23000
3	1	8	38000
3	2	9	12000
3	3	10	13000
3	4	11	32000
4	1	12	41000

From the book

2. Using the quarterly Demand for Tahoe Salt, calculated the deseasonalized demand Dt.[the periodicity of the data is even(quarterly , p=4)]

Period	Demand, Dt	Deseasonal Demand
1	8000	
2	13000	
3	23000	19750
4	34000	20625
5	10000	21250
6	18000	21750
7	23000	22500
8	38000	22125
9	12000	22625
10	13000	24125
11	32000	
12	41000	

3. With the Deseasonalized demand calculation, can plot the given demand and deseasonsalized demand against period time.



Blue lie is given demand. Redline is the deseasonalized demand. Deseasonalized demand shows a trend

4. The calculated regressed demand
Level = 18,439
Trend = ~524

Regressed Demand
18963
19487
20011
20535
21059
21583
22107
22631
23155
23679
24203
24727
25251
25775
26299
26823

5. We can now calculate the season factors.

Seasonal Factors
0.421874176
0.667111408
1.149367848
1.655709764
0.474856356
0.833989714
1.040394445
1.679112721
0.518246599
0.549009671
1.322150147
1.658106523
0
0
0
0

6. obtain the seasonal factor by retrieving the average seasonal factor, Si
Seasonal cycle is 3 since 12 period and 4 quarters 12/4=3

Avg. Seasonal Factor
0.471659044
0.683370264
1.17063748
1.66430967

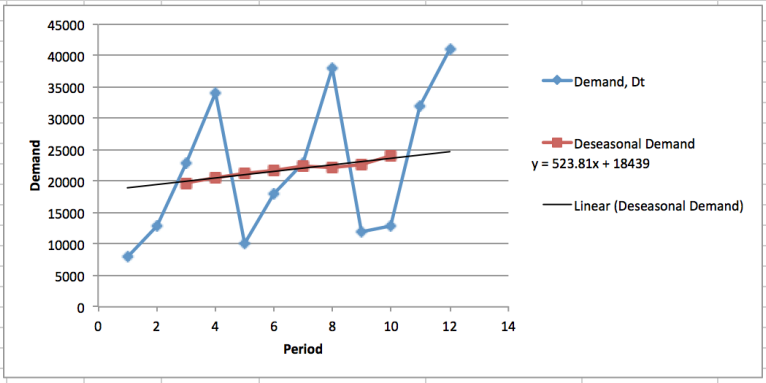
7. After the seasonality of each year, we will use one years seasonality and assume it is the same for every year.
F1 = D1S1 ; S1; F5=D5S1; F16

$F_{t+1} = (L_t + lT_t)S_{t+1}$

$E_{t+1} = F_{t+1} - D_{t+1}$

8. outcome forecast

Year	Quarter	Period	Demand, Dt	Deseasonal Demand	Regressed Demand	Seasonal Factors	Avg. Seasonal Factor	Reseasonal Data Forecast
1	2	1	8000		18963	0.421874176	0.471659044	8944.070445
1	3	2	13000		19487	0.667111408	0.683370264	13316.83634
1	4	3	23000	19750	20011	1.149367848	1.17063748	23425.62661
2	1	4	34000	20625	20535	1.655709764	1.66430967	34176.59906
2	2	5	10000	21250	21059	0.474856356		9685.518462
2	3	6	18000	21750	21583	0.833989714		14391.09439
2	4	7	23000	22500	22107	1.040394445		25265.86873
3	1	8	38000	22125	22631	1.679112721		36792.89386
3	2	9	12000	22625	23155	0.518246599		10921.26516
3	3	10	13000	24125	23679	0.549009671		16181.52449
3	4	11	32000		24203	1.322150147		28332.93892
4	1	12	41000		24727	1.658106523		41153.3852
4	2	13			25251	0		11909.86251
4	3	14			25775	0		17613.86856
4	4	15			26299	0		30786.59508
5	1	16			26823	0		44641.77827



9. Error analysis

Period t	Demand Dt	Level Lt	Forecast Ft	Error Et	Absolute Error MSEt	Squared Error MSEt	MADt	% Error	MAPEt	TSt
0		22,083								
1	8,000	20,675	22,083	14,083	14,083	198,340,278	14,083	176	176	1
2	13,000	19,908	20,675	7,675	7,675	128,622,951	10,879	59	118	2
3	23,000	20,217	19,908	-3,093	3,093	88,936,486	8,284	13	83	2
4	34,000	21,595	20,217	-13,783	13,783	114,196,860	9,659	41	72	0.51
5	10,000	20,436	21,595	11,595	11,595	118,246,641	10,046	116	81	1.64
6	18,000	20,192	20,436	2,436	2,436	99,527,532	8,777	14	70	2.15
7	23,000	20,473	20,192	-2,808	2,808	86,435,714	7,925	12	62	2.03
8	38,000	22,226	20,473	-17,527	17,527	114,031,550	9,125	46	60	-0.16
9	12,000	21,203	22,226	10,226	10,226	112,979,315	9,247	85	62	0.95
10	13,000	20,383	21,203	8,203	8,203	108,410,265	9,143	63	63	1.86
11	32,000	21,544	20,383	-11,617	11,617	110,824,074	9,368	36	60	0.58
12	41,000	23,490	21,544	-19,456	19,456	133,132,065	10,208	47	59	-1.38

Part 2. Moving average and simple Exponential Smoothing Forecasting methods

Moving Average.

Assumption: Data has level L
Tahoe salt
(D1+D2=D3=D4)/4
=(8,000+13,000+23,000+34,000)/4
=19,500
19,500-10,000=9,500 *100% = 95%
MAPE = %error = 95% => BAD

Can we do better
(D5+D4+D3+D2)/4
=(10,000+ …13,000)
L5=20,000
F6=20,000
E6=2,000

%ERROR= 2,000/18,000X 100% = 11% => GOOD
MAPE= %ERROR = (95+11)/2
=53%

Period t	Demand D_t	Level L_t	Forecast F_t	Error E_t	Absolute Error MSE_t	Squared Error MSE_t	MAD_t	% Error	$MAPE_t$	TS_t
1	8,000									
2	13,000									
3	23,000									
4	34,000	19,500								
5	10,000	20,000	19,500	9,500	9,500	90,250,000	9,500	95	95	1.00
6	18,000	21,250	20,000	2,000	2,000	47,125,000	5,750	11	53	2.00
7	23,000	21,250	21,250	-1,750	1,750	32,437,500	4,417	8	38	2.21
8	38,000	22,250	21,250	-16,750	16,750	94,468,750	7,500	44	39	-0.93
9	12,000	22,750	22,250	10,250	10,250	96,587,500	8,050	85	49	0.40
10	13,000	21,500	22,750	9,750	9,750	96,333,333	8,333	75	53	1.56
11	32,000	23,750	21,500	-10,500	10,500	98,321,429	8,643	33	50	0.29
12	41,000	24,500	23,750	-17,250	17,250	123,226,563	9,719	42	49	-1.52

Simple smoothing forecast

Assumption: data has level l only
Initial value of level l0 = average overall the available data
L0 = D1+D2+ … D12
=8,000+ …+41,000/12
L0=22,083

Predict F;=l0=22,083
E1=F1-D1=L0-D1=22,083-8,000
=14,083

Choose a=0.1
L1=.1*8,000 +(.9)(22,081)=20,675
Forecast: F2 = L1= 20,675
Error: 20,675-13,000=7,675

Period t	Demand D_t	Level L_t	Forecast F_t	Error E_t	Absolute Error MSE_t	Squared Error MSE_t	MAD_t	% Error	$MAPE_t$	TS_t
0		22,083								
1	8,000	20,675	22,083	14,083	14,083	198,340,278	14,083	176	176	1
2	13,000	19,908	20,675	7,675	7,675	128,622,951	10,879	59	118	2
3	23,000	20,217	19,908	-3,093	3,093	88,936,486	8,284	13	83	2
4	34,000	21,595	20,217	-13,783	13,783	114,196,860	9,659	41	72	0.51
5	10,000	20,436	21,595	11,595	11,595	118,246,641	10,046	116	81	1.64
6	18,000	20,192	20,436	2,436	2,436	99,527,532	8,777	14	70	2.15
7	23,000	20,473	20,192	-2,808	2,808	86,435,714	7,925	12	62	2.03
8	38,000	22,226	20,473	-17,527	17,527	114,031,550	9,125	46	60	-0.16
9	12,000	21,203	22,226	10,226	10,226	112,979,315	9,247	85	62	0.95
10	13,000	20,383	21,203	8,203	8,203	108,410,265	9,143	63	63	1.86
11	32,000	21,544	20,383	-11,617	11,617	110,824,074	9,368	36	60	0.58
12	41,000	23,490	21,544	-19,456	19,456	133,132,065	10,208	47	59	-1.38

Check your work
did this problem to the best of my ability from the book and notes since professor

Learn and Generalize
After using moving average and simple Exponential smoothing forecasting process I am able to ficure out percentage error as well as MAPE error.

4. Demand forecasting for ABC Corporation, Chapter 7 exercise 1

Define
Demand forecasting for ABC Corporation, Chapter 7, exercise 1.
Consider monthly demand for the ABC Corporation as shown in table 7-3. Forecast the monthly demand for year 6 using static method for forecasting. Evaluate the bas, TS, MAD, MAPE, and MSE. Evaluate the quality of the forecast.

Plan
Chapter 7
Review notes
Create Demand forecast
Evaluate bias, TS, MAD, MAPE, and MSE

Execute
Given: Monthly demand dates for 5 years => (12x5) demand data points

Monthly Demand for ABC Corporation					
Sales	Year 1	Year 2	Year 3	Year 4	Year 5
January	2000	3000	2000	5000	5000
February	3000	4000	5000	4000	2000
March	3000	3000	5000	4000	3000
April	3000	5000	3000	2000	2000
May	4000	5000	4000	5000	7000
June	6000	8000	6000	7000	6000
July	7000	3000	7000	10000	8000
August	6000	8000	10000	14000	10000
September	10000	12000	15000	16000	20000
October	12000	12000	15000	16000	20000
November	14000	16000	18000	20000	22000
December	8000	10000	8000	12000	8000
Total	78000	89000	98000	115000	113000

The data has seasonality => yes
Period 12 in each cycle
D1 D2 D3 … D12 D13 = D6.5

D6.5 = (D1+D2+ … D12)/12

D7.5 = (D2+ D3 … D12)/12

D7= (D6.5 +D7.5)/2 = (D1+2 $[\sum_{i=2}^{12} Di]$ + D13)/(2)(12)

Year	Quarter	Period t	Demand D_t	Deseasonalized Demand	Level, L_t	Trend, T_t	Forecast F_t	Error E_t	Absolute Error MSE_t	Mean Squared Error MSE_t	MAD_t	% Error	$MAPE_t$	TS_t
					8216.666667	70.25								
1	1	1	2000		7658.2214	63.22	8,287	6,287	6,287	39,525,271	6,287	314	314	1.00
1	1	2	3000		7249.29852	56.90	7,721	4,721	4,721	30,908,046	5,504	157	236	2.00
1	1	3	3000		6875.578002	51.21	7,306	4,306	4,306	26,786,877	5,105	144	205	3.00
1	2	4	3000		6534.108602	46.09	6,927	3,927	3,927	23,945,073	4,810	131	187	4.00
1	2	5	4000		6322.177303	41.48	6,580	2,580	2,580	20,487,542	4,364	65	162	5.00
1	2	6	6000		6327.291177	37.33	6,364	364	364	17,094,992	3,698	6	136	6.00
1	3	7	7000	6541.666667	6428.160503	687.77	6,365	(635)	635	14,710,523	3,260	9	118	6.61
1	3	8	6000	6625	7004.333053	627.32	7,116	1,116	1,116	13,027,369	2,992	19	106	7.58
1	3	9	10000	6666.666667	7868.489487	568.76	7,632	(2,368)	2,368	12,203,112	2,923	24	96	6.94
1	4	10	12000	6750	8793.521304	520.21	8,437	(3,563)	3,563	12,252,122	2,987	30	90	5.60
1	4	11	14000	6875	9782.361863	480.69	9,314	(4,686)	4,686	13,134,754	3,141	33	85	3.84
1	4	12	8000	7000	10036.7491	445.12	10,263	2,263	2,263	12,466,976	3,068	28	80	4.66
2		13	3000	6916.666667	9733.685265	392.28	10,482	7,482	7,482	15,814,010	3,408	249	93	6.40
2		14	4000	6833.333333	9513.366709	344.72	10,126	6,126	6,126	17,364,968	3,602	153	97	7.75
2		15	3000	7000	9172.275011	326.91	9,858	6,858	6,858	19,342,857	3,819	229	106	9.11
2		16	5000	7083.333333	9049.267986	302.55	9,499	4,499	4,499	19,399,096	3,861	90	105	10.17
2		17	5000	7166.666667	8916.639616	280.63	9,352	4,352	4,352	19,371,994	3,890	87	104	11.21
2		18	8000	7333.333333	9077.54424	269.24	9,197	1,197	1,197	18,375,409	3,741	15	99	11.98
2		19	3000	7375	8712.101543	246.48	9,347	6,347	6,347	19,528,366	3,878	212	105	13.20
2		20	8000	7375	8862.721943	221.83	8,959	959	959	18,597,892	3,732	12	100	13.97
2		21	12000	7500	9376.097248	212.15	9,085	(2,915)	2,915	18,117,032	3,693	24	97	13.33
2		22	12000	7500	9829.420272	190.93	9,588	(2,412)	2,412	17,557,920	3,635	20	93	12.88
2		23	16000	7375	10618.31772	159.34	10,020	(5,980)	5,980	18,349,148	3,737	37	91	10.93
2		24	10000	7250	10699.89147	130.91	10,778	778	778	17,609,799	3,613	8	87	11.51
3		25	2000	7333.333333	9947.7173	126.15	10,831	8,831	8,831	20,024,726	3,822	442	101	13.20
3		26	5000	7583.333333	9566.479047	138.53	10,074	5,074	5,074	20,244,702	3,870	101	101	14.34
3		27	5000	7791.666667	9234.511271	145.51	9,705	4,705	4,705	20,314,792	3,901	94	101	15.43
3		28	3000	8041.666667	8742.02226	155.96	9,380	6,380	6,380	21,043,004	3,990	213	105	16.69
3		29	4000	8250	8408.185938	161.20	8,898	4,898	4,898	21,144,633	4,021	122	106	17.78
3		30	6000	8250	8312.446659	145.08	8,569	2,569	2,569	20,659,870	3,973	43	104	18.64
3		31	7000	8291.666667	8311.773375	134.74	8,458	1,458	1,458	20,061,951	3,891	21	101	19.41
3		32	10000	8375	8601.860282	129.60	8,447	(1,553)	1,553	19,510,432	3,818	16	98	19.37
3		33	15000	8291.666667	9358.312074	108.30	8,731	(6,269)	6,269	20,109,952	3,893	42	97	17.39
3		34	15000	8208.333333	10019.9549	89.14	9,467	(5,533)	5,533	20,419,022	3,941	37	95	15.77
3		35	18000	8208.333333	10898.18605	80.23	10,109	(7,891)	7,891	21,614,661	4,054	44	93	13.39
3		36	8000	8291.666667	10680.57141	80.54	10,978	2,978	2,978	21,260,669	4,024	37	92	14.23
4		37	5000	8458.333333	10184.99785	89.15	10,761	5,761	5,761	21,583,093	4,071	115	92	15.48
4		38	4000	8750	9646.733278	109.40	10,274	6,274	6,274	22,051,036	4,129	157	94	16.78
4		39	4000	8958.333333	9180.521645	119.30	9,756	5,756	5,756	22,335,192	4,171	144	95	17.99
4		40	2000	9041.666667	8569.835005	115.70	9,300	7,300	7,300	23,108,995	4,249	365	102	19.38
4		41	5000	9166.666667	8316.980478	116.63	8,686	3,686	3,686	22,876,658	4,235	74	102	20.31
4		42	7000	9416.666667	8290.248505	129.97	8,434	1,434	1,434	22,380,909	4,168	20	100	20.98
4		43	10000	9583.333333	8578.193123	133.64	8,420	(1,580)	1,580	21,918,463	4,108	16	98	20.90
4		44	14000	9500	9240.646331	111.94	8,712	(5,288)	5,288	22,055,879	4,135	38	96	19.49
4		45	16000	9375	10017.32697	88.25	9,353	(6,647)	6,647	22,547,706	4,191	42	95	17.64
4		46	16000	9333.333333	10695.01501	75.25	10,106	(5,894)	5,894	22,812,849	4,228	37	94	16.10
4		47	20000	9416.666667	11693.24218	76.06	10,770	(9,230)	9,230	24,139,979	4,334	46	93	13.57
4		48	12000	9458.333333	11792.37376	72.62	11,769	(231)	231	23,638,171	4,249	2	91	13.79
		49	5000	9333.333333	11178.49661	52.86	11,865	6,865	6,865	24,117,559	4,302	137	92	15.21
		50	2000	9083.333333	10308.22115	22.57	11,231	9,231	9,231	25,339,567	4,401	462	99	16.97
		51	3000	9083.333333	9597.71581	20.32	10,331	7,331	7,331	25,896,449	4,458	244	102	18.40
		52	2000	9416.666667	8856.22933	51.62	9,618	7,618	7,618	26,514,487	4,519	381	107	19.84
		53	7000	9666.666667	8717.062988	71.46	8,908	1,908	1,908	26,082,891	4,470	27	106	20.48
		54	6000	9583.333333	8509.667621	55.98	8,789	2,789	2,789	25,743,871	4,439	46	105	21.25
		55	8000		8509.080698	(907.95)	8,566	566	566	25,281,618	4,368	7	103	21.72
		56	10000		7841.014483	(817.16)	7,601	(2,399)	2,399	24,932,921	4,333	24	102	21.35
		57	20000		8321.470704	(735.44)	7,024	(12,976)	12,976	27,449,542	4,485	65	101	17.73
		58	20000		8827.425536	(661.90)	7,586	(12,414)	12,414	29,633,286	4,621	62	100	14.52
		59	22000		9548.974694	(595.71)	8,166	(13,834)	13,834	32,374,970	4,777	63	100	11.15
		60	8000		8857.939766	(536.14)	8,953	953	953	31,850,532	4,714	12	98	11.50
		61			7489.622076	(482.52)	8,322	8,322	8,322	32,463,678	4,773	#DIV/0!	#DIV/0!	13.10
		62			6306.388527	(434.27)	7,007	7,007	7,007	32,731,996	4,809	#DIV/0!	#DIV/0!	14.46
			63		5284.905466	(390.84)	5,872	5,872	5,872	32,759,770	4,826	#DIV/0!	#DIV/0!	15.63
			64		4404.655133	(351.76)	4,894	4,894	4,894	32,622,146	4,827	#DIV/0!	#DIV/0!	16.64
			65		3647.605811	(316.58)	4,053	4,053	4,053	32,372,974	4,815	#DIV/0!	#DIV/0!	17.52
			66		2997.919803	(284.93)	3,331	3,331	3,331	32,050,591	4,792	#DIV/0!	#DIV/0!	18.30
			67		2441.694938	(256.43)	2,713	2,713	2,713	31,682,080	4,761	#DIV/0!	#DIV/0!	18.99
			68		1966.735848	(230.79)	2,185	2,185	2,185	31,286,393	4,724	#DIV/0!	#DIV/0!	19.60
			69		1562.351627	(207.71)	1,736	1,736	1,736	30,876,641	4,680	#DIV/0!	#DIV/0!	20.16
			70		1219.176891	(186.94)	1,355	1,355	1,355	30,461,761	4,633	#DIV/0!	#DIV/0!	20.66
			71		929.0135863	(168.25)	1,032	1,032	1,032	30,047,730	4,582	#DIV/0!	#DIV/0!	21.11
			72		684.6911736	(151.42)	761	761	761	29,638,439	4,529	#DIV/0!	#DIV/0!	21.53

(EQUATION FORM TAHOE SALT)

Check your work

Learn and Generalize

The exercise for ABC Corporation for chapter 7 is very similar to the static forecast exercise that we had to do for the tahoe salt, I had to do little bit more problem solving to make sense of the excel file.