30	a1=1 indicates absoute change; a1.ne.1 indicates percentage change

PERCENTAGE CHANGE IDENTIFICATION

b0	b1	b2
9.0837	9.1892	-0.1709

Obs.	X1	X2	Y	MSAE Residual	Abs. MSAE Residual	Obs.
1	0.499	11.1	11.14	-0.63205	0.63205	1
2	0.558	8.9	12.74	0.04979	0.04979	2
3	0.604	8.8	13.13	**0.00000**	**0.00000**	3
4	0.441	8.9	11.51	-0.10507	0.10507	4
5	0.550	8.8	12.38	-0.25378	0.25378	5
6	0.528	9.9	12.60	0.35638	0.35638	6
7	0.418	10.7	11.13	0.03391	0.03391	7
8	0.480	10.5	11.70	**0.00000**	**0.00000**	8
9	0.406	10.5	11.02	**0.00000**	**0.00000**	9
10	0.467	10.7	11.41	-0.13636	0.13636	10
					1.56734	**> Sum of Abs Errors**

Obs.	Y ordered	X1 ordered	X2 ordered	Obs.	Residuals ordered	Regression check
3	13.13	0.604	8.8	3	0.00000	0.00000
8	11.70	0.480	10.5	8	0.00000	0.00000
9	11.02	0.406	10.5	9	0.00000	0.00000
2	12.74	0.558	8.9	2	0.04979	0.04979
6	12.60	0.528	9.9	6	0.35638	0.35638
7	11.13	0.418	10.7	7	0.03391	0.03391
1	11.14	0.499	11.1	1	-0.63205	-0.63205
4	11.51	0.441	8.9	4	-0.10507	-0.10507
5	12.38	0.550	8.8	5	-0.25378	-0.25378
10	11.41	0.467	10.7	10	-0.13636	-0.13636

6.1765	-22.0127	16.8362
0	13.5135	-13.5135
-0.5882	1.5739	-0.985

6.1765	-22.0127	16.8362
0	13.5135	-13.5135
-0.5882	1.5739	-0.985

6.1765	-22.0127	16.8362
0	13.5135	-13.5135
-0.5882	1.5739	-0.985

Y = 9.0837 + 9.1892X1 - 0.1709X2

bo	b1	b2
9.0837	9.1892	-0.1709

0	0	5.23498
0	-7.540533	-14.00771
0	7.540533	8.7665

Set 1:	3	8	9	
Set 2:	2	6	7	
Set 3:	1	4	5	10

6.1765	-22.0127	16.8362	0
0	13.5135	-13.5135	0.558
-0.5882	1.5739	-0.985	-8.8

Basis	Index	MSAE Basis	b0p	b1p	b2m	e2p	e6p	e7p	e1m	e4m	e5m	e10m
T23:AC32	1	b0p	1	0.604	-8.8	0	0	0	0	0	0	0
	2	b1p	1	0.480	-10.5	0	0	0	0	0	0	0
	3	b2m	1	0.406	-10.5	0	0	0	0	0	0	0
	4	e2p	1	0.558	-8.9	1	0	0	0	0	0	0
	5	e6p	1	0.528	-9.9	0	1	0	0	0	0	0
	6	e7p	1	0.418	-10.7	0	0	1	0	0	0	0
	7	e1m	1	0.499	-11.1	0	0	0	-1	0	0	0
	8	e4m	1	0.441	-8.9	0	0	0	0	-1	0	0
	9	e5m	1	0.550	-8.8	0	0	0	0	0	-1	0
	10	e10m	1	0.467	-10.7	0	0	0	0	0	0	-1

X1 Matrix:			X1 inverse:		
1.0	0.604	-8.8	6.176471	-22.01272	16.83625
1.0	0.480	-10.5	0	13.513514	-13.5135
1.0	0.406	-10.5	0.588235	-1.573927	0.985692

Y1	b vector	LP value
13.13	9.0837043	b0p
11.70	9.1891892	b1p
11.02	0.1709062	b2m

obs.		
2		
	-6.17647	22.012719	-16.8362
	0	-13.51351	13.51351
	-0.58824	1.5739269	-0.98569

b0	b1	b2	
9.0837	9.1892	-0.1709	
x0	x1	x2	
1	0.558	-8.9	**<-- SIGN OF bj**
d0	d1	d2	
0	1	1	**<-- CHANGE INDICATOR**

Sign Assessment for set 2 or 3 datum

Constraint	d0	d1	d2		RHS	Constraint
		1				
1	0	5.127567568	-1.521065	3.60650238	**0.0497933**	1
2	0	0	5.2352941	5.23529412	0.7058824	2
3	0	-7.540540541	-14.00795	-21.5484897	1.1518283	3
4	0	7.540540541	8.772655	16.3131955	0.1422893	4
5	0	0	-5.235294	-5.23529412	1.2941176	5
6	0	7.540540541	14.007949	21.5484897	0.8481717	6
7	0	-7.540540541	-8.772655	-16.3131955	1.1518283	

=IF(A1=1,FFSET(B5FFSET(C5,A38,0,1,1)*SIGN(C4))

Note: To calculate absolute change, adjust formulae in cells m62 and n62. The offset changes as j of Xij changes.

Note: To calculate absolute change in a datum indicate wth 1 in elments in range a45:d45. Select one.

Constraint	Allowable Identical Absolute Change	Allowable Identical Absolute Decrease	Allowable Identical Absolute Increase	
1	0.0138065		0.0138065	
2	0.1348315		0.1348315	
3	-0.0534529	0.053452855		
4	0.0087223		0.0087223	
5	-0.247191	0.247191011		
6	0.0393611		0.0393611	
7	-0.0706072	0.070607153		
	Max absolute decrease >	0.053452855	0.0087223	Max absolute increase <

Inverse	Index	Inverse MSAE Basis	b0p	b1p	b2m	e2p	e6p	e7p	e1m	e4m	e5m	e10m
T43:AC52	1	b0p	6.176471	-22.01272	16.836248	0	0	0	0	0	0	0
	2	b1p	0	13.513514	-13.51351	0	0	0	0	0	0	0
	3	b2m	0.588235	-1.573927	0.9856916	0	0	0	0	0	0	0
	4	e2p	-0.94118	0.4642289	-0.523052	1	0	0	0	0	0	0
	5	e6p	-0.35294	-0.704293	0.0572337	0	1	0	0	0	0	0
	6	e7p	0.117647	-0.476948	-0.6407	0	0	1	0	0	0	0
	7	e1m	-0.35294	2.2011129	-0.848172	0	0	0	-1	0	0	0
	8	e4m	0.941176	-2.04531	2.1041335	0	0	0	0	-1	0	0
	9	e5m	1	-0.72973	0.7297297	0	0	0	0	0	-1	0
	10	e10m	-0.11765	1.1391097	-0.021463	0	0	0	0	0	0	-1

ABSOLUTE CHANGES

Ceteris paribus changes of datum for X1 and X2

	X1 Value		X2 Value		Original	Original	X1 Datum Interval		X2 Datum Interval	
Obs.	Allowable Decrease	Allowable Increase	Allowable Decrease	Allowable Increase	X1 Datum	X2 Datum	Lower Bound	Upper Bound	Lower Bound	Upper Bound
1	0.010529	0.085235	0.144355	0.731818182	0.50	11.1	0.48847	0.58424	10.955645	11.83181818
2	0.085235	0.005419	0.291349	0.144354839	0.56	8.9	0.47276	0.56342	8.6086512	9.044354839
3	**Defining**	**obs.**	**Defining**	**obs.**	0.60	8.8	**Defining**	**obs.**	**Defining**	**obs.**
4	0.010529	0.085235	0.144355	0.614791	0.44	8.9	0.43047	0.52624	8.7556452	9.514790698
5	0.010529	0.085235	0.144355	0.731818	0.55	8.8	0.53947	0.63524	8.6556452	9.531818182
6	**0.085235**	**0.010529**	0.731818	0.144355	0.53	9.9	0.44276	0.53853	9.1681818	10.04435484
7	0.085235	0.003690	0.198419	0.144354839	0.42	10.7	0.33276	0.42169	10.501581	10.84435484
8	**Defining**	**obs.**	**Defining**	**obs.**	0.48	10.5	**Defining**	**obs.**	**Defining**	**obs.**
9	**Defining**	**obs.**	**Defining**	**obs.**	0.41	10.5	**Defining**	**obs.**	**Defining**	**obs.**
10	0.010529	0.085235	0.144355	0.731818182	0.47	10.7	0.45647	0.55224	10.55565	11.43182

T56:AF65	Nonbasic	Index	3	8	9	-3	-8	-9	-2	-6	-7	1	4	5	10	Index
	variables	1	1	0	0	-1	0	0	0	0	0	0	0	0	0	1
		2	0	1	0	0	-1	0	0	0	0	0	0	0	0	2
		3	0	0	1	0	0	-1	0	0	0	0	0	0	0	3
		4	0	0	0	0	0	0	-1	0	0	0	0	0	0	4
		5	0	0	0	0	0	0	0	-1	0	0	0	0	0	5
		6	0	0	0	0	0	0	0	0	-1	0	0	0	0	6
		7	0	0	0	0	0	0	0	0	0	1	0	0	0	7
		8	0	0	0	0	0	0	0	0	0	0	1	0	0	8
		9	0	0	0	0	0	0	0	0	0	0	0	1	0	9
		10	0	0	0	0	0	0	0	0	0	0	0	0	1	10

T69:AF78	Updated nonbasic variables															
	M-product	Label ->	3	8	9	-3	-8	-9	-2	-6	-7	1	4	5	10	Index
	T43:AC52	1	6.176471	-22.01272	16.836248	-6.17647	22.01272	-16.8362	0	0	0	0	0	0	0	1
	T56:AF65	2	0	13.513514	-13.51351	0	-13.5135	13.51351	0	0	0	0	0	0	0	2
	Result	3	0.588235	-1.573927	0.9856916	-0.58824	1.573927	-0.98569	0	0	0	0	0	0	0	3
	T69:AF78	4	-0.94118	0.4642289	-0.523052	0.941176	-0.46423	0.523052	-1	0	0	0	0	0	0	4
		5	-0.35294	-0.704293	0.0572337	0.352941	0.704293	-0.05723	0	-1	0	0	0	0	0	5
		6	0.117647	-0.476948	-0.6407	-0.11765	0.476948	0.6407	0	0	-1	0	0	0	0	6
		7	-0.35294	2.2011129	-0.848172	0.352941	-2.20111	0.848172	0	0	0	-1	0	0	0	7
		8	0.941176	-2.04531	2.1041335	-0.94118	2.04531	-2.10413	0	0	0	0	-1	0	0	8
		9	1	-0.72973	0.7297297	-1	0.72973	-0.72973	0	0	0	0	0	-1	0	9
		10	-0.11765	1.1391097	-0.021463	0.117647	-1.13911	0.021463	0	0	0	0	0	0	-1	10
		Zj	0.294118	-0.151828	0.8577107	-0.29412	0.151828	-0.85771	-1	-1	-1	-1	-1	-1	-1	
	REDUCED COST ->	1-zj	0.705882	1.1518283	0.1422893	1.294118	0.848172	1.857711	2	2	2	2	2	2	2	
		2-(1-Zj)	1.294118	0.8481717	1.8577107	0.705882	1.151828	0.142289	0	0	0	0	0	0	0	
		2*row 72+80	-1.17647	2.0802862	-0.903816	3.176471	-0.08029	2.903816								

MSAE	MSAE Basis	Basis RHS	MSAE sol.	Check residuals		Y ordered	X1 ordered	X2 ordered
Solution	b0p	13.13	9.0837043	-5.68E-14		13.13	0.604	8.8
T43:AC52	b1p	11.70	9.1891892	-6.04E-14		11.7	0.48	10.5
T85:T94	b2m	11.02	0.1709062	-6.39E-14		11.02	0.406	10.5
	e2p	12.74	0.0497933	0.0497933		12.74	0.558	8.9
	e6p	12.60	0.3563752	0.3563752		12.6	0.528	9.9
	e7p	11.13	0.033911	0.033911		11.13	0.418	10.7
	e1m	11.14	0.6320509	-0.632051		11.14	0.499	11.1
	e4m	11.51	0.1050715	-0.105072		11.51	0.441	8.9
	e5m	12.38	0.2537838	-0.253784		12.38	0.55	8.8
	e10m	11.41	0.1363593	-0.136359		11.41	0.467	10.7