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Data Tables

Data Tables need to be applied to a linked, integrated model. They answer the question of "What happens to Y when I change X?"

The model at right drives the Data Tables in this example. The yellow cells indicate possible "X" variables that we might like to change.

	A	B
1	**MODEL**	
2	# Widgets Sold	500
3	Price per Widget	20
4	Cost per Widget	5
5		
6	Total Revenue	=B2*B3
7	Total Cost	=B2*B4
8	Total Profit	=B6-B7

	A	B
1	**MODEL**	
2	# Widgets Sold	500
3	Price per Widget	$ 20.00
4	Cost per Widget	$ 5.00
5		
6	Total Revenue	$10,000
7	Total Cost	$ 2,500
8	Total Profit	$ 7,500

Single Variable

The positioning of X and Y variables is critical to proper Data Tables. In the example below, X is the # Widgets Sold, and Y is Total Profit. The numbers in the column are the test values for X.

When creating the Data Table, the Column Input is the location of the X variable in the Model (=$B$2). The Row Input should be left blank.

How do changes in # Widgets Sold affect Profit?	=B8
0	
50	
100	
150	
200	
250	
300	
350	
400	
450	
500	
550	
600	
650	
700	
750	
800	
850	
900	
950	
1000	

How do changes in # Widgets Sold affect Profit?	$ 7,500
0	$ -
50	$ 750
100	$ 1,500
150	$ 2,250
200	$ 3,000
250	$ 3,750
300	$ 4,500
350	$ 5,250
400	$ 6,000
450	$ 6,750
500	$ 7,500
550	$ 8,250
600	$ 9,000
650	$ 9,750
700	$10,500
750	$11,250
800	$12,000
850	$12,750
900	$13,500
950	$14,250
1000	$15,000

The Data Table below is still based on a single X variable, but shows the effects on multiple Y variables. In this example, X is still the # Widgets Sold, Y1 is Total Profit, Y2 is Total Revenue, and Y3 is Total Cost.

Since the original model is set at X = 500, that row of data in the Data Table is highlighted to serve as an accuracy check.

What are the effects of changes in # Widgets Sold?	Profit	Revenue	Cost
	=B8	=B6	=B7
0			
50			
100			
150			
200			
250			
300			
350			
400			
450			
500			
550			
600			
650			
700			
750			
800			
850			
900			
950			
1000			

What are the effects of changes in # Widgets Sold?	Profit	Revenue	Cost
	$ 7,500	$10,000	$2,500
0	$ -	$ -	$ -
50	$ 750	$ 1,000	$ 250
100	$ 1,500	$ 2,000	$ 500
150	$ 2,250	$ 3,000	$ 750
200	$ 3,000	$ 4,000	$1,000
250	$ 3,750	$ 5,000	$1,250
300	$ 4,500	$ 6,000	$1,500
350	$ 5,250	$ 7,000	$1,750
400	$ 6,000	$ 8,000	$2,000
450	$ 6,750	$ 9,000	$2,250
500	$ 7,500	$10,000	$2,500
550	$ 8,250	$11,000	$2,750
600	$ 9,000	$12,000	$3,000
650	$ 9,750	$13,000	$3,250
700	$10,500	$14,000	$3,500
750	$11,250	$15,000	$3,750
800	$12,000	$16,000	$4,000
850	$12,750	$17,000	$4,250
900	$13,500	$18,000	$4,500
950	$14,250	$19,000	$4,750
1000	$15,000	$20,000	$5,000

Dual Variable

Dual Variable Data Tables answer the question "What effect does the combination of X1 and X2 have on Y?" The positioning of the X1, X2, and Y variables are again critical.

In the example below, X1 is the # Widgets Sold, X2 is the Price per Widget, and Y is the Total Profit.

The bold numbers in the column are the test values for X1. The bold numbers in the top row are test values for X2. Note the placement of the Y variable in relation to the X1 and X2 test values.

Since the Model uses X1 = 500 and X2 = $20 in order to reach Y = $7,500, that cell is highlighted to serve as a test to ensure accuracy.

When creating the Data Table, the Column Input is the location of the X1 variable in the Model (=$B$2) and the Row Input is the location of the X2 variable in the Model (=$B$3).

How do changes in # Widgets Sold and Price per Widget affect Profit?	$ 7,500	$ 2.00	$ 4.00	$ 6.00	$ 8.00	$10.00	$12.00	$14.00	$ 16.00	$ 18.00	$ 20.00
0											
50											
100											
150											
200											
250											
300											
350											
400											
450											
500											
550											
600											
650											
700											
750											
800											
850											
900											
950											
1000											

How do changes in # Widgets Sold and Price per Widget affect Profit?	$ 7,500	$ 2.00	$ 4.00	$ 6.00	$ 8.00	$10.00	$12.00	$14.00	$ 16.00	$ 18.00	$ 20.00
0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
50	$ (150)	$ (50)	$ 50	$ 150	$ 250	$ 350	$ 450	$ 550	$ 650	$ 750	
100	$ (300)	$ (100)	$ 100	$ 300	$ 500	$ 700	$ 900	$ 1,100	$ 1,300	$ 1,500	
150	$ (450)	$ (150)	$ 150	$ 450	$ 750	$1,050	$1,350	$ 1,650	$ 1,950	$ 2,250	
200	$ (600)	$ (200)	$ 200	$ 600	$1,000	$1,400	$1,800	$ 2,200	$ 2,600	$ 3,000	
250	$ (750)	$ (250)	$ 250	$ 750	$1,250	$1,750	$2,250	$ 2,750	$ 3,250	$ 3,750	
300	$ (900)	$ (300)	$ 300	$ 900	$1,500	$2,100	$2,700	$ 3,300	$ 3,900	$ 4,500	
350	$(1,050)	$ (350)	$ 350	$1,050	$1,750	$2,450	$3,150	$ 3,850	$ 4,550	$ 5,250	
400	$(1,200)	$ (400)	$ 400	$1,200	$2,000	$2,800	$3,600	$ 4,400	$ 5,200	$ 6,000	
450	$(1,350)	$ (450)	$ 450	$1,350	$2,250	$3,150	$4,050	$ 4,950	$ 5,850	$ 6,750	
500	$(1,500)	$ (500)	$ 500	$1,500	$2,500	$3,500	$4,500	$ 5,500	$ 6,500	$ 7,500	
550	$(1,650)	$ (550)	$ 550	$1,650	$2,750	$3,850	$4,950	$ 6,050	$ 7,150	$ 8,250	
600	$(1,800)	$ (600)	$ 600	$1,800	$3,000	$4,200	$5,400	$ 6,600	$ 7,800	$ 9,000	
650	$(1,950)	$ (650)	$ 650	$1,950	$3,250	$4,550	$5,850	$ 7,150	$ 8,450	$ 9,750	
700	$(2,100)	$ (700)	$ 700	$2,100	$3,500	$4,900	$6,300	$ 7,700	$ 9,100	$10,500	
750	$(2,250)	$ (750)	$ 750	$2,250	$3,750	$5,250	$6,750	$ 8,250	$ 9,750	$11,250	
800	$(2,400)	$ (800)	$ 800	$2,400	$4,000	$5,600	$7,200	$ 8,800	$10,400	$12,000	
850	$(2,550)	$ (850)	$ 850	$2,550	$4,250	$5,950	$7,650	$ 9,350	$11,050	$12,750	
900	$(2,700)	$ (900)	$ 900	$2,700	$4,500	$6,300	$8,100	$ 9,900	$11,700	$13,500	
950	$(2,850)	$ (950)	$ 950	$2,850	$4,750	$6,650	$8,550	$10,450	$12,350	$14,250	
1000	$(3,000)	$(1,000)	$1,000	$3,000	$5,000	$7,000	$9,000	$11,000	$13,000	$15,000	

Upon completing the Data Table, Conditional Formatting can illustrate various break points in the data. At left, a condition has been set such that all values <0 turn red.

According to this Data Table, 400 widgets sold (X1) at $10 each (X2) will yield $2,000 profit (Y).

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