

Curve Fitting

Another Gadget in the
Land Appraiser's Toolbox

Common Land Valuation Tools

- Sales Analysis
 - \$ / Lot
 - \$ / Square Foot
 - \$ / Acre
 - \$ / Front Foot
- Allocation Method
- Abstraction Method

Can it be done better?

Acreage Chart						
Size Range (acres)		Unit Value	Value Range		Trouble Points	
Low	High	\$/acre	Low	High	Size	Value
2.00	4.99	\$3,000	\$6,000	\$14,970	4.20	\$12,600
5.00	9.99	\$2,500	\$12,500	\$24,975	8.10	\$20,250
10.00	19.99	\$2,000	\$20,000	\$39,980	15.10	\$30,200
20.00	39.99	\$1,500	\$30,000	\$59,985	32.10	\$48,150
40.00	80.00	\$1,200	\$48,000	\$96,000		

Example 1

62 Sales: 3 to 40 acres

Prices: \$12,500 to \$38,700

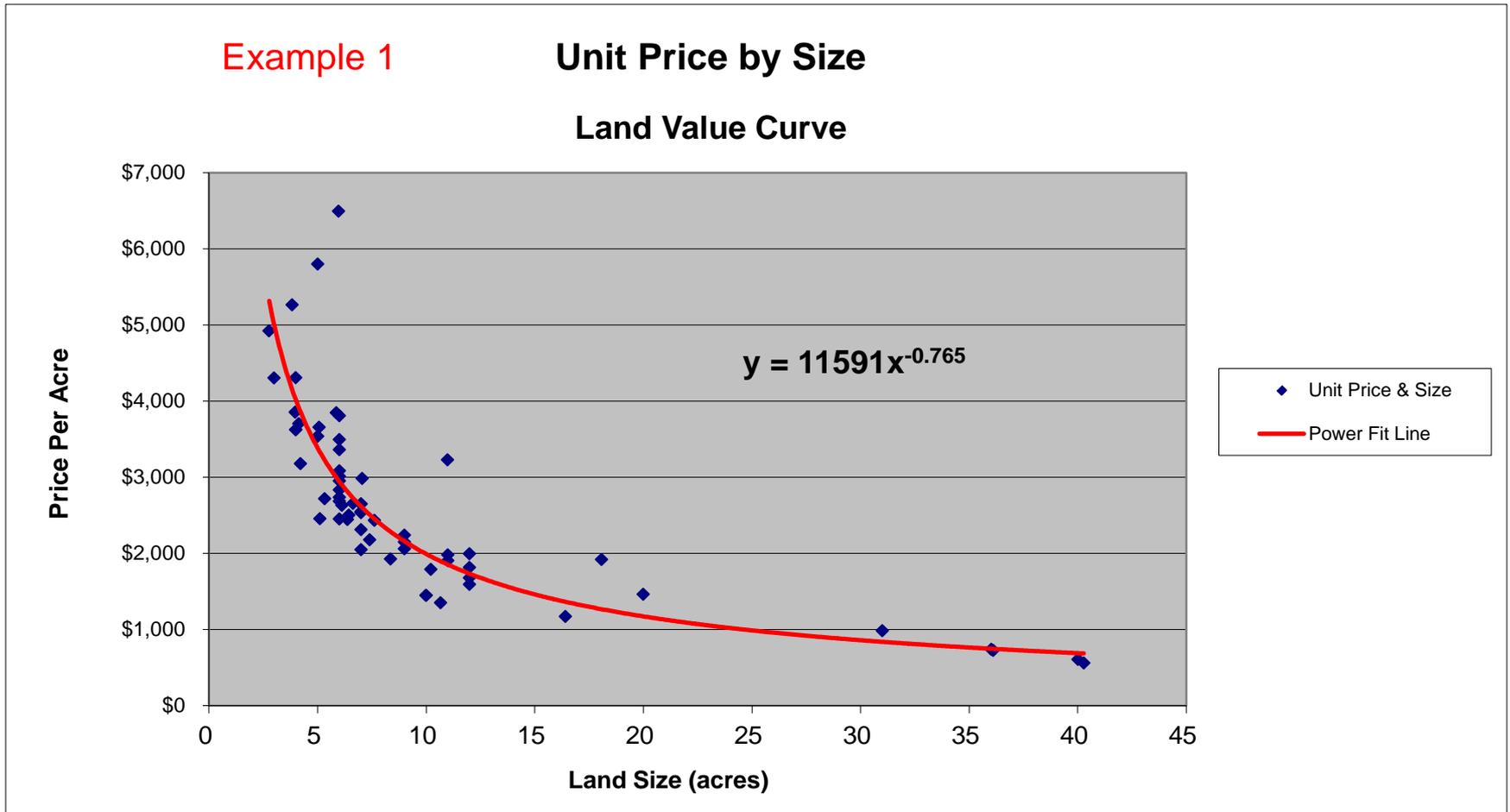
\$/acre: \$560 to \$6,500

Sale Number	Acre Size	Sale Price	Unit Price (\$/acre)
1	2.77	\$13,636	\$4,923
2	2.99	\$12,875	\$4,306
3	3.83	\$20,163	\$5,264
4	3.97	\$15,305	\$3,855
5	4.00	\$17,226	\$4,307
6	4.00	\$14,495	\$3,624
7	4.00	\$14,495	\$3,624
8	4.13	\$15,302	\$3,705
9	4.21	\$13,377	\$3,177
10	5.00	\$29,000	\$5,800
11	5.01	\$17,734	\$3,540
12	5.07	\$18,544	\$3,658
13	5.11	\$12,551	\$2,456
14	5.33	\$14,495	\$2,720
15	5.87	\$22,592	\$3,849
16	5.96	\$38,707	\$6,494
17	6.00	\$16,426	\$2,738
18	6.00	\$18,077	\$3,013
19	6.00	\$16,114	\$2,686
20	6.00	\$17,005	\$2,834
21	6.00	\$20,163	\$3,361
22	6.00	\$20,973	\$3,496
23	6.00	\$22,858	\$3,810
24	6.00	\$14,714	\$2,452
25	6.01	\$17,734	\$2,951
26	6.01	\$18,544	\$3,086
27	6.12	\$16,114	\$2,633
28	6.38	\$15,598	\$2,445
29	6.44	\$16,114	\$2,502
30	6.63	\$17,616	\$2,657
31	7.00	\$14,339	\$2,048
32	7.00	\$17,843	\$2,549

Sale Number	Acre Size	Sale Price	Unit Price (\$/acre)
33	7.00	\$16,195	\$2,314
34	7.00	\$17,734	\$2,533
35	7.00	\$18,544	\$2,649
36	7.00	\$18,544	\$2,649
37	7.06	\$21,076	\$2,985
38	7.40	\$16,114	\$2,178
39	7.62	\$18,544	\$2,434
40	8.36	\$16,114	\$1,928
41	9.00	\$18,544	\$2,060
42	9.00	\$19,353	\$2,150
43	9.00	\$20,163	\$2,240
44	10.00	\$14,495	\$1,450
45	10.00	\$14,495	\$1,450
46	10.21	\$18,271	\$1,790
47	10.67	\$14,435	\$1,353
48	10.98	\$35,468	\$3,230
49	11.00	\$20,973	\$1,907
50	11.00	\$21,783	\$1,980
51	12.00	\$23,931	\$1,994
52	12.00	\$20,163	\$1,680
53	12.00	\$21,783	\$1,815
54	12.00	\$19,112	\$1,593
55	16.41	\$19,234	\$1,172
56	18.08	\$34,728	\$1,921
57	20.00	\$29,231	\$1,462
58	31.00	\$30,503	\$984
59	36.02	\$26,641	\$740
60	36.11	\$26,173	\$725
61	40.01	\$24,212	\$605
62	40.28	\$22,592	\$561

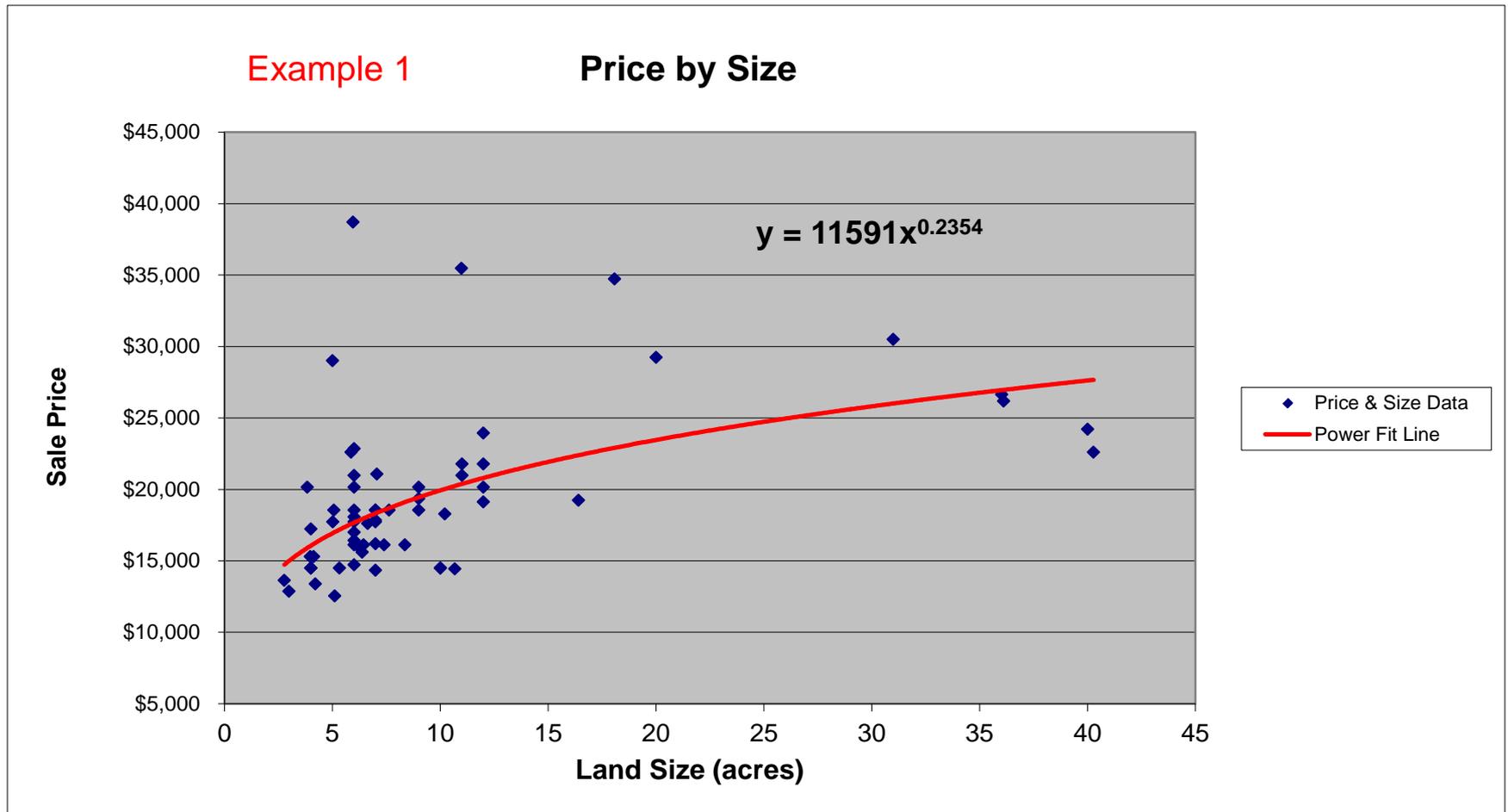
Fit Line Equation

$$\$/\text{acre} = 11,591 \times (\text{Size raised to the Power of } -0.765)$$



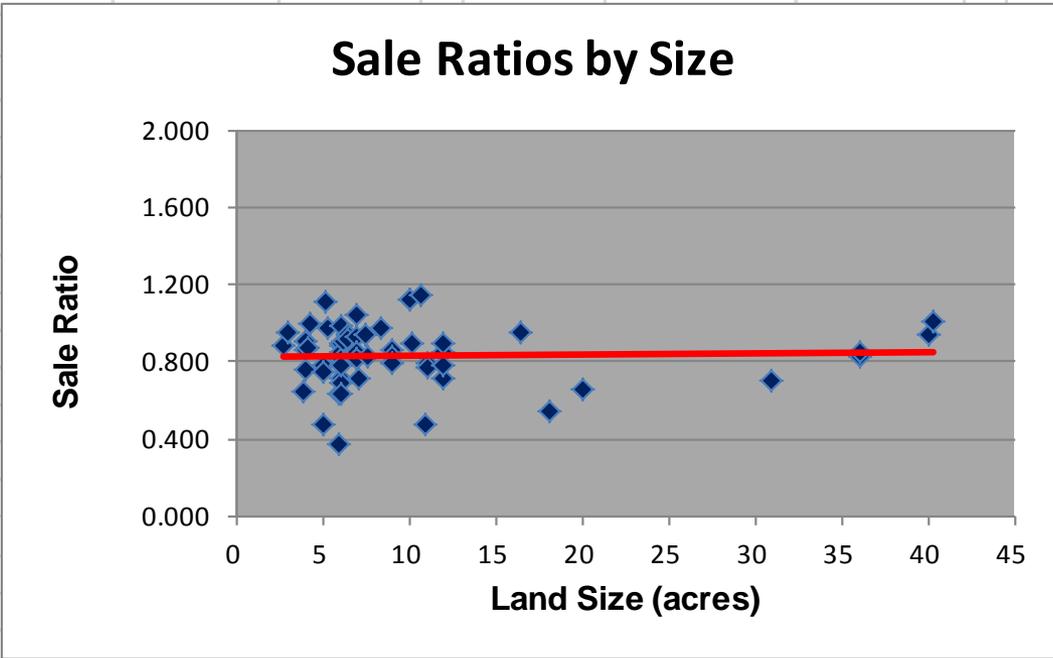
Fit Line Equation

$$\text{Price} = 11,591 \times (\text{Size raised to the Power of } 0.2354)$$



Example 1

Sale Ratio Statistics

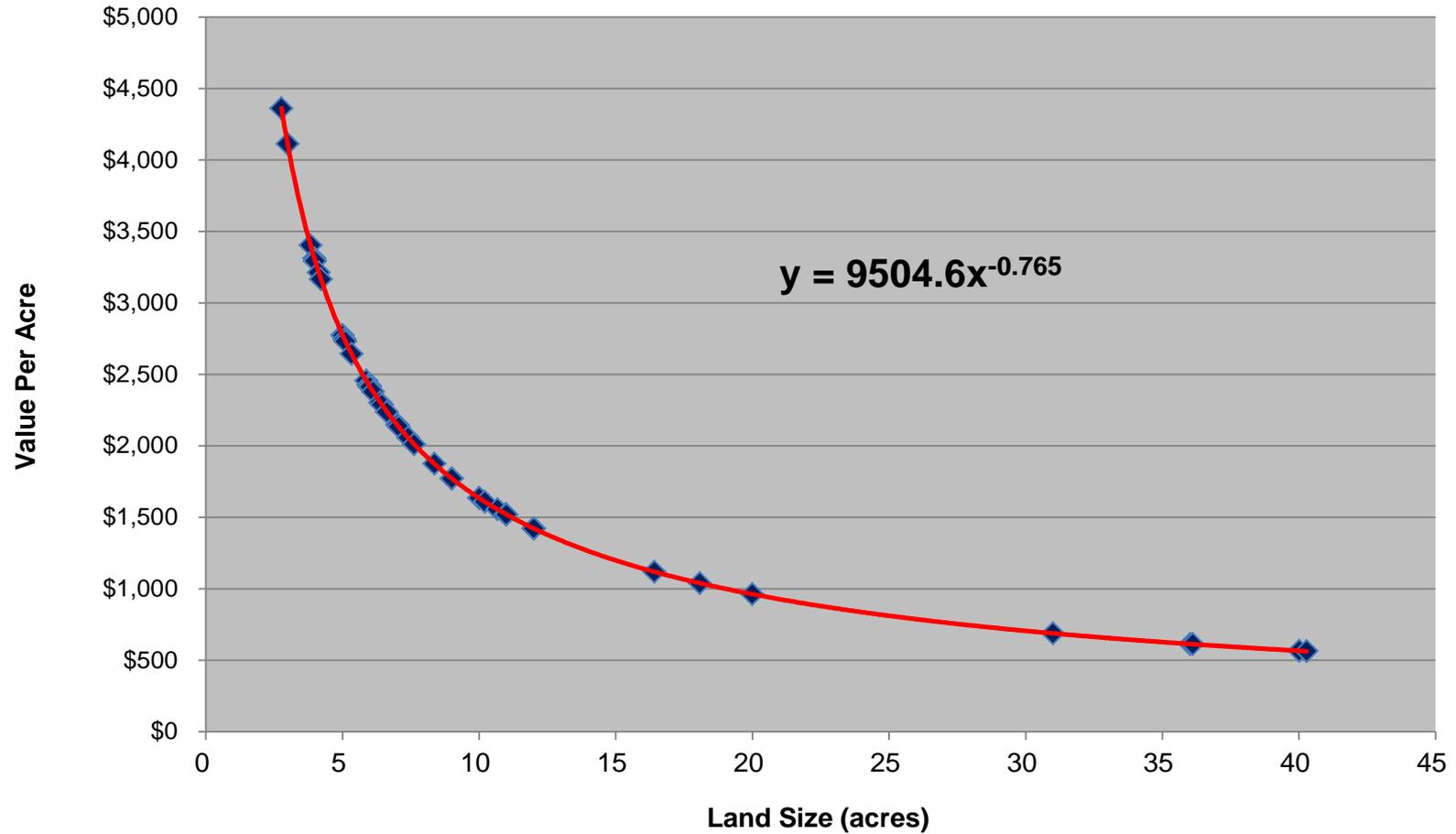


Median	0.847	
	AAD	0.097
	COD	11.4%

Outlier Trim Parameters	
Count	62
Quartile 1	0.771
Quartile 3	0.925
IQR Distance	0.154
Low Limit	0.541
High Limit	1.155

Example 1

New Unit Values by Size



Example 2

27 Sales: 2.5 to 119 acres

Prices: \$5,200 to \$66,000

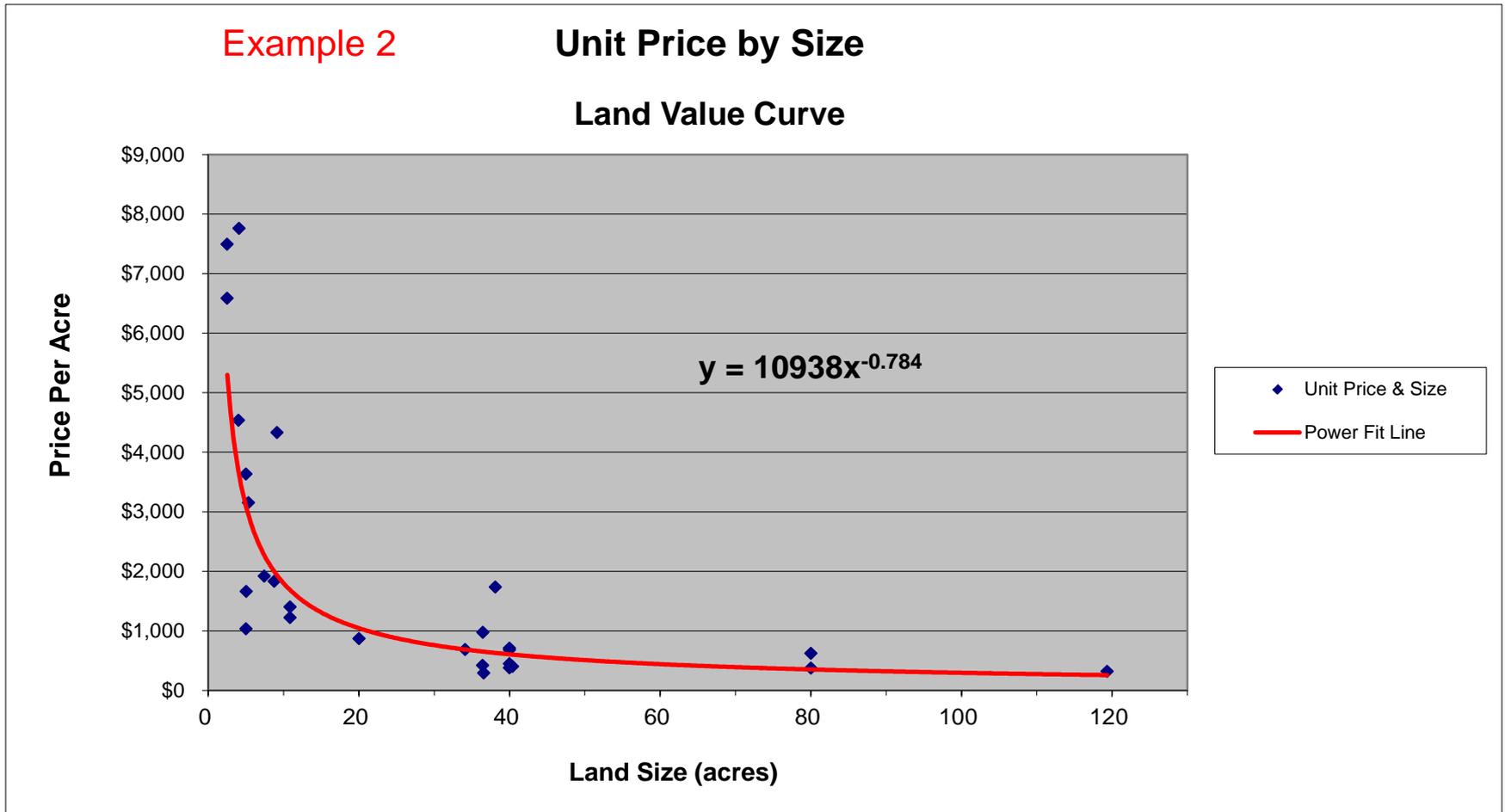
\$/acre: \$320 to \$7,800

Sale Number	Acre Size	Sale Price	Unit Price (\$/acre)
1	2.52	\$16,600	\$6,587
2	2.52	\$18,882	\$7,493
3	4.02	\$18,237	\$4,537
4	4.07	\$31,575	\$7,758
5	5.00	\$5,162	\$1,032
6	5.00	\$18,171	\$3,634
7	5.06	\$8,409	\$1,662
8	5.35	\$16,873	\$3,154
9	7.42	\$14,249	\$1,920
10	8.77	\$16,043	\$1,829
11	9.14	\$39,559	\$4,328
12	10.86	\$13,243	\$1,219
13	10.86	\$15,196	\$1,399
14	20.00	\$17,334	\$867

Sale Number	Acre Size	Sale Price	Unit Price (\$/acre)
15	34.09	\$23,379	\$686
16	36.41	\$15,290	\$420
17	36.45	\$35,426	\$972
18	36.56	\$10,695	\$293
19	38.11	\$66,036	\$1,733
20	39.99	\$15,146	\$379
21	40.00	\$27,197	\$680
22	40.00	\$28,322	\$708
23	40.00	\$17,924	\$448
24	40.38	\$16,120	\$399
25	80.01	\$49,538	\$619
26	80.03	\$29,923	\$374
27	119.35	\$37,865	\$317

Fit Line Equation

$$\$/\text{acre} = 10,938 \times (\text{Size raised to the Power of } -0.784)$$



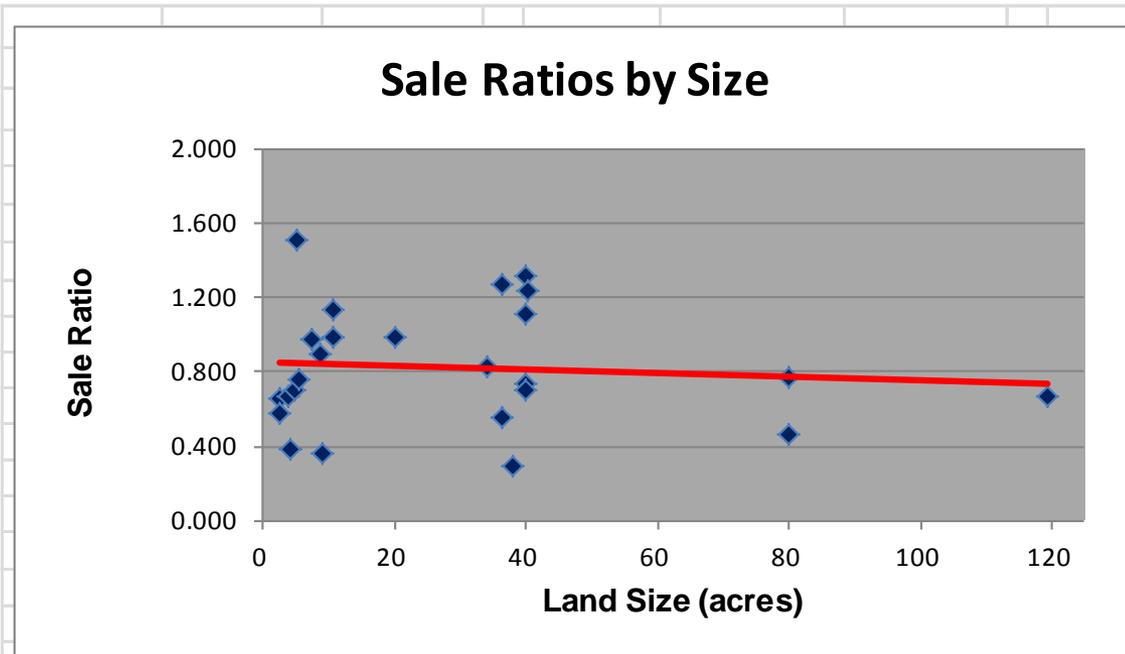
Fit Line Equation

$$\text{Price} = 10,938 \times (\text{Size raised to the Power of } 0.2159)$$



Example 2

Sale Ratio Statistics



Median	0.764	
	AAD	0.250
	COD	32.7%

Outlier Trim Parameters	
Count	27
Quartile 1	0.662
Quartile 3	1.122
IQR Distance	0.460
Low Limit	-0.028
High Limit	1.811

Example 2

New Unit Values by Size

