Rob's House

How Six Sigma Skills Work in Real Life and Real Estate

# We needed to sell our house due to a relocation…

- I wanted to choose the best agent so I compared some historical data from them, (only 3 of 4 provided the data)

- I also wanted to get an idea of a fair market price for my house…

- The following slides take you through my decision process and logic…Enjoy!

I asked 4 Agents to provide 10-15 examples of their most recent sales

Agent	Date	Taxes	DOM	List	Sold
R.V.	2002-01-03	3400	53	299000	289000
R.V.	2002-02-04	1480	17	141900	140000
M.K.	2002-02-14	2010	23	189850	189850
R.V.	2002-02-18	1887	84	204900	201000
M.K.	2002-03-01	3799	38	419850	400000
M.K.	2002-03-01	1973	9	198850	194000
M.K.	2002-03-07	2451	30	239850	233500
M.K.	2002-03-18	1397	23	144850	139000
M.K.	2002-03-26	2347	21	219850	211500
M.K.	2002-03-28	2500	10	257850	258000
R.V.	2002-04-01	2696	26	228500	228500
M.K.	2002-04-05	1766	37	174850	171000
M.K.	2002-04-16	2022	12	219850	210000
R.V.	2002-04-17	2537	20	239900	236000
M.K.	2002-04-18	2561	14	269850	264000

I used Minitab to tell if there was a difference in Days on Market by Agent

Boxplots of DOM by Agent

(means are indicated by solid circles)
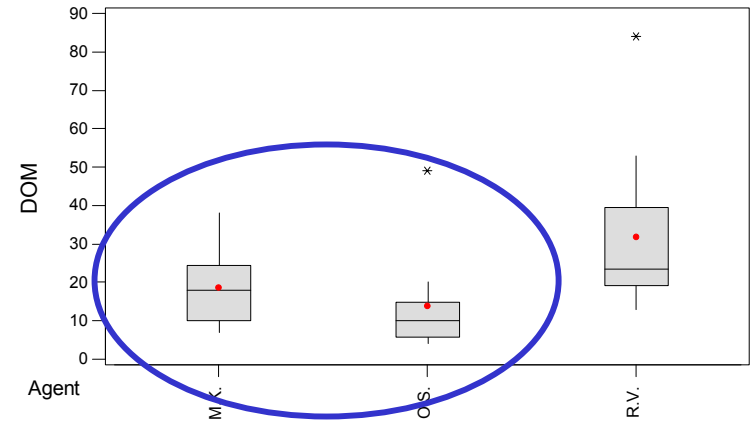
There is a <u>Statistical</u> difference

M.K. and O.S. have an edge over R.V.!

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Analysis of Variance for DOM

Source     DF        SS        MS        F        P
Agent       2      1799       900     4.59    0.016
Error      38      7454       196
Total      40      9253

                                Individual 95% CIs For Mean

                                Based on Pooled StDev
Level       N      Mean     StDev   ------+---------+---------+---------+
M.K.       21     18.62      9.22              (------*-----)
O.S.       10     13.80     13.24       (--------*--------)
R.V.       10     31.80     21.54                         (--------*--------)
                                       ------+---------+---------+---------+
Pooled StDev =    14.01                      10        20        30        40
```

I then calculated the difference between list and sale prices

Agent	Date	Taxes	DOM	List	Sold	Delta
R.V.	2002-01-03	3400	53	299000	289000	-10000
R.V.	2002-02-04	1480	17	141900	140000	-1900
M.K.	2002-02-14	2010	23	189850	189850	0
R.V.	2002-02-18	1887	84	204900	201000	-3900
M.K.	2002-03-01	3799	38	419850	400000	-19850
M.K.	2002-03-01	1973	9	198850	194000	-4850
M.K.	2002-03-07	2451	30	239850	233500	-6350
M.K.	2002-03-18	1397	23	144850	139000	-5850
M.K.	2002-03-26	2347	21	219850	211500	-8350
M.K.	2002-03-28	2500	10	257850	258000	150
R.V.	2002-04-01	2696	26	228500	228500	0
M.K.	2002-04-05	1766	37	174850	171000	-3850
M.K.	2002-04-16	2022	12	219850	210000	-9850
R.V.	2002-04-17	2537	20	239900	236000	-3900
M.K.	2002-04-18	2561	14	269850	264000	-5850
M.K.	2002-04-18	2601	8	244850	242000	-2850
M.K.	2002-04-22	3860	26	439850	427500	-12350
M.K.	2002-04-30	2500	18	249850	239900	-9950

Minitab, is there a difference in the Agent's deltas?

Boxplots of Delta by Agent

(means are indicated by solid circles)

There's no <u>Statistical</u> difference
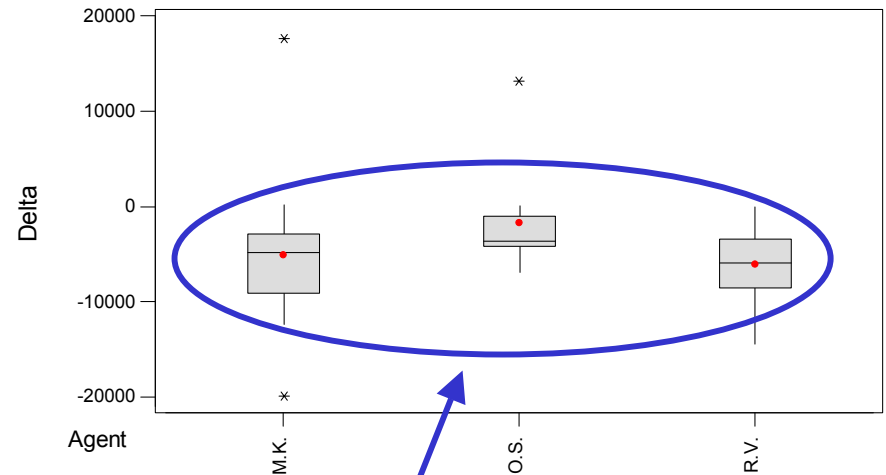
There's no real discernable difference either!

Analysis of Variance for Delta

Source	DF	SS	MS	F	P
Agent	2	110423358	55211679	1.49	0.238
Error	38	1.409E+09	37076860		
Total	40	1.519E+09			

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                                Individual 95% CIs For Mean
                                Based on Pooled StDev

Level     N     Mean    StDev    ---+---------+---------+---------+-------
M.K.      21    -5067    6998          (-------*------)
O.S.      10    -1700    5549              (----------*----------)
R.V.      10    -6090    4152       (-----------*----------)
                                    ---+---------+---------+---------+-------

Pooled StDev =    6089               -7000     -3500      0
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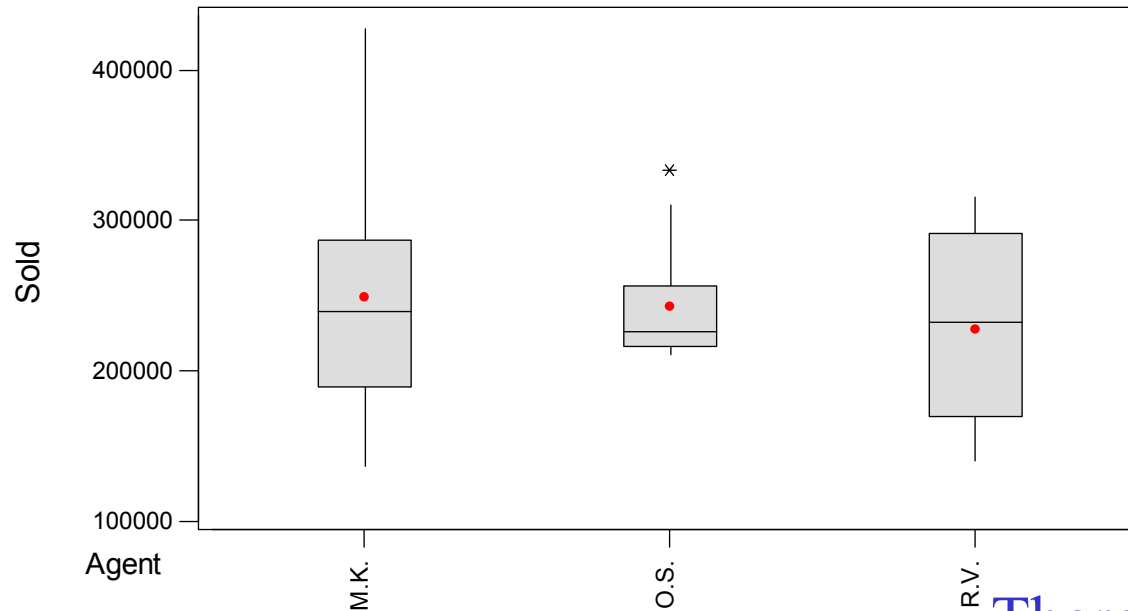
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What about a difference in their selling prices?

Boxplots of Sold by Agent

(means are indicated by solid circles)

P value = 0.731

There's no difference here either!
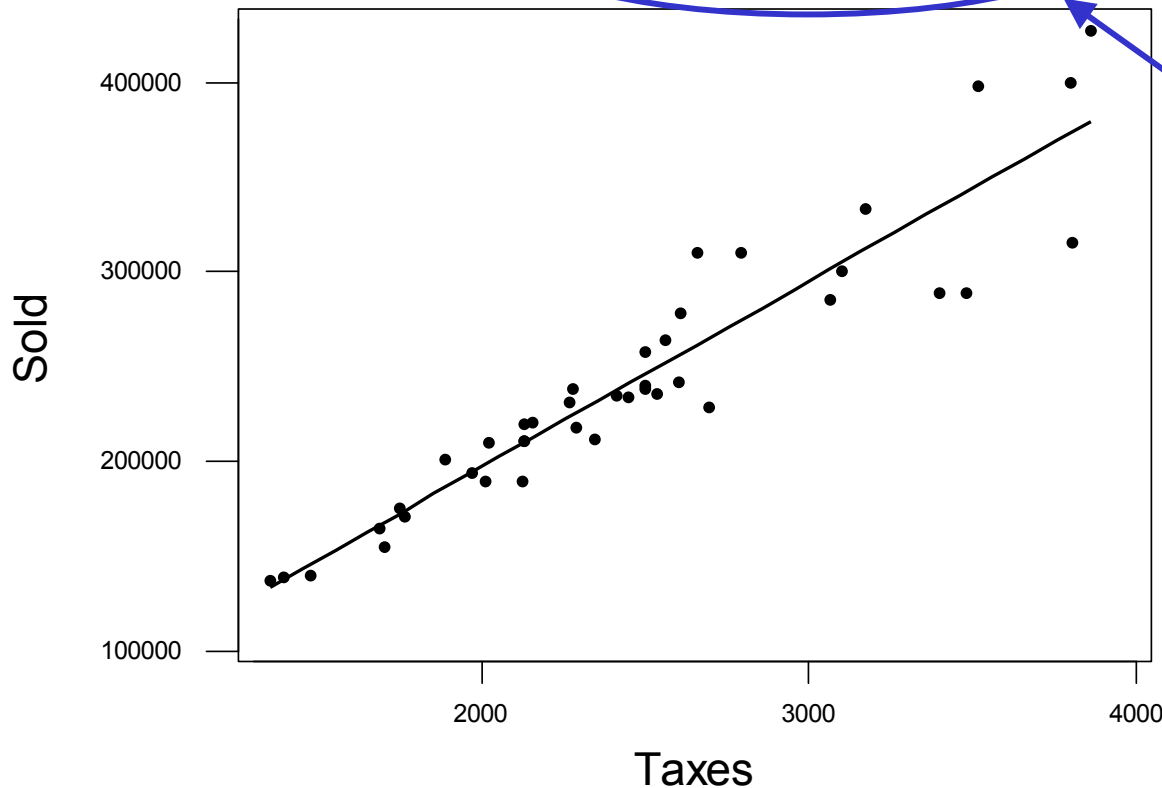
We chose M.K.

- M.K. was one of the top two for DOM
- M.K. also presented the style of agent we were looking for
- Also, M.K. came up with the same price range as follows…

I thought there should be a correlation between tax rate and selling price…

Regression Plot

Y = 1026.02 + 98.0500X

R-Sq = 87.9 %

P value = 0.000

Almost 88% of the selling price can be predicted by the tax rate!

I calculated the tax to price ratio based on our "found" correlation

Agent	Date	Taxes	DOM	List	Sold	Delta	PTax
R.V.	2002-01-03	3400	53	299000	289000	-10000	85.000
R.V.	2002-02-04	1480	17	141900	140000	-1900	94.595
M.K.	2002-02-14	2010	23	189850	189850	0	94.453
R.V.	2002-02-18	1887	84	204900	201000	-3900	106.518
M.K.	2002-03-01	3799	38	419850	400000	-19850	105.291
M.K.	2002-03-01	1973	9	198850	194000	-4850	98.327
M.K.	2002-03-07	2451	30	239850	233500	-6350	95.267
M.K.	2002-03-18	1397	23	144850	139000	-5850	99.499
M.K.	2002-03-26	2347	21	219850	211500	-8350	90.115
M.K.	2002-03-28	2500	10	257850	258000	150	103.200
R.V.	2002-04-01	2696	26	228500	228500	0	84.755
M.K.	2002-04-05	1766	37	174850	171000	-3850	96.829
M.K.	2002-04-16	2022	12	219850	210000	-9850	103.858
R.V.	2002-04-17	2537	20	239900	236000	-3900	93.023
M.K.	2002-04-18	2561	14	269850	264000	-5850	103.085
M.K.	2002-04-18	2601	8	244850	242000	-2850	93.041

Looking at the distribution…I calculated my "projected" selling price based on my tax rate

Descriptive Statistics

Variable: PTax
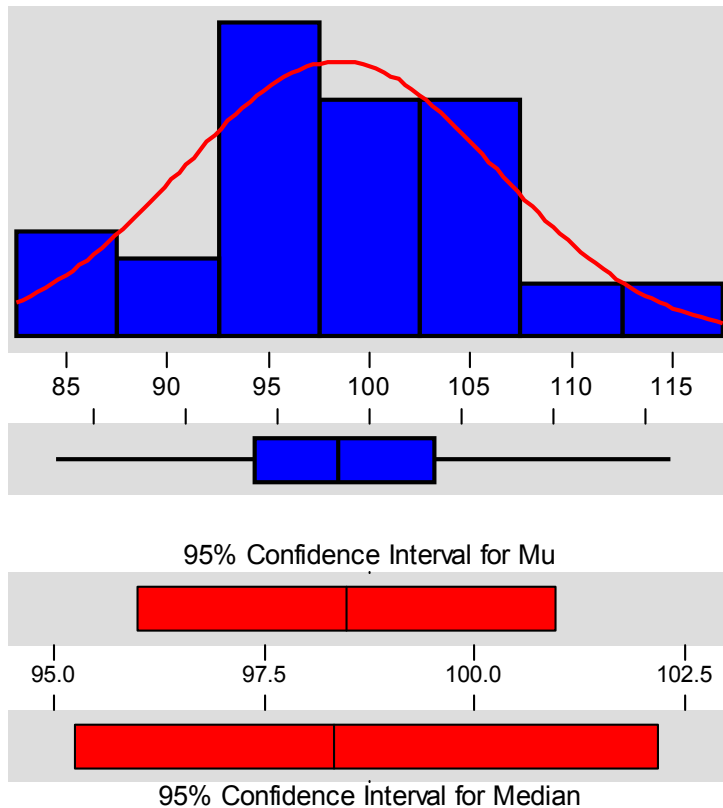
Anderson-Darling Normality Test

A-Squared:	0.201
P-Value:	0.874
Mean	98.4840
StDev	7.8333
Variance	61.3607
Skewness	2.87E-03
Kurtosis	-3.7E-02
N	41
Minimum	82.874
1st Quartile	93.747
Median	98.327
3rd Quartile	103.529
Maximum	116.454

95% Confidence Interval for Mu

96.012	100.957

95% Confidence Interval for Sigma

6.431	10.023

95% Confidence Interval for Median

95.255	102.179

By gauging the condition of my home versus the quartiles, I calculated my price!

The price

	OUR TAX	Mult	Expect
If our House was immaculate!	2541	116	294756
If our House was @ Q3…	2541	103	261723
If our house was on the median…	2541	98	249018

All of the agents said the house looked very presentable…

M.K. had suggested a list price of between 259,900 and 269,900.

We listed for 267,850.

Did it work?

- All of the other agents suggested a listing price of 259,900!

- We inked our first deal for $265,000 but, the buyer was unable to secure financing.

- A second offer came in and we sold the house for $261,000, only $723.00 from predicted!

- I say this statistical analysis stuff pays off. We sold our house for more than 2/3 agents suggested list price!

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