Gas Stations: *What I'm Seeing* – November 2015

I've been trying to develop a model that predicts how many gallons a gas station should generate based on location, dispensers, traffic counts, etc. One might ask how this relates to appraisal and valuation. Well if you can figure out how many gallons a location is selling as well as inside store sales, then you can estimate gross profit, expenses and value. Here is the road I've travelled so far:

- **1st Attempt** - A market participant indicated that an old rule of thumb is gallons sold reflect 2% of traffic counts. I ran the data and the R Squared = 0.01 or almost no correlation. While important, I believe there are just too many variables for this one to solely explain the differences.

- **2nd Attempt** – Analyze monthly gallons per dispenser. R Squared = 0.4 or weak correlation. There is definitely a link here, but it isn't explaining enough.

- **3rd Attempt** –Model with multiple variables. R Squared = 0.7 or moderate correlation. This combination of variables is describing some of what is going on, but not everything. Although it needs more work, the resulting model is getting closer and at least offers a ballpark estimate.

Instead of writing out a confusing formula, the model is below and you can set it up in excel pretty easily. In order to demonstrate, assume a hypothetical station (**subject**) has the attributes in the gray box below. The estimate of gallons is the sum of the individual lines in the right column:

Formula	Description	Comment	Subject	x	Coefficient	=	Estimate
Intercept	Constant	-			6,388	=	6,388
X1	Traffic Count (ADT)	Cars per day passing the station	25,000	x	0.26	=	6,598
X2	# of Stations within 1 mile of subject	# of all stations	3	x	3,249	=	9,746
X3	Low Price Stations within 1 mile of subject	# of Arco, Space Age, Fred Meyer, etc.	0	x	-14,856	=	0
X4	Relative Pricing ($) of 1 gallon of regular gas	1=low end, 2=mid range, 3=high end	2	x	-17,215	=	-34,430
X5	Does C-Store have a deli?	1 = Yes, 0 = No	0	x	6,336	=	0
X6	Is station modern or dated?	1 = modern, 0 = dated.	1	x	22,461	=	22,461
X7	Does station have a car wash?	1 = Yes, 0 = No	0	x	19,207	=	0
X8	Type of operator	1= tenant, 2=owner, 3=corporate, 4=multi	2	x	10,949	=	21,899
X9	C Store SF	# of SF of building	2,200	x	-0.23	=	-506
X10	# of Dispensers	# of gas pumps	4	x	12,504	=	50,015
X11	Site Size (SF)	Size of land.	20,000	x	0.07	=	1,301
X12	Fuel Tank Volume (Gallons)	Capacity of fuel tanks	30,000	x	0.57	=	17,048
Y	**Estimated Gallons per Month (Rounded)**						**100,000**

If anyone has any suggestions or ideas, I'm listening. Happy Thanksgiving.

Please call anytime if I can help solve a valuation problem in Oregon or Washington:

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