**Wisdom of Crowds**

My interest in the survey method began with a television program called Brain Games. As I watched with my two youngest children, twenty volunteers were asked to estimate the number of gumballs in a large gumball machine. Their estimates were recorded, totaled and divided by twenty. The estimates ranged was from 100 to 11,986. The average of all the estimates was 2425 gumballs. The actual number of gumballs was 2447 which is within 1%.

This got me interested in learning more about a phenomenon called Wisdom of Crowds. The best presentation I have seen is by Marcus du Sautoy, a British mathematician, author and public advocate of science and mathematics. His credentials include the Simonyi Professorship for the Public Understanding of Science at the University of Oxford. His 5 minute video was produced by BBC.

<https://www.youtube.com/watch?v=iOucwX7Z1HU>

Du Sautoy tells the story of Sir Francis Galton and his discovery of what has become known as Wisdom of Crowds. Galton’s contributions to science are far reaching so we will focus on only a few in the field of statistics.

**Questionnaire**

Galton was the first to use a questionnaire to document survey results.

**Standard Deviation**

The concept that two sets of data may have the same mean value, but could differ in their variation around that mean.

**Regression**

Galton was first to use the regression line and chose the letter r to represent the correlation coefficient.

**Wisdom of Crowds**

The setting for Galton’s discovery was a livestock fair. An ox was on display and people were buying tickets to enter a contest to guess the weight of the carcass after slaughter. Estimates of the weight were written on the tickets. The tickets were seen by Galton as a survey questionnaire. The idea of the contest organizer was to award the prize to the person who most closely estimated the actual weight of the carcass.

Galton had a different idea. He had a scientific experiment in mind for the tickets. He wanted to prove that commoners were not able to guess the weight of an ox carcass, much less manage the affairs of society. The politics of Elizabethan England included debate about preserving the monarchy in a world that was seeing the emergence of democracy. He proved his hypothesis. Nobody could estimate the weight of the carcass. But Galton was a scientist who didn’t end his inquiry when there was the possibility of learning more from the results of the survey. His analysis showed that the “middlemost estimate expresses the vox populi (voice of the people)”. Every other estimate was either too high or too low, as judged by the majority of those who participated. Middlemost is another way of saying median, which is a term also originated by Galton.

The middlemost estimate was 1,207 pounds. The actual weight of the ox carcass was 1,197 pounds. This is within 1%. Upon further analysis, Galton found the mean of all tickets to be 1,197 pounds. Zero error!

I have tried to follow Galton’s example of Wisdom of Crowds to develop survey based adjustments for features such as bedroom count and influences such as busy road, backing to a freeway, power lines, rail tracks and pipeline right of way. I have to admit that I want the survey method to work. It saves lots of time in the appraisal process. To guard against bias, I want to remember this quote from the Bureau of Labor Statistics website.

“Is the glass half empty or half full? At BLS we see an 8-ounce glass containing 4 ounces of fluid.”

In keeping with this quest for objectivity I have studied the work of James Surowiecki. In his book “The Wisdom of Crowds”,[[1]](#footnote-1) Surowiecki lists four conditions that characterize wise crowds. Each of these conditions must be met in order to have credible survey results.

“The (stock) market was smart that day because it satisfied the four conditions that characterize wise crowds: **diversity of opinion** (each person should have some private information, even it it’s just an eccentric interpretation of the known facts) **independence** (people’s opinions are not determined by the opinions of those around them), **decentralization** (people are able to specialize and draw on local knowledge), and **aggregation** (somemechanism exists for turning private judgments into a collective decision). If a group satisfied those conditions, its judgment is likely to be accurate. Why? At heart the answer rests on a mathematical truism. If you ask a large enough group of diverse, independent people to make a prediction or estimate a probability, and then average those estimates, the errors each of them makes in coming up with an answer will cancel themselves out. Each person’s guess, you might say, has two components: information and error. Subtract the error and you’re left with the information.”[[2]](#footnote-2)

Diversity of opinion, independence, decentralization and aggregation. These are the four characteristics at the core of the surveys I have originated over the past few years. The aggregation mechanism is a website designed for this purpose called PeerConsensus.com. Presently, the website archives a wide range of surveys of appraisers. The results have been very useful to me and hundreds others. But it would be more credible to have surveys of market participants like agents.

I cannot imagine a more willing survey participant than the listing agent who gives you access to the house you have been assigned to appraise. You are their new best friend in the real estate business! At least long enough for them to fill out a quick survey.

Over time, my hope is to develop surveys of real estate agents. Localized surveys will become possible as participation grows. Growth depends upon the usefulness of the survey results and how many people are helped by them.

I believe that Galton’s example can be useful, just as his other innovations have proved to be. Median, standard deviation, regression, the questionnaire. All from the prolific mind of Sir Francis Galton.

1. The Wisdom of Crowds James Surowiecki Anchor Books 2002 p10 [↑](#footnote-ref-1)
2. The Wisdom of Crowds James Surowiecki Anchor Books 2002 p10 [↑](#footnote-ref-2)