

# An Analysis of the Concordance Among 13 U.S. Wine Competitions\*

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## Abstract

An analysis of over 4000 wines entered in 13 U.S. wine competitions shows little concordance among the venues in awarding Gold medals. Of the 2,440 wines entered in more than three competitions, 47 percent received Gold medals, but 84 percent of these same wines also received no award in another competition. Thus, many wines that are viewed as extraordinarily good at some competitions are viewed as below average at others. An analysis of the number of Gold medals received in multiple competitions indicates that the probability of winning a Gold medal at one competition is stochastically independent of the probability of receiving a Gold at another competition, indicating that winning a Gold medal is greatly influenced by chance alone. (JEL Classification: D02, Q19)

## I. Background

According to the Wine Institute (Wine Institute, 2009), there are 29 major wine competitions held annually throughout the United States with two-thirds of them being in California. To lift their brand above the competition, wineries spent more than \$1 million in entry fees in 2003 at just 13 of these venues.<sup>1</sup> The benefit of this expense is the belief by wineries that entry fees offer a valid return on investment: Gold medals sell wine. However a recent article in *Wine Business Monthly* (Thach, 2008) conducted as a joint effort by 10 global universities with specialties in wine business and marketing found that consumers are not particularly motivated by medals when purchasing wine in retail stores. Perhaps consumers are beginning to realize, as discussed below, that winning gold medals may be more a matter of chance than a predictor of quality.

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<sup>1</sup> Based on the number of known entries in 13 competitions at an average entry fee of \$60.

In 2003 the California Grapevine tracked more than 4,000 wines in 13 U.S. wine competitions.<sup>2</sup> The results include not only which wines earned medals, but also wines that were entered but did not earn medals.

Equipped with this information, several interesting questions arise.

- (1) Is there a consensus among the several competitions that would lead the consumer to trust the results? That is, do Gold medals reflect a measure of quality, or are they simply related to the number of competitions entered? Is there any degree of correlation between the several competitions?
- (2) What is the likelihood that a Gold medal award at one competition predicts a Gold medal at another?
- (3) What is the likelihood that a Gold medal award at one competition is accompanied by a “no award” at another?
- (4) How much chance is involved in garnering a Gold medal and how might one differentiate between inherent quality and random processes in assessing the significance of a Gold medal?

## II. Methods

This study is based on data disseminated by the California Grapevine, referenced above. While most competitions publish only medal winners, this data-base also includes instances when a wine was entered but did not receive an award. In addition, it notes cases (not used in this study) when it is only believed that the wine was entered into a competition but did not receive a medal. Table 1 is an example of the raw data used in this study. The top row is used to identify the individual competitions entered. Below are the scores received by the various wines (BSG corresponding to Bronze, Silver and Gold). Capital X designates the wine was entered but did not receive an award. Lower case x designates that a wine was believed to have been entered and did not receive an award. A dash (–) means the wine was not entered.

*Table 1*  
**Example of Data from California Grapevine**

	<i>DA</i>	<i>SC</i>	<i>GH</i>	<i>NW</i>	<i>WC</i>	<i>PR</i>	<i>SD</i>	<i>RI</i>	<i>LA</i>	<i>IE</i>	<i>OC</i>	<i>SF</i>	<i>CS</i>
WINE 2518	–	B	S	B	–	–	G	X	X	S	X	x	S
WINE 2519	B	B	G	x	X	S	G	G	–	–	–	B	S
WINE 2520	–	–	–	X	G	–	–	–	G	–	S	x	S

DA = Dallas Morning News Wine Competition, SC = San Francisco Chronicle Wine Competition, GH = Grand Harvest Awards, NW = Jerry D. Mead's New World International Wine Competition, WC = West Coast Wine Competition, PR = Pacific Rim International Wine Competition, SD = San Diego National Wine Competition, RI = Riverside International Wine Competition, LA = Los Angeles County Fair, IE = International Eastern Wine Competition, OC = Orange County Fair Wine Competition, SF = San Francisco International Wine Competition, CS = California State Fair Wine Competition; BSG corresponds to Bronze, Silver and Gold. Capital X designates the wine was entered but did not receive an award. Lower case x designates that a wine was believed to have been entered and did not receive an award. A dash (–) means the wine was not entered.

<sup>2</sup> California Grapevine, PO. Box 22152, San Diego, California 92192.

The medals awarded wines are converted to an 18-point scale with a base of 80 points, 80 points being the value given when a wine did not receive an award. A Bronze medal award was equated to 84 points, a Silver to 90, and a Gold to 96 points. In some cases when a wine was awarded a double Gold or “best of” category, the wine was awarded 98 points. Table 2 shows the entries of Table 1 converted to a numerical scale.

*Table 2*  
**Conversion of Data from Ordinal Scale to Numerical Scale**

	<i>DA</i>	<i>SC</i>	<i>GH</i>	<i>NW</i>	<i>WC</i>	<i>PR</i>	<i>SD</i>	<i>RI</i>	<i>LA</i>	<i>IE</i>	<i>OC</i>	<i>SF</i>	<i>CS</i>
WINE 2518		84	90	84			96	80	90	90			90
WINE 2519	84	84	96			90	96	96				84	90
WINE 2520				80	96				96		90		90

*DA* = Dallas Morning News Wine Competition, *SC* = San Francisco Chronicle Wine Competition, *GH* = Grand Harvest Awards, *NW* = Jerry D. Mead's New World International Wine Competition, *WC* = West Coast Wine Competition, *PR* = Pacific Rim International Wine Competition, *SD* = San Diego National Wine Competition, *RI* = Riverside International Wine Competition, *LA* = Los Angeles County Fair, *IE* = International Eastern Wine Competition, *OC* = Orange County Fair Wine Competition, *SF* = San Francisco International Wine Competition, *CS* = California State Fair Wine Competition.

### III. Wines Entered in Five Competitions, a Close Look

The data were first grouped into cases of equal competitions entered and sorted by the number of Gold medals won. Of the 4,167 wines followed by California Grapevine, 375 wines were identified as entering five competitions. What follows is specific for this group of wines; however, it is typical of the entire data set.

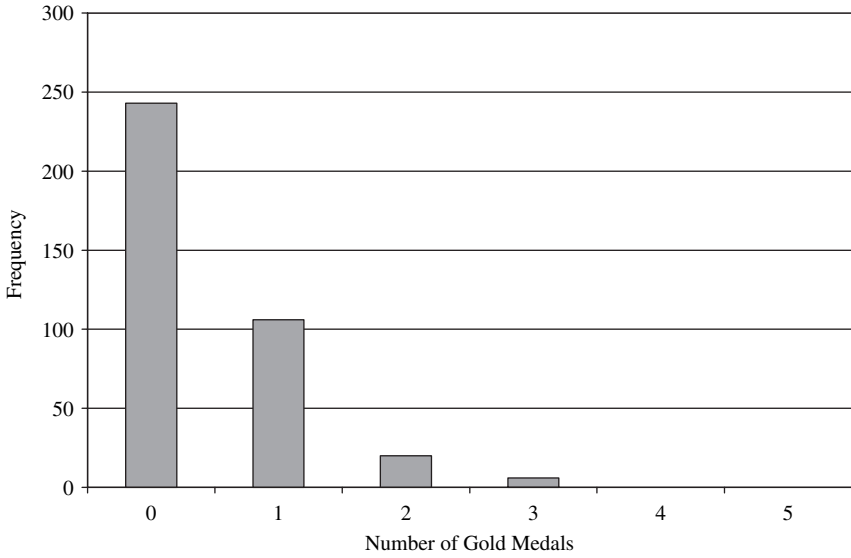
For these 375 wines, no wine received Gold medals in all five competitions, nor did any do so in four competitions. Six wines garnered three Gold medals, 20 received two and 106 wines received one. The remaining 243 wines did not receive any Golds (Figure 1).

For the 132 Gold medal winners, how consistent were their scores through the five competitions? Of the 106 wines that received a single Gold medal, 84 also received at least one No Award (Figure 2). The lowest score received by another 20 was a Bronze. In just two cases, the single Gold was followed by Silver medals. For the six wines that received three Gold medals, two also received at least one No Award in other competitions. The remaining four wines received at least one Bronze.

Summarizing, for wines that were entered in five competitions, about 75 percent of the wines receiving a Gold medal also received no award and another 23 percent received a Bronze. So, while the likelihood of garnering at least one Gold medal is quite high (35%) 98 percent of these Gold medal wines were accompanied by no award or a Bronze medal in at least one of the other four competitions.

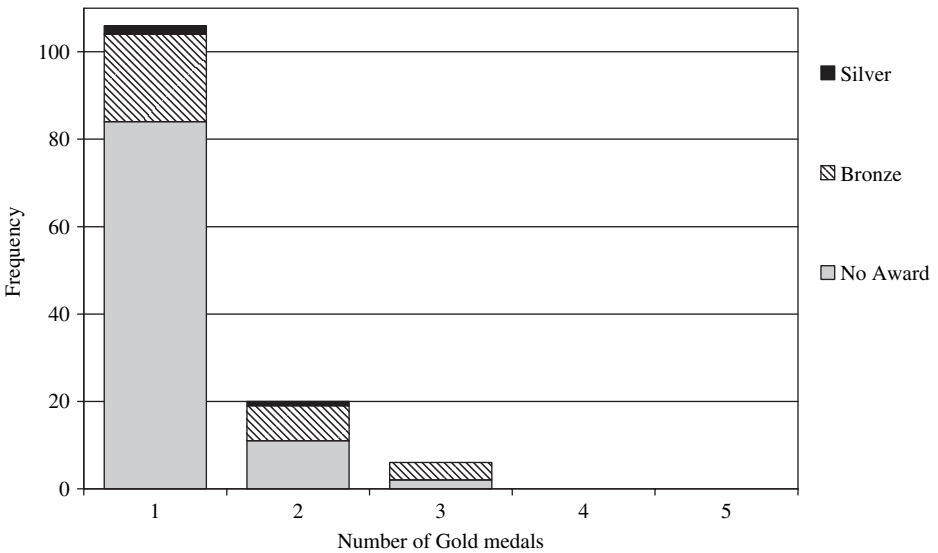
Before leaving the case of five competitions, it is worth noting that the competition results are most concordant with wines that were considered average or below average. Of the 25 instances when the awards granted by all five competitions were concordant within

*Figure 1*  
**Number of Gold Medals Awarded to Wines Entered in Five Competitions**



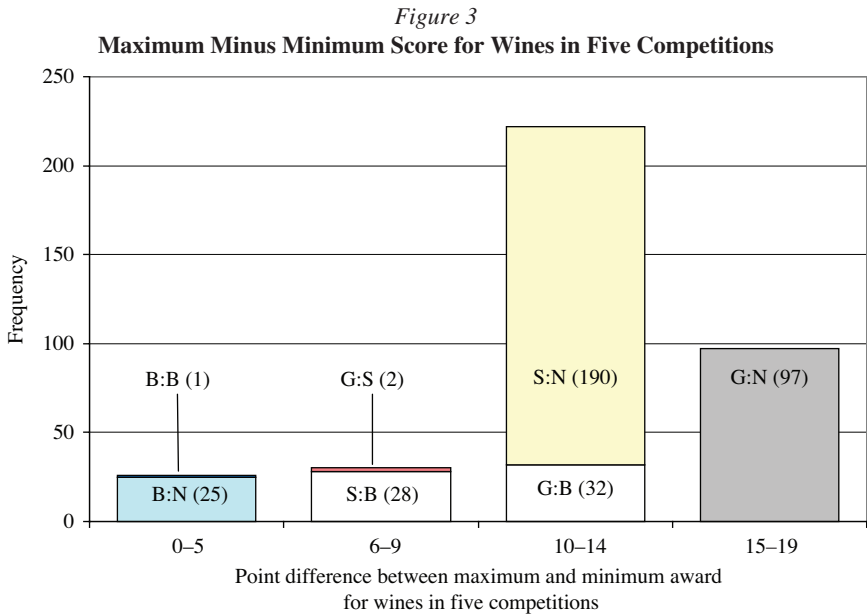
There were 375 wines of which 132 received at least one Gold Medal.

*Figure 2*  
**Distribution of the Lowest Award for Wines that Received Gold Medals**



For the 106 wines that received one Gold medal, 84 also received one or more No Awards and another 20 received a minimum score of Bronze.

five points, these were entirely for wines receiving Bronzes or No Awards (Figure 3). This supports the opinion of Hodgson (2008) that wine judges concur in what they do not like, but are uncertain about what they do.



The symbols refer to the point range of awards received. For instance, S:N means the maximum score was a Silver and the minimum score was a No Award. The number of wines is given in parenthesis.

## IV. Summary of the Entire Data Set

### A. General Observation

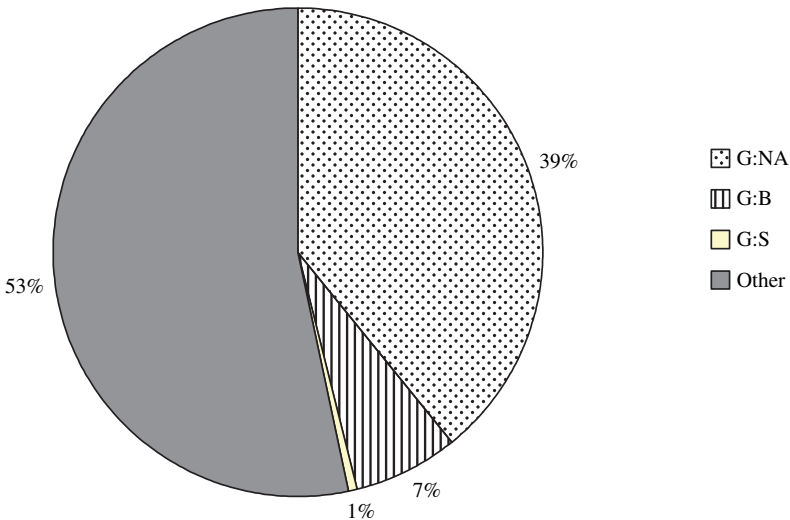
There were 3,347 wines entered in two or more competitions. Considering the case when the results of the competitions were perfectly concordant, i.e., when a wine received the same score in every competition entered, we find that there were only 132 cases. However, virtually all of these occurred when the wine was entered in just two competitions. For wines entered in more than three competitions, there were no straight<sup>3</sup> Golds, out of 3,400 entries.

There were 2,440 wines entered in more than three competitions. Of these, there were 1,142 Gold medals awarded (47%). Of the 1,142, 957 (39%) also received at least one No Award. Of the remaining 185 Gold awards, 165 received a low score of Bronze in one or more other competitions. Thus, 98 percent of Gold medal wines were regarded as just above average or below in another competition (Figure 4).

<sup>3</sup> The term “straight” means that there was no variation in a wine’s score among all competitions entered.

Is there any correlation between the scores given by the 13 competitions? Using the 80–100 point scale described above, Table 3 lists the individual correlation coefficients among the 13 competitions. The maximum correlation is 0.33 between the San Francisco Chronicle competition and the Grand Harvest Awards. The median correlation is just 0.10. Thus one is led to the conclusion that a wine's performance in one competition is not correlated with its performance in another.

Figure 4  
Distribution of Awards for Wines Entered in more than Three Wine Competitions



The legend refers to the maximum and minimum awards received. For instance, G:B refers to the number of wines receiving a maximum score of Gold and a minimum score of Bronze.

### B. Is Chance Alone Responsible for Gold Medals?

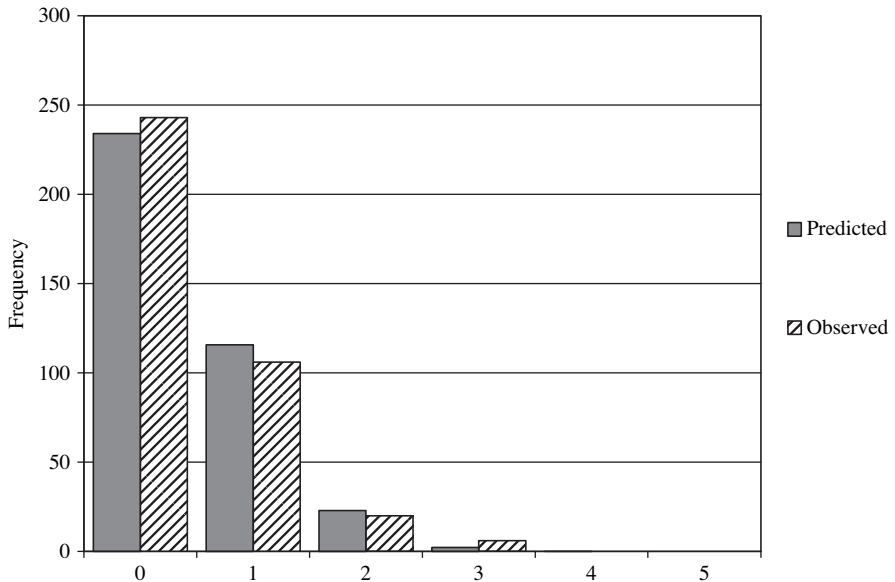
Examining the form of the distribution of Gold medals received by a particular wine entered in various competitions suggests a simple binomial probability distribution. This distribution mirrors what might be expected should a Gold medal be awarded by chance alone. Figure 5 shows the observed and expected frequency distribution for wines entered in five competitions. The predicted binomial frequency distribution was adjusted (by varying “p”) to achieve maximum goodness-of-fit. Thus, in binomial terminology, if the probability of receiving a Gold medal in a single competition is equal to 0.09, the expected number of Gold medals to be obtained in five competitions is almost identical to the observed frequency. For the 375 wines entered in five competitions, one would expect by chance alone (for  $p=0.09$ ), 234 wines receiving no Golds, 116 receiving a Gold in just one competition, 23 receiving Golds in two competitions, two receiving Golds in three competitions and no wine receiving Golds in more than three competitions. The observed frequencies closely mirror these numbers.

*Table 3*  
**Correlations between Wine Competitions**

	DA	SC	GH	NW	WC	PR	SD	RI	LA	IE	OC	SF	CS
<b>DA</b>	1.00												
<b>SC</b>	0.09	1.00											
<b>GH</b>	0.02	0.33	1.00										
<b>NW</b>	0.04	0.10	0.09	1.00									
<b>WC</b>	0.11	0.22	0.28	0.05	1.00								
<b>PR</b>	0.12	0.09	0.19	0.07	0.14	1.00							
<b>SD</b>	0.10	0.18	0.11	0.10	0.14	0.16	1.00						
<b>RI</b>	0.08	0.10	0.09	0.15	0.09	0.07	0.20	1.00					
<b>LA</b>	0.02	0.03	0.04	0.08	0.09	0.09	0.09	0.09	1.00				
<b>IE</b>	0.07	0.17	0.08	0.10	0.27	0.10	0.10	0.05	0.05	1.00			
<b>OC</b>	0.09	0.19	0.17	0.16	0.27	0.06	0.11	0.11	0.07	0.24	1.00		
<b>SF</b>	0.07	0.02	0.04	0.09	0.05	0.13	0.10	0.13	0.13	0.04	0.09	1.00	
<b>CS</b>	0.16	0.07	-0.02	0.06	0.11	0.09	0.19	0.19	0.08	0.10	0.15	0.05	1.00

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*Figure 5*  
**Predicted and Observed Frequencies for Number of Gold Medals Awarded**



Number of Gold medals for 375 Wines Entering Five Competitions Based on a Binomial Probability Distribution ( $p=0.09$ ).

It should be noted that the binomial probability distribution presupposes stochastic independence, the conditional probability of winning a Gold medal at B, given a wine has won at A is just

$$P(B | A) = P(B).$$

That is, winning a Gold medal at B does not depend on whether or not the wine won a Gold medal at A. This seems to be the case as will be shown below, and supports the conclusion that chance alone may account for the number of Gold medals that a wine receives.

By contrast, if wine competitions were a reliable predictor of wine quality, one might expect, say, 10 percent of the wines to be ranked consistently superior. For the case of five competitions described above, one might expect to see 30 to 40 consistent Gold medal winners (which was not observed).

Using the binomial probability distribution as a model, the observed and predicted frequencies of Gold medals were tabulated for wines entered in three, four, five, six, nine, 12 and 13 competitions. In all cases, the observed frequency distribution is statistically explained by chance alone. Using a chi-square statistic to test goodness-of-fit, the observed value of chi-square falls well below the critical values (Table 4).

*Table 4*  
**Observed and Critical Values of the Chi-Squared Statistic**

<i>n</i>	<i>Chi-Squared observed</i>	<i>Chi-Squared critical<sup>a</sup></i>	<i>p</i>
3	4.23	6.0	0.16
4	3.3	7.8	0.12
5	1.5	9.5	0.09
6	1.3	11	0.08
9	4.2	15	0.09
12	9.2	19	0.09
13	0.75	21	0.12

<sup>a</sup> Significance level 5%.

## V. Conclusion

An examination of the results of 13 U.S. wine competitions shows that (1) there is almost no consensus among the 13 wine competitions regarding wine quality, (2) for wines receiving a Gold medal in one or more competitions, it is very likely that the same wine received no award at another, (3) the likelihood of receiving a Gold medal can be statistically explained by chance alone.



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