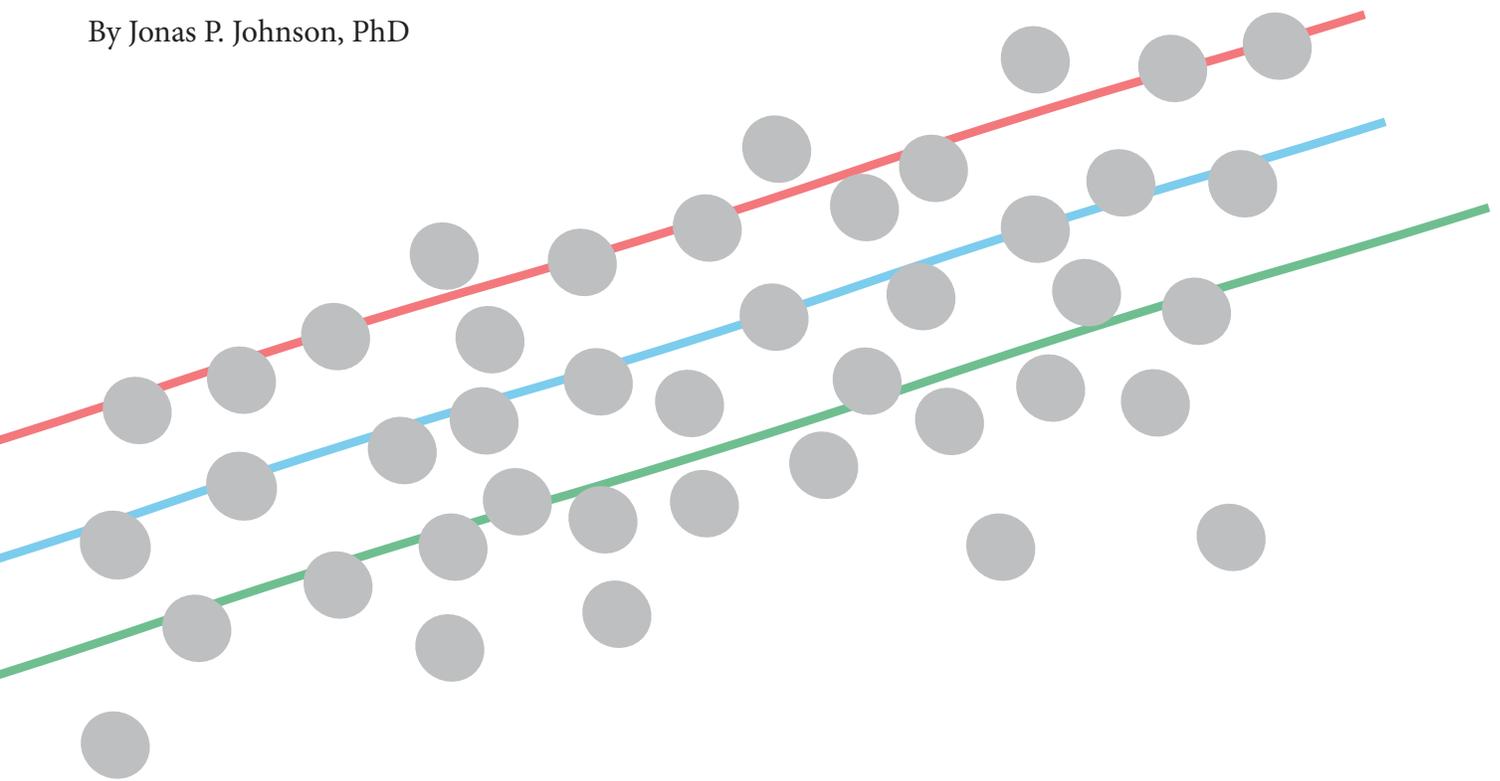


A Comparison of Salary Assessor and ERI Salary Survey Data

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Introduction

When evaluating research, a natural question is whether the results of the research match reality. Can the numbers be trusted? Will they improve the decisions that a manager makes?

To answer these questions, a user might examine the sample size or methodology of a survey, which are both reasonable approaches for an individual to evaluate a data source. However, these techniques put the burden of evaluation on the individual user. Another approach is for the research firm to compare the results of one study to the results of a second, independent, study. A high level of agreement between the two studies lends credence to the accuracy of both studies. Simply stated, if we ask a question twice and we get the same results each time, we can have a higher level of confidence in the accuracy of the research methods.

There are several ways to compare research methods, the most appropriate of which depends on the type of research being evaluated. In regards to compensation research, one way to examine the quality of research is to compare published results to data that were collected at the time of publication. The current paper performs this by comparing time matched independent datasets from ERI's Salary Assessor and ERI Salary Surveys.

Background

ERI Salary Surveys is a data division of ERI that conducts traditional surveys. Data for these surveys are collected and published once each year, delivering benchmark results with descriptive statistics. ERI's Salary Assessor, part of the ERI Assessor Series product suite, is a time series analysis of salary survey data. The salary survey data from ERI's 2014 salary surveys were compared to the results published in the Salary Assessor on January 1, 2014. A few points regarding the construct of this study:

- These are two fully independent, mutually exclusive data sources with different methodologies. The January 1, 2014, Salary Assessor data release did not contain any of the data collected for the 2014 salary surveys.
- The Salary Assessor research published for the first quarter of 2014 was compared to the survey data collected in the first quarter of 2014. The data submission deadline for the salary surveys was March 31, 2014, and the majority of data was submitted in the early months of 2014.
- The 2014 salary survey results were later included in the Salary Assessor but not as of the first quarter of 2014, as is required under safe harbor guidelines.
- Salary survey data from ERI Salary Surveys representing 1,274 occupations and 254,324 incumbents were matched by job number to January 1, 2014, research published in the Salary Assessor.
- The mean salary published in the Salary Assessor was \$70,720 and the mean salary collected by the salary surveys was \$69,990. This represents a difference of \$730 and a 99% agreement between the two sources.

Results

To examine the extent of agreement between the two sources, a series of analyses were conducted. The first one, called a t-test, helps examine the differences between both sources at a macro level. It answers the question of whether the overall average (mean) of the surveys is different from the overall average of the Salary Assessor. The second test, called regression, helps examine whether one variable is able to predict another. The current study examines whether the Salary Assessor is able to predict responses to the salary surveys.

First, a paired sample t-test, was conducted. This test compared the means from the two samples to determine if, from an overall perspective, one sample was fundamentally different from the other. This test found that there was not a statistically significant difference between the two data sources, $t(1273)=1.32$, $p=.19$. This means that the Salary Assessor mean of \$70,720 was close enough to the mean of the surveys (\$69,990) that the difference between the two was likely due to chance.

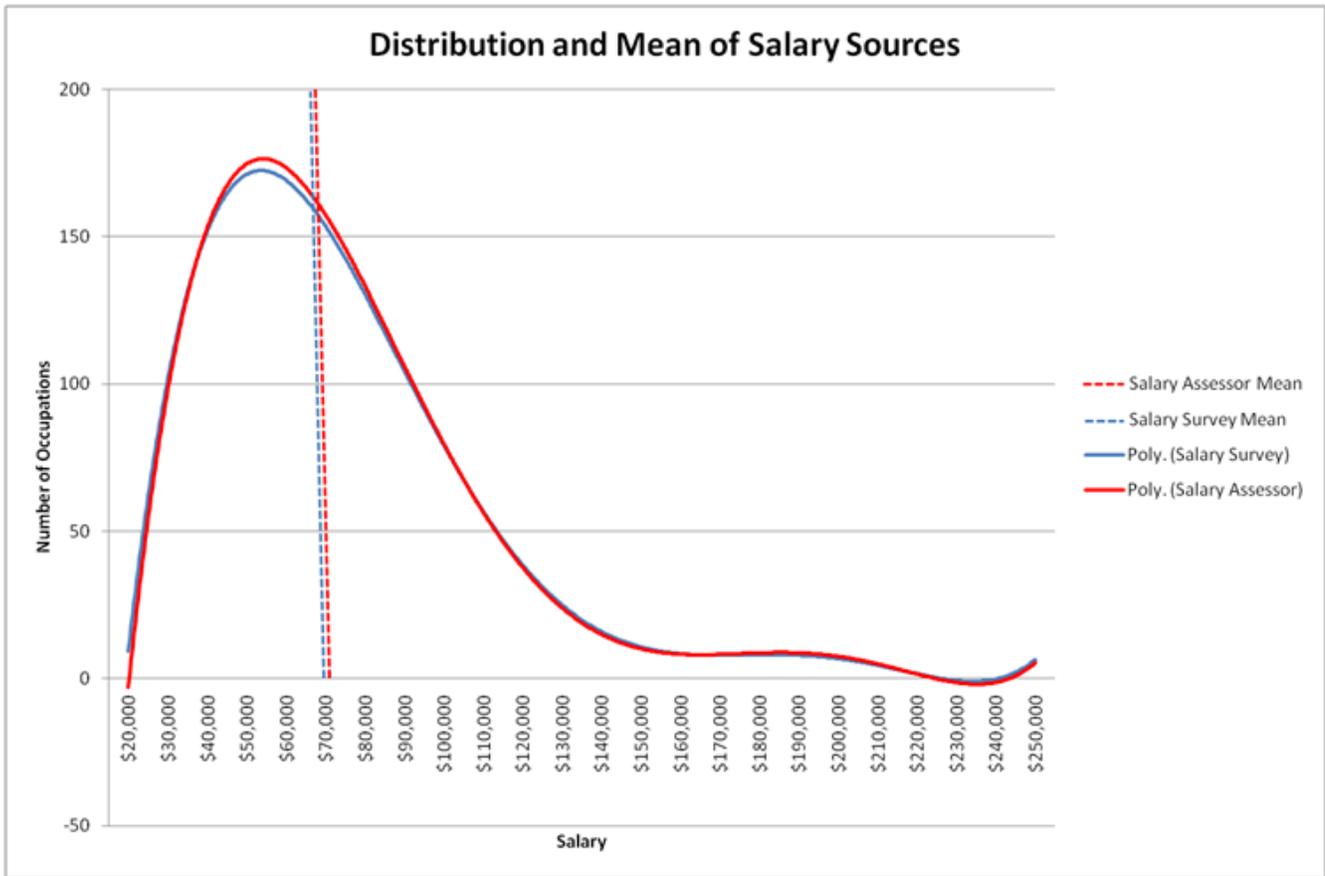
Next, a regression analysis was conducted between the Salary Assessor and the salary surveys. The Salary Assessor uses a time series analysis to predict salaries at the first day of each quarter. This regression was conducted to determine whether the Salary Assessor was successful in this prediction. Specifically, the independent variable (Salary Assessor mean values) was compared to the dependent variable (survey mean values). The results indicated that the Salary Assessor was a significant predictor of the survey results: $F(1,1272)=4121.26$, $p<.0001$, $R^2=.76$. This means that the Salary Assessor was able to predict the salaries reported in the salary surveys

The results of these tests are summarized in **Table 1** and **Figure 1**:

Salary Assessor Mean	\$ 70,720
Salary Survey Mean	\$ 69,990
Salary Assessor std dev	\$ 39,274
Salary Survey std dev	\$ 39,105



Figure 1:



In the above chart, the curved lines shows the number of occupations at each salary point. As is common in compensation, there are fewer occupations at higher salary levels than lower salary levels (called positive skew). The amount of overlap between the line representing salary surveys and the line representing the Salary Assessor indicates that the data from the two sources are distributed throughout the salary range in a similar manner. The vertical blue and red lines represent the means of each data source. They are placed on the chart to provide a reference between Figure 1 and data presented in Table 1.

Conclusion

These two analyses show a high level of agreement between the two independent studies. First, the results of the t-test indicate that the two samples are not different in terms of means. If there were a fundamental bias to one of these methodologies, it might be expected to be revealed through this test.

The fact that they were not significantly different in this test lends credence to the idea that both methodologies are testing the same underlying reality. Second, the results of the regression indicated that the Salary Assessor was a significant predictor of the time matched survey results. The statistical analyses indicate that the agreement between the two studies was likely not due to chance. Taken together, these analyses support the accuracy of the Salary Assessor and salary survey methodology.

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