

## Methodology

### The Geographic Assessor® & Pay Survey

**ERI Economic Research Institute** was founded over 30 years ago to provide compensation applications for private and public organizations. ERI's applications are available to management, analysts and consultants and are now widely used by client organizations. Subscribers include corporate compensation, relocation, human resources, and other professionals, as well as independent consultants and counselors, and US and Canadian public sector administrators (including military, law enforcement, city/county, state/provincial, and federal government pay administrators).

**ERI** compiles the most robust salary, cost-of-living, and executive compensation survey data available, with current market data for more than 1,000 industry sectors. The majority of the Fortune 500 and thousands of other small and medium sized organizations rely on ERI data and analytics for compensation and salary planning, relocations, disability determinations, board presentations, and setting branch office salary structures in the United States, Canada, and worldwide.

**ERI** is a leader in the collection, and analysis of compensation, occupation, and cost-of-living data. All data are employer-provided and come from a variety of sources. Survey data are collected through internally conducted salary surveys and the purchase of salary surveys from survey vendors. Additional data are gathered through the digitization of Proxy and 10-K data and Freedom of Information Requests in the US. Compensation data are compiled in terms of mean and median salaries for jobs of similar duties, responsibilities, skills, and functions through an extensive job matching process. **ERI** produces surveys and application analyses by which managers, advisors, and Boards of Directors may make recommendations and/or decisions. **ERI** does not provide fee-for-service consulting; our sole focus is providing valid and reliable information to our subscribers.

#### Overview

The **Geographic Assessor & Pay Survey** application and databases present in-depth time series regression analyses of base salary and wage differences among and between different cities and areas. ERI researchers have utilized these regression techniques for decades, the difference from the original publication being the extent and quality of survey data that are available today. Geographic cost-of-labor regressions represent analyses of the demand and supply of labor (as opposed to cost-of-living's reflection of the demand and supply of goods and services). ERI has been collecting and analyzing salary surveys since its founding; over 20 million position incumbents' data are now included in ERI's survey databases. For those interested, we refer the reader to ERI's founder's original published article on this subject:

Thomsen, D. J. (1974). Geographic Differentials in Salaries Within The United States, *Personnel Journal*, 53, 9, 670-4.

#### Salary/Wage Differentials

The **Geographic Assessor & Pay Survey** application is an easy-to-use program that aids with the assessment of branch location wage and salary competitiveness and the setting of salary structures. ERI's **Geographic Assessor & Pay Survey** application calculates wage and salary differentials between any of over 7,300 North American cities, over 1,700 European cities, and cities in myriad countries around the world.

#### Cost-of-Living Analyses

The original **Two City Comparison** table in the **Geographic Assessor** only reports summary cost-of-living differentials based on the rental housing market and benchmark assumptions for each earnings level. It is intended to provide only a first look at the relative buying power of wages/salaries in different areas. The **updated Two City Comparison** table in the **enhanced Geographic Assessor** includes cost-of-living data for both rental and home ownership scenarios, allowing for more in-depth cost-of-living analyses and modification of assumptions. The **Relocation Assessor** was specifically designed to build relocation packages and reports rental and ownership differentials, along with itemized

break-outs of the expenditure categories that can be modified by the user in the main table. While you should use the **Geographic Assessor** to set wage and salary levels based on geographic differentials, the **Relocation Assessor** is better suited to determine COLAs.

### Statistical Methodology

The **Geographic Assessor & Pay Survey** application consists of linear regression analyses programs. Eight trend lines are created for any area. Local area salary data are compared to the corresponding national salary by job or job family to create a series of differentials per area. A sample of these differentials by job or job family is displayed on the Graphs tab. To create a single differential across jobs (one that can vary by salary level), the average, conditional on salary level, is computed via a simple linear regression (the regression line is also displayed on the Graphs tab). Since these differentials vary both by salary and salary structure, a separate regression is performed for each salary structure. The user only needs to input the salary level for the base location; the program automatically assigns the structure based on the ranges below and returns the corresponding differential.

### Structures

These regression equations are expressed in terms of “structures,” as follows:

Wage Earner Structure	Min - 24,000
Low Salary Structure	24,000 -36,000
Mid Salary Structure	36,000 - 48,000
High Salary Structure	48,000 - 72,000
Management Salary Structure	72,000 - 108,000
Executive-1 Structure	108,000 - 144,000
Executive-2 Structure	144,000 - 192,000
Executive-3 Structure	192,000+

The Wage/Salary area structures are the formulae resulting from ERI's regression analyses of all available data for the area. The program will automatically assign the correct structures by city on the Two City Comparison table, the Comparison List table, and the Graphs table.

### Sources

Data used in the cost-of-labor calculations come from salary survey sources. **ERI** collects available salary survey data for jobs and areas; evaluates survey data for validity and reliability; and compiles mean and median salaries for positions with similar duties, responsibilities, skills, and functions. Because ERI has decades of experience collecting and evaluating salary data, we have refined methods for validating both the source data and results.

## Selected FAQs

### Who uses the Geographic Assessor application and databases? How do they use it and how should I?

Companies setting salary structures, who pay different rates in different locations, use it. Branch pay differentials allow you to take advantage of the differing labor markets to minimize operating costs while maintaining the ability to attract, retain, and motivate employees in each area. Most often, companies use the labor cost differentials reported by the **Geographic Assessor** to make data-based decisions and manage complexity by adjusting existing structures based on local labor cost differentials or, when the differentials are sufficiently large, to develop new structures. Companies also use the labor cost differentials to research general overall labor cost differences associated with opening new branch offices. In addition to using the **Geographic Assessor** with salary structures, there are other uses of labor cost differentials, such as to adjust salary survey results directly, say from state or region to the national equivalent (or the inverse) when data at the desired geographic level or area is not directly available.

While these are all valid uses of labor cost differentials per se, each planning situation is different. So it is important to keep in mind the current planning context such as consistency with prior methods, compensation philosophy, and organizational culture, and so on when deciding how to best leverage the differentials reported. We at ERI are happy to answer questions on the data and general uses, but we do not do consulting.

In terms of specific users, a number of voluntary subscriber disclosures about reliance on ERI data are cited in customer testimonials (see <http://www.erieri.com/testimonials>) and corporate proxies (<http://www.erieri.com/ExecutiveCompensationProxyData>) and periodically appear in other authorized releases or public declarations. While ERI does not release listings of the names of its subscribers **ERI** has thousands of subscribers, including the majority of the Fortune 500 and several large government agencies. Subscribers include corporate compensation, relocation, and human resources specialists, plus other professionals, as well as independent consultants and counselors, and US and Canadian public sector administrators (including military, law enforcement, city/county, state/provincial, and federal government pay administrators).

A quick search of professional compensation forums will often return examples of uses of the **Geographic Assessor** in practice, like this anonymous posting:

“In the last 3 organizations where I have worked, we used data from national surveys and applied geographical differentials to the survey data to create our salary ranges. We considered the national survey data to be 100%. We would then use the geographical differentials ([+] or -) from ERI and applied that to the survey data for each of the cities where we had offices.”

### **Where do the numbers for salaries and wages come from?**

Since its founding, ERI's methodology has been designed so as to be a premier provider of quality information and survey data. All salary surveys sources for jobs have been carefully evaluated for validity, reliability, and use. Unreliable data sources and questionable data are identified and excluded from ERI's analysis. Many of ERI's **Assessor Series** applications (including the **Geographic Assessor**) look at trends over time and multiple sources, allowing for a more thorough validation process than could be established using a single source or at a single point in time.

ERI methodology has evolved over the decades in our pursuit of the highest quality standards in our expanded offering of products. During this time, ERI has won the patent for online interactive salary surveys and managed that patented survey for over a decade, built trusting relationships where we exchange data and products with other survey firms, and contracted for leased proprietary datasets. ERI has also developed its series of traditional salary surveys to become a leader in both online data collection and traditional salary survey methodologies.

### **Where do the numbers for cost of living come from?**

ERI collects, compiles, and analyzes data relating to cost of living from available sources and researches areas which are not commonly surveyed individually. ERI compiles actual housing sales data from commercially available sources. Gasoline, consumables, medical care premium costs, and effective income tax rates are also just as accurately collected from authoritative online databases, and ERI research staff audit these sources with additional detailed study.

### **Why does the Geographic Assessor's original Two City Comparison profile 'renter only' analyses?**

In the original **Two City Comparison**, too many variables affect a home ownership analysis for ERI to make an appropriate set of assumptions for a cost-of-living comparison based solely on inputted earnings levels. However, the updated **Two City Comparison** in the enhanced **Geographic Assessor**, as well as the **Relocation Assessor** application and databases, are designed to allow you to input the many additional variables (down payment and interest rate information, for example) that affect a home ownership comparison.

### **Why do the differentials change at different base salary values?**

The **Geographic Assessor** analyses illustrate that salary differentials are not constant for an area. That is, a single number is not sufficient to describe the relationship between geography and pay across all salary levels. To account for this variation, the **Geographic Assessor** uses regression analyses to report the most accurate differential as salary level changes.

### **What is the difference between cost-of-living and geographic pay differentials?**

A more complete differentiation can be found in Help under *Assessor Series FAQ #3*, but this question arises often enough that an abbreviated response should be included here. Put simply, wage and salary differentials reflect the local demand for and supply of labor, whereas cost of living is dictated by the local demand for and supply of goods and services. Because different factors affect the supply and demand of labor than affect the market basket of goods (the basis of cost of living), these two differentials will not, in most cases, be the same. Research has shown they often do move in the same direction, but not always. Take the case where there is a net increase in workers due to migration. The increase in labor supply could put downward pressure on the labor differential while putting upward pressure on housing costs, thereby increasing cost of living. Even when the differentials are in the same direction, the magnitudes can be very different. In urban centers, for example, both types of differentials are often higher; but, since workers can commute from areas with less expensive housing, the cost-of-living (COL) differentials tend to be much higher than the labor differentials in these cases.

Besides the underlying difference in the supply and demand, another reason why users focus on cost of labor differentials is that cost-of-labor differentials often more closely correspond to the labor market scope of the salary structure. In other words, COL can vary greatly from neighborhood to neighborhood within the same city, but companies would not restrict the recruitment labor market to a single neighborhood.

While employees may find it more desirable for their pay to be adjusted for local cost-of-living variances, this is an extremely unusual practice, and in many cases will not be cost effective for the employer. That is, in many cases, the employer would be competing against organizations with relatively lower compensation costs and, thus, be at a competitive disadvantage. Most compensation professionals agree that, when a company is hiring from the local work force (that is, when no transfer or relocation occurs), wages and salaries are set according to market pricing of wages and salaries only. In a recent informal polling of webinar attendees, most used salary differentials when adjusting salary structures, while a much smaller subset used both types in conjunction (perhaps where required). None used cost of living exclusively. While the cost-of-labor differentials are best utilized when adjusting pay structures (as the underlying data are congruent), in practice, there may be other contextual factors such as compensation philosophy or contractual requirements that need to be considered.

### **The program allows me to easily compute cross-country comparisons, but are such comparisons valid?**

The cross-country comparisons are statistically valid; however, it is not advisable to take a pay system from, say, the United States and try to adjust it for a Canadian branch office using the general geographic differentials because U.S. and Canadian economies value jobs quite differently (as do most international economies). It is important to review pay by job and job description, rather than by general salary level. Cross-country comparisons, however, can give some general insight into labor cost differences where such information may be difficult to obtain otherwise.

### **ERI Statement as to the Relevance and Reliability of Data**

Relevance is totally determinable by the circumstances and situation presented. **ERI** provides outsourced analyses and presentations of salary, executive compensation, benefit, and cost-of-living survey data. Reliability is described in a non-exclusive summary:

#### Testable

To illustrate how the technique can be tested is straightforward. The technique and data sources are described in this methodology, and replicating the results is a matter of performing similar regressions through similar salary data. Using smaller data samples will likely give similar, albeit less robust and comprehensive, results.

#### Subject to Publication and Peer Review

**Assessor Series** application databases are published twice each quarter. **ERI's** peers are its competitors, those firms that also provide data analyses to their clients. Unlike **ERI**, that solicits an annual subscription, most compensation and benefits consulting firms charge an hourly rate for their research services. Suffice it to say, all the major consulting firms have purchased subscriptions so that their consultants could utilize **ERI** analyses. **ERI** data are used by these firms when consulting with their clients.. **ERI** data and analyzes are under constant review and critique by its competitors. **ERI**, unlike these firms, provides no fee-for-service/time consulting.

#### Known or Potential Rate of Error

Each **Assessor Series** application database illustrates, via a "Reliability Statistics" link, the beginning of a statistical overview of **ERI** data. Statistics are reported as derived from just one survey source for all salary and compensation presentations (so that copyright restrictions are not violated). **ERI** accumulates many survey sources to compile its analyses. Hence the data illustrated may be, in **ERI's** estimate, considered to be the highest possible standard error that might exist with each analysis. **Assessor Series** application database results are, by logic, more robust than the standard error displayed and reported.

#### General Level of Acceptance within the Discipline's Community

**ERI** has thousands of subscribers, including the majority of the Fortune 500 and several large government agencies. Many of these organizations are entering their third decade of being subscribers. **ERI** exhibits at major tradeshows. **ERI** data are used as source data by major publications and job boards. WorldatWork, NASBA, and HRCI accept **ERI** Distance Learning Center courses for professional maintenance and recertification continuing education credit. Major US employers rely upon **ERI** data as cited in corporate proxy filings (see <http://www.erieri.com/ExecutiveCompensationProxyData>).

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