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## Equalization and the Real World

*New Hampshire Town and City*, June 2012

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**Editor's note:** This article provides a follow-up to the March 2012 *New Hampshire Town and City* feature titled "Property Taxes: Understanding the Math, Dispelling the Myth." The equalization process, a critical element of the property tax system, provides proportionality among municipalities dealing with shared tax burdens.

I sometimes hear myself channeling Andy Rooney.... A few things in life are frustrating to me. Have you ever wondered what the Department of Revenue Administration does with all of the information that they collect during the *equalization* process? I have. And, what is *equalization* anyway? And why do they need all of the details about sales?

In my role at the DRA, I am often asked, "What is your most challenging task?" I rarely hesitate to answer, "It is the valuation of the entire State of New Hampshire!" Well, that may be overstating my role, but the process of making the value determination for all of the property in the state is called *equalization*.

### The Basics

How the equalization process works, and its important role in ensuring proportionate taxation is probably one of the more mysterious processes that the DRA and municipalities undertake. From an academic perspective, *equalization* is the process of adjusting local assessed value estimates into market value. When that process adjusts a single property to market value, it is called *direct equalization*. When that process adjusts all properties to market value, it is called *indirect equalization*.

Indirect equalization is critical when property taxes are administered at the local level in a system that has shared common tax burdens. The best example of a shared common tax burden is the apportionment of county taxes to each municipality. Other examples are the state education property tax and the taxes shared in many cooperative school districts. Another benefit provided by indirect equalization is to limit local discretionary exemption amounts so that such exemptions affect only that particular municipality. For example, the amount of the elderly tax exemption varies between municipalities with some granting higher exemption levels than others. In the equalization process, these discretionary exemptions are normalized, which levels the playing field between municipalities.

The goal of indirect equalization, adjusting every municipality in a shared taxing district, is attained by completing an assessment to sales ratio study. This study is a detailed analysis of every sale that occurs in the city or town. The assessed value for each arms-length sale property is divided by the selling price of that property. The result is a ratio of the assessed value (the value of the property on the local tax rolls) to the recent selling price of that property. The ratios are arrayed and analyzed using numerous statistical measures to determine the overall relationship between assessments and selling prices. That ratio is then applied to the total assessed value of all property in the city or town.

The sales that are analyzed in the ratio studies include all of the valid, arms-length transactions. Arms-length transactions are typically sales that occur between a willing buyer and willing seller, when each is acting in a knowledgeable manner, involving properties that have market exposure. Sales involving foreclosures, fiduciary deeds, and bankruptcy are examples of non-arms-length transactions, and therefore are not included in the ratio study.

The effective date of equalization is April 1 of each tax year. Sales from October 1 preceding April 1 to September 30 following are generally considered in the studies. This period of time may be expanded to a total of two-and-a-half years if the number of sales occurring in a municipality during this October through September time period is less than 20. Not surprising in the current economy, for the 2011 equalization process, 115 towns had fewer than 20 arms-length sales transactions, thereby necessitating that the sales survey period be expanded.

### **Proportionality**

Rather than individually adjusting each local assessed property value to market value for billing purposes, under our property tax system the shared rates are adjusted to reflect each municipality's percentage of market value. This is the best practical way to carry out the New Hampshire Constitutional requirement that tax rates be proportional, by ensuring that tax rates reflect the percentage of market value found in each community.

Using the county tax example, the amount of money to be raised in a county is apportioned to each municipality based on the proportion of equalized value compared to the total equalized value of property in the entire county. So if a municipality has 10 percent of the equalized property value in the entire county, then 10 percent of the county taxes would be apportioned to that municipality. Dividing that amount by the local assessed value results in a proportional tax that is fair for everyone in the county.

### **Samples and Population**

The classically trained statistician often becomes frustrated with the equalization process due to the types of measurements employed. In a typical statistical application, such as a political poll, the first step is usually the selection of a random sample. This is not the case in an equalization ratio study. The sample is self-selecting, being the properties that sold within the time periods described above, and, therefore, is not a randomly selected sample.

Since randomness is not possible, we strive for a sample that is representative of the universe of property. Problems can arise if a condition known as *over-representation* occurs, where more samples of a particular class of properties are found than in the universe. For example, if only 15 percent of the properties in a particular municipality are condominiums, but 90 percent of the sale properties in the survey are condominiums, this would be an over-representation that could distort the resulting equalized values. The common correction for this condition is to trim some of the sales in the sample, starting with those furthest from April 1.

The lack of a random selection can cause some problems that are normally overcome by selecting a certain type of *measure of central tendency*. The average or mean ratio, the weighted mean (aggregate) ratio, and the median (mid-point) ratio are all examples of measures of central tendency, and describe where the middle of a sample can be found. For indirect equalization, typically the weighted mean ratio is relied upon, while direct equalization typically relies upon the median ratio.

### **Performance Measurements**

In the process of completing these ratio studies, many other statistical measurements are determined that gauge the performance of the assessment model in valuing property in the municipality. One of these is the Coefficient of Dispersion (COD), which measures on a percentage basis the average departure or deviation from the calculated ratio. In simple terms, it is the plus or

minus amount that most of the sample falls within. Assessing standards define an acceptable COD for most municipalities at a level of 20 or less.

Another important performance measure is the Price Related Differential (PRD). The PRD helps to determine if there is equity in an assessing system based on the value of property. The PRD can help to identify areas (either physical or classes of property such as manufactured housing or multi-unit residential properties) that may not be valued at the same relationship to market value as other classes of properties within the same municipality. Typically, a PRD between .98 and 1.03 is considered within an acceptable range.

### **Final Results**

Success in the equalization process is measured by the ability to effectively determine the total market value of all of the taxing jurisdictions within the state. In this way, the Department of Revenue Administration, working together with municipalities, administers a property tax system which accounts for differences in assessing levels across the state, and compensates for the different stages that each town or city may be in within the required five-year revaluation cycle.

So you might say that together we, not I, value the entire state!

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*The Department of Revenue Administration completes the equalization process and notifies each municipality of the total equalized valuation and related ratios and statistics by May 1 every year. Municipalities have a 30-day period to appeal the DRA computations through an administrative hearing process at the Board of Tax and Land Appeals. Once finalized, these equalized values will be used to apportion county taxes and many cooperative school district taxes in the fall, and to apportion the state education tax in two years.*

