

Memorandum

To: Mr. Robert Wickersham
From: Peter Davis
Date: 04/13/10
Re: 2010 Nebraska Equalization -Agricultural Land Ratio Studies

I listened to the Tax Equalization and Review Commission hearing tape with great interest. It is my opinion that the methodology employed by the Nebraska Property Tax Administrator (PTA) does not comply with the IAAO Standard on Ratio Studies (2010), nor does it meet the requirements of a random sample.

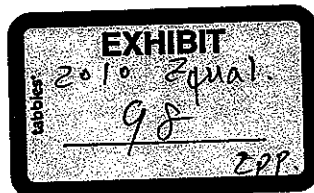
First, it is necessary to point out that the technique of "borrowing" sales from a neighboring county to for use in a ratio study is unique. I know of no other jurisdiction in the US that employs this alternative to increase sample size or improve representativeness. I am not an expert on agricultural land valuation in Nebraska, but I assume that the appraisal process requires no subjective judgment on the part of the assessor. This unusual factor may open the door to including supplemental (borrowed) sales from outside the subject (target) county in a ratio study sample; however, the IAAO standard does not provide guidance to address this specific situation. In addition, I know of only one other jurisdiction in the US that uses a sampling methodology to improve the representativeness of sales used in a ratio study. The State of Kansas develops representative ratio study samples for the residential class of property in twenty urban counties. A customized computer program is employed to insure that the random sampling process is representative, rigorous, and documented with an audit trail.

Part 2, Section 4.2 of the IAAO Standard on Ratio Studies (2010) provides guidance to oversight agencies on the representativeness of samples. It notes four steps that may be taken by an agency to create samples with better representativeness. Larger samples can be developed and stratified by: 1) randomly selecting sales to be removed; 2) isolating the overrepresented groups into substrata; 3) redefining the time period for the overrepresented groups; and 4) weighting the data. The PTA does not use any of these alternatives.

Alternative #1 seems to suggest the method that could have been used by the PTA, but it was stated in testimony that sales were not randomly removed from the list of borrowed candidate sales from surrounding counties. Instead, an elaborate and highly subjective set of criteria for inclusion was presented.

The PTA described the process used to select supplemental (borrowed) sales. An analyst reviews a spreadsheet with a complete set of candidate sales and selects only those that best meet a multitude of parameters. This technique is not a random sampling process. There was no mention of a procedural manual or set of instructions to guide the analyst. The process is purely subjective. Two analysts reviewing the same set of borrowed candidate sales would probably develop samples with a different set of sales that would generate different statistical performance measures for the target county.

In testimony, the PTA described a number of representativeness goals that were highly desirable. Factors such as soil productivity groups (LCG), land type, market area, proximity to the target county, and sale year were mentioned in passing. Most of these goals are admirable, but it would require a very sophisticated computer program to select the most comparable set of sales in a rigorous



and objective manner. It is virtually impossible to develop a ratio study sample that would meet **all** the criteria described in testimony. It would take a pool of several thousand agricultural sales from which to draw.

A few other statements made in testimony deserve comment.

Any technique used to develop a more representative sample will first require the establishment of a sample size goal. How else will the PTA know when the goal has been achieved?

The testimony on balancing the sample or improving proportionality based on three years of sales was very confusing. If the desire of the TERC is to obtain the most accurate agricultural land ratios for the study year, then the most recent sales will provide the best information. The process used by the PTA will furnish the TERC with a three year rolling average ratio. If the goal of the PTA was to develop a ratio to reflect the current level of market value, then two steps could be taken: 1) use only the most recent set of "borrowed" sales from surrounding counties; and 2) trend all sales to the valuation date if there is evidence of inflation or deflation in the local market (this would require a detailed and rigorous analysis).

In summary, The methodology used to develop representative samples is not rigorous and does not appear to be well documented in a procedural manual. The resulting samples are not randomly selected. There is not sufficient information provided in the Report and Opinions document to evaluate the success in meeting all the representation criteria described in testimony, and the results may not provide ratio study measures based on the most current level of market value. It is not possible to estimate how much change in the ratios would be noted if improvements could be made. However, since the data is already in the hands of the PTA, it might be possible to redesign the process of developing representative samples and produce more credible ratios within a few weeks.