

## *State and Provincial Ratio Study Practices: 2003 Survey Results*

**BY ALAN S. DORNFEST AND DOUGLAS C. THOMPSON**

In reporting on previous ratio study survey results (Dornfest, *Property Tax Journal*, 1993, 1995 and 1997, and *Assessment Journal*, 1997), a great deal of confusion regarding ratio study terminology, techniques, standards, and use was noted. A certain amount of this is probably unavoidable, resulting from long standing practice and local statutory guidelines, both of which are difficult to change.

Historically, little written material was available to provide a basis for standardization of ratio studies. By the late 1970s, IAAO was providing guidance through materials, including their *Improving Real Property Assessment* textbook. This soon was followed by the first IAAO ratio study standard, published in 1980. By 1990, IAAO's *Property Appraisal and Assessment Administration* text and an updated *Standard on Ratio Studies* were available, and were soon in wide circulation. Recently, these materials have been updated, and there is now a

1999 version of the *Standard on Ratio Studies* and a 1999 textbook, *Mass Appraisal of Real Property*.

Although these materials present many unified themes for ratio study practices, disparities in use and terminology still exist and make interpretation of survey responses somewhat subjective. We attempted to address this problem by personal follow up contacts with many of the participants in the survey.

In addition to exploring U.S. state and Canadian provincial and territorial practices, the continuing nature of this survey makes it possible to report on the incorporation of IAAO ideals into practice. In reviewing this latest 2003 survey, the reader will find a continuation of trends noted in 1997. Today, it appears that an increasing number of jurisdictions are following major points addressed in IAAO standards and recommended ratio study practices.

---

*Alan Dornfest currently serves as the property tax policy supervisor for the Idaho state Tax Commission where he has done property tax and tax policy research since 1977. During his tenure with the Idaho State Tax Commission, he has been responsible for the design, use, and ongoing development of the Idaho Assessment/Sales Ratio Study, including standards and equalization methods. he has conducted several surveys of US states and Canadian provinces' use of ration studies and written technical ratio procedural manuals.*

The intent of this analysis is to continue to search for clarification of technical issues by exploring and reviewing state, provincial and territorial level ratio study practices throughout the United States and Canada. Responses are interpreted to attempt to provide meaningful comparisons with previous surveys.

Hawaii and Delaware are unique in that they do not provide state oversight for local assessments. Responses for these states were from local jurisdictions, and were compiled into composite views that incorporate the prevailing practices, but do not necessarily reflect the practices of any particular local jurisdiction.

### **RESPONSES FROM U.S. STATES AND CANADIAN PROVINCES AND TERRITORIES**

The 2003 survey is the sixth in a series of surveys conducted periodically by this office since 1985. Although many of the questions have been retained to permit longitudinal comparisons, a few areas needed clarification or are of greater import today, and therefore were updated or expanded. In addition, the current survey was conducted as an interactive online survey over the Web. Although this greatly facilitated completion, shortening turn-around time and broadening participation, design limitations in some instances restricted answers to a few questions, which then required additional follow up for clarification.

Tables 1 through 4 provide increasing levels of detail of responses. New or expanded areas being explored this year include:

- personal property ratio study appraisal methods;
- list of exempt intangible property;
- sale price disclosure methods including tracking and legal penalties;

- proportion of sales with adjustments for time, financing, etc.;
- reliability of COD and PRD measurements and questions on use of point or interval estimates in determining compliance with uniformity standards;
- lowering of burden of proof requirement when point estimates of appraisal level continue to be low;
- procedures for determining representativeness;
- limits on the number of sales that can be trimmed as outliers.

Surveys were sent via e-mail messages with embedded links to our agency Website to all U.S. states and to Canadian provinces and territories. Responses were received electronically from every Canadian province and two of three territories, as well as from each state, four counties within Hawaii, and the District of Columbia. The overall response rate was the best ever achieved in the history of this survey.

Some of the responses did not fit cleanly into one or another category of answer, and so may be shown more than once. This is particularly true when responses for different categories of property are expected to vary, as in COD standards for residential, commercial, vacant land, and other types of property. For this reason, attached tabulations do not always add to the number of total responses.

Table 1 is a summary of key findings regarding U.S. and Canadian responses to major survey issues. Major ratio study practices and trends in states since 1989 may be compared in this table. Trends in Canadian provinces and territories are discernable beginning in 1994. Because of the larger number of Canadian respondents in 1997 and 2003, comparison to previous provincial surveys may be misleading.

Table 2 follows at the end of this article as Appendix A and includes a more

Table 1: Key Findings		UNITED STATES					CANADA			Note:
		Numbers of Responses					Numbers of Responses			
'03	Summary of Survey Results	1989	1992	1994	1997	2003	1994	1997	2003	(a)
Q #:	Topic: Total Responses >	48	47	46	51	51	7	11	12	
2	Annual ratio study	35	37	35	41	41	1	6	8	
3	Conducted by state/prov./territory only	29	24	26	29	38	6	3	7	
4	Only sales used in ratio studies	19	15	20	23	25	5	8	8	
5a	Personal property ratio study	6	10	9	8	7	0	0	0	
6a	Intangible personal property exemption		32	25	32	37	3	4	6	
7	Procedural audits in lieu of ratio study		11	19	17	22	2	3	3	
8a	Full disclosure of sales price	24	33	30	35	37	6	9	11	(b)
9	<b>Sales Price Adjustments:</b>									
9	Time	11	13	14	15	18	4	9	4	
9	Financing	13	10	16	16	15	3	8	5	
9	Personal Property	28	26	31	32	26	6	9	4	
	<b>Equalization Adjustments:</b>									
11c	Order reappraisal	12	20	22	31	31	2	1	1	
12	Trend by category	18	16	11	14	13	1	2	1	
12c	Give local officials a grace period to comply			2	12	3	0	2	1	
12d	Other			11	4	10	6	3	0	
13a	<b>Uniformity Standards for COD/COV:</b>	24	26	32	34	38	2	8	9	
13a	More stringent than the IAAO '99 Standard	3	1	6	1	5	1	1	4	
13a	Less stringent than the IAAO '99 Standard	18	9	21	23	21	3	6	3	
13a	No standard	23	20	18	17	13	2	3	3	
13a	IAAO '99 Standard					23			5	
13b	<b>Vertical Equity Standards for PRD:</b>			11	18	22	2	4	6	
13b	IAAO Standard: PRD = 0.98 to 1.03		2	8	12	17	2	2	5	
13b	PRD standard of ranges different from IAAO			3	4	5	1	1	1	(c)
13b	No standard			35	34	28	4	7	6	
14a	<b>Testing Assessment Level:</b>									
14a	Statutory + or - 10%	17	10	11	15	16	1	4	1	
14a	Statutory + or - 5%	6	5	5	6	6	2	2	2	
16	<b>Assessment (Residential) 100% of MV:</b>	14	27	17	22	23	6	6	8	
<b>Notes:</b>										
(a)	1994 Canadian survey response rate was 7/12 or 58%.									
	1997 Canadian survey response rate was 11/12 or 92%.									
	2003 Canadian survey response rate was 12/13 or 92%.									
	1989 US survey response rate was 48/51 or 94%.									
	1992 US survey response rate was 47/51 or 92%.									
	1994 US survey response rate was 46/51 or 90%.									
	1997 US survey response rate was 51/51 or 100%, incl. DC plus a composite of 2 of 4 Hawaiian counties.									
	2003 US survey response rate was 51/51 or 100%, incl. DC plus a composite of all 4 Hawaiian counties.									
(b)	The 2003 US total includes the additions of Pennsylvania and, most recently, New Mexico.									
(c)	These results were tabulated by subtracting the IAAO Standard counts from the total PRD counts.									

detailed tabulation of U.S. and Canadian responses; this allows comparison to 1994 and 1997.

From these tables it appears that the *typical* ratio study program would include the following features:

- An annual ratio study, typically of real property, is conducted by the state or, in Canada, by the province or territory.
- Sales or a mix of sales and appraisals of real property are used to develop the ratio study.
- There is statutory authority to require disclosure of sales prices to administrative

jurisdictions by means of mandatory disclosure and transfer fees.

- Adjustments to sales prices are made primarily for personal property included in the sale and, secondarily, for financing and time.
- U.S. results are used primarily to equalize funding, advise local officials of assessment conditions, and to determine the need for reappraisal. Secondary uses of significant frequency are adjusting locally determined values and equalizing assessments of centrally

assessed properties. Canadian results are used primarily in an advisory capacity.

- Level and uniformity standards often are used for gauging performance or compliance; these standards often are similar to IAAO recommended standards.
- Results are calculated on the basis of samples for which there is generally no predetermined minimum size.
- Reliability frequently is tested and confidence intervals typically have replaced point estimates for determining compliance with standards or other requirements.

Detailed responses received from each state, province or territory are found in Table 3 for Canada and Table 4 for the US. These tables are labeled as Appendices B and C, respectively, and follow this narrative. Tables 3 and 4 provide a complete rendition of these responses, except where it became evident from the responses that the wording of a few questions may have caused confusion. In these few instances, the responses are judged as not meaningful and are not reported in the tables.

Lastly, a text version of the online survey, showing the original questions in their entirety, follows the tables as Appendix D.

#### **Recent Trends - U.S.**

Since the questions asked in the current survey and the respondents are similar to those presented in 1989, 1992, 1994, and 1997, a comparison of changes in U.S. ratio study practices over time is possible.

#### **General Trends**

The number of states doing annual ratio studies is unchanged since 1997,

and remains at forty-one (41). Although many states combine sales and appraisals, there appears to be a growing tendency toward the use of only sales. This may be related to resources needed for high quality appraisals that are USPAP compliant, a requirement that had not been specified in IAAO standards prior to the 1999 *Standard on Ratio Studies*. The number of states using only appraisals has fallen to two, California and Missouri. In California's case, the close ties between sale price and assessed value reduce the applicability of traditional sales based studies, except when needed to provide evidence of over-assessment.

While the number of states doing personal property ratio studies increased from six to ten between 1989 and 1992, this indicator has been steadily decreasing; only seven of the forty (40) states where personal property is taxable were doing ratio studies on this property in 2003. Personal property ratio studies that are done are based solely on appraisals.

The number of states doing procedure audits in lieu of ratio studies has increased. There were nineteen (19) such states in 1994, seventeen (17) in 1997, and twenty-two (22) in 2003. Such studies typically are done to provide information about selected property categories for which there is little market activity or when use value and other constraints not directly related to the market are in place.

#### **Disclosure of Sale Price**

There are three elements of disclosure: full mandatory sales price disclosure, transfer fees, and mandatory recordation of any transfer instrument. There now are only three states with none of these elements as statewide policy: Idaho, Missouri, and Texas. New Mexico, which had been a long-standing member of this group, enacted disclosure in 2003. Additionally, several major local jurisdictions within Missouri, including most recently Kansas City, have full dis-

closure, so only parts of that state are without market data. This group of three states plus Louisiana, Mississippi, and Utah do not have full disclosure or transfer fees, and so lack fundamental market information from actual, documented transactions.

Disclosure typically occurs with a sale price statement filed when deeds are processed. Disclosed sales prices are confidential in five states. In response to a new question, thirty-three (33) states indicate that they have legal penalties for property owners who falsify information submitted to comply with sale price disclosure provisions.

### **Intangible Property**

The number of states reporting intangibles as exempt continued to increase. There were twenty-five (25) states reporting such a statutory exemption in 1994, thirty-two (32) in 1997, and thirty-seven (37) in 2003. Table 2 delineates the number of states exempting various specific intangibles.

### **Adjustments to Sale Prices**

After increasing use, as indicated in the 1994 survey, there has been little change in the number of states indicating that they sometimes make adjustments to sales prices for time, personal property, or financing. Few states responded to the questions about the proportion of sales actually receiving adjustments. However, from those that did respond, it appears that adjustments are made to a small percentage of sales.

As in 1997, three states still indicate use of overall adjustments. Of these, only two, Florida and Arizona, make significant overall adjustments, and the substance of these has not changed for many years.

### **Use of Ratio Studies**

The ratio study has traditionally been used in an “advise and assist” role. In 2003, forty-three (43) states indicated this use, as opposed to thirty-five (35) states in both 1994 and 1997. The pat-

tern of other major uses was similar to that noted in 1997. Thirty-one (31) states use the ratio study for equalizing funding distributions, and the same number (although not necessarily the same states) uses their studies to order reappraisal. Nineteen (19) states that centrally assess public utilities or railroads use ratio studies to equalize utility property with locally assessed categories.

Twenty-six (26) states may order adjustments to locally determined assessed values. Only sixteen (16) of these indicate a specific procedure for doing so. Of these, thirteen (13) may adjust individual categories by applying trending factors. Previous surveys showed that the number that would apply trends to individual categories of property has varied considerably over time, ranging from eighteen (18) in 1989 to eleven (11) in 1994, to fourteen (14) in 1997. Indiana was added to this group in 2003, while New Mexico and Utah no longer use this practice.

Three of the states that use the ratio study to adjust locally determined values provide some grace period to permit local compliance before imposing or ordering adjustments. Although this appears to be considerably fewer than the number of states giving this response in 1997, the 2003 survey did not permit multiple choices for this question, so any such conclusion is questionable.

### **Uniformity Standards**

The number of states adopting uniformity standards has continued to increase. All but thirteen (13) states now indicate such standards. Historically, twenty-three (23) states had *not* developed standards in this area in 1985 and 1989. By 1992, this number had fallen to twenty (20), and this number continued to fall to eighteen (18) in 1994 and seventeen (17) in 1997. Twenty-three (23) states have established standards that are similar to those recommended by the 1999 IAAO *Standard on Ratio Studies*. General uniformity standards are

based predominantly on the Coefficient of Dispersion (COD).

The number of states that have developed Price-related Differential (PRD) standards has continued to increase from eleven (11) in 1994 to eighteen (18) in 1997, and twenty-two (22) in 2003. However, twenty-eight (28) states still do not indicate standards for vertical equity. It is noteworthy that the number using the guidelines found in 1990 or 1999 versions of the IAAO *Standard on Ratio Studies* has continued to increase from two in 1992 to eight in 1994, to twelve (12) in 1997, and finally to seventeen (17) in 2003.

Thirty-four (34) states indicate that they can initiate action on the basis of poor uniformity. The most typical action is ordering reappraisal, which can be done in twenty-three (23) of these states. Of the states that can initiate action, three—Delaware, Missouri, and Michigan—have yet to adopt formal uniformity standards.

New questions this year examine the use of reliability measures, such as confidence intervals, in determining compliance with assessment uniformity standards. Twenty-four (24) states indicate testing the reliability of the COD, while twelve (12) indicate testing the reliability of the PRD. Regardless of such testing, only eight states take reliability into account when making decisions or determining compliance with uniformity standards.

### **Level Standards**

A level standard is defined as some range of acceptability around the statutorily-required assessment ratio. Such ranges may be provided by statute, but, more frequently, are established by administrative or oversight agency authority. Many states have established ranges of this type, but the number of states with *no* standard for assessment level has remained fairly stable with seventeen (17) in 2003 and eighteen (18) in 1997, after declining from

nineteen (19) in 1992 to thirteen (13) in 1994. The IAAO *Standard on Ratio Studies* recommends  $\pm 10\%$  for direct equalization of locally determined values and  $\pm 5\%$  for indirect equalization of funding distributions. The number of states using the  $\pm 10\%$  parameter rose to sixteen (16) in 2003, from fifteen (15) in 1997, and eleven (11) in 1994. Interestingly, this number remains below the seventeen (17) that reported use of this standard in 1989. Six states continue to use a  $\pm 5\%$  range, and this number has changed very little since seven states reported this range in 1985.

### **Reliability**

Employing the principles of statistical sampling error, ratio studies tend to be more reliable when conducted using large uniform samples, and less reliable when these conditions are not met. There appears to be increasing awareness of and concern with this aspect of the ratio study. The number of states indicating that they tested reliability and used this information for compliance purposes increased from thirteen (13) in 1994, to eighteen (18) in 1997, and to twenty (20) in 2003.

For the first time since these surveys have been conducted, the 2003 survey shows fewer states using point estimates than confidence intervals for testing compliance.

In 1997, questions were added concerning use of point estimates in cases in which assessment level is found to be out of compliance as a result of a wide confidence interval. At that time, *no* state indicated such a situation would influence their finding regarding assessment level. However, in 2003, three states indicated they might use the point estimate in these situations. Two states indicated that they might lower the level of confidence. In one of these states, Idaho, such lowering of the degree of confidence occurs only after three years. During that time, compliance is

achieved on the basis of samples with confidence intervals that include the desired range, but without necessarily having point estimates within  $\pm 10\%$  of market value. The 1999 *Standard on Ratio Studies* recommends such lower degrees of confidence

### **Market Value**

In the late 1980s, states increasingly began assessing residential and certain other non-agricultural property at 100% of market value. This trend has now leveled off, with only twenty-three (23) states assessing residential property and thirty (30) states assessing commercial and industrial property at 100% of market value. Even among these states, comparability cannot be assumed, since many may apply post assessment partial exemptions that are not reflected in survey responses. In other words, a state may assess at 100% of current market value, but, for example, may then allow a \$20,000 or 20% reduction in that value before determining the taxable value. This happens most often with respect to primary residential property.

Some states set market value as an appraisal goal, but restrict the meaning of this term somewhat by establishing “base” years. Usually these represent points in time at which assessments are frozen. For the purpose of this analysis, “acquisition value” is considered a base year concept. The use of the base year concept is unchanged from 1997, with thirteen (13) states continuing to report this practice for at least some classes of property in 2003.

Many states are on cyclic reappraisal, following either regular or locally determined appraisal patterns. Fourteen (14) states update all values annually to current market value, down from eighteen (18) states that adjusted values in this way in 1997. A modified version of this practice is used in Nevada, where the update is to a cost or market-based required value, and in

Washington, where some, but not all, counties annually update values to current market value.

### **Measures of Assessment Level**

States typically compute three measures of level: the mean, the median, and the weighted mean. The weighted mean and the median are the most common, being computed in thirty-nine (39) and thirty-eight (38) states, respectively.

For equalization, states predominantly use the median, with thirty (30) states now relying on this statistic, while only nineteen (19) reported using the weighted mean. The 1999 *Standard on Ratio Studies* differentiates between direct (parcels) and indirect (funding) equalization, suggesting that the median is more appropriate for the former and the weighted mean for the latter. The survey did not attempt to parse this question into these two equalization subgroups.

### **Outliers**

There is a large increase in the number of states that try to identify outlier ratios. While, twenty-six states (26) indicated testing for outliers in 1997, thirty-five (35) do so in 2003. Ten (10) states indicate limits on the number of outliers that may be eliminated from any sample.

### **Sales Chasing**

In 1997, twenty-one (21) states indicated that they reviewed samples to determine if sales chasing was distorting results. This question was modified this year to determine how many states have statutory requirements to test for sales chasing, with ten states indicating such requirements.

### **Sample Size and Representativeness**

Uncertainty continues regarding any minimum sample size standard that should be used to evaluate assessment performance based on a ratio study. The number of states requiring samples to consist of more than thirty (30) observations increased from four in 1994 and three in 1997 to ten (10) in 2003. Fewer

states, five in 2003 as opposed to thirteen (13) in 1997, now use minimums of 20 to 30 observations. The number of states indicating acceptability of samples with fewer than five observations decreased from eight in 1997 to seven in 2003. The number of states with no clear answer on this issue declined significantly from sixteen (16) in 1997 to nine in 2003.

Thirty-two (32) states indicate that they may test samples for representativeness. This is a considerable increase from 21 states in 1997.

The 1999 *Standard on Ratio Studies* includes a section on stratification for equalization of funding distributions (Section 4.4.2), which suggests value stratification to create samples that are representative for this purpose. This was a new section in 1999, and the number of states indicating stratification by value range has increased from eleven in 1997 to 16 in 2003.

#### **Legal Action**

An increasing number of states indicate that the ratio study can result in outside legal action. Thirty-seven (37) states provided this indication in 2003, while only thirty-two (32) did so in 1997, and thirty (30) gave this answer in 1994.

### **RECENT TRENDS—CANADA**

This year's survey includes responses from all Canadian provinces and territories, except Canada's third and newest territory, Nunavut. A similar number of provinces responded in 1997, but there were fewer responding in 1994, making comparisons with that year difficult. In a few cases, significant trends are apparent and are stated. In other cases, the general nature of Canadian ratio studies is discussed. Some comparison with U.S. practices is offered.

#### **General**

The number of provinces doing annual ratio studies appears to have

increased, with eight in 2003 as compared to six in 1997.

As in the past, the ratio study tends to be done at the provincial or territorial level, rather than by local jurisdictions.

Only one province, Alberta, adds appraisals to sales samples and only one territory, Northwest Territory, relies strictly on appraisals for its ratio study.

Personal property is shown to be exempt in all but three provinces. None do personal property ratio studies.

Procedural audits are used by three provinces. This is unchanged since 1997.

#### **Disclosure of Sale Price**

Eleven of the twelve responding jurisdictions have full disclosure, and every province has either a transfer fee or full disclosure. The lone Canadian exception is the Yukon Territory, which has only mandatory recordation. Nine (9) provinces indicate that they impose legal penalties for property owners who falsify reported sales information.

#### **Intangible Property**

While only two of ten provinces exempted intangibles in 1992, three of seven did so in 1994, four of eleven reported this exemption in 1997, and six of twelve responses reported the exemption in 2003. This corresponds to the similar pattern of increasing exemption for intangibles noted in the United States.

#### **Adjustments to Sales Prices**

Adjustments for time, personal property, and financing appear about as frequently as in the U.S. However, the number of participating provinces or territories has decreased since 1997. No Canadian jurisdictions make overall adjustments at this time.

#### **Use of Ratio Studies**

The predominant use is as a tool to advise local jurisdictions or assist mass appraisal programs. Only two provinces use ratio studies to adjust locally deter-

mined values, and two equalize funding. Only Saskatchewan indicates that it can order reappraisal. As was the case in 1997, none use the study to adjust utility (centrally assessed) values.

#### **Standards—Level and Uniformity**

There is a slight increase in the number of provinces reporting use of uniformity standards. Nine provinces report such use now, while eight did so in 1997. Most of the reporting provinces now use standards that are at least as stringent as those recommended in the IAAO *Standard on Ratio Studies*, with only three reporting use of less stringent standards.

Six provinces report use of PRD standards, and five of these cite the range found in the IAAO *Standard on Ratio Studies*.

Seven provinces indicate that they can initiate action based on uniformity. This number is unchanged since 1997.

In 2003, five provinces indicate use of tolerance ranges for assessment level compliance, as opposed to seven provinces that indicated such ranges in 1997. Only one province now shows use of a  $\pm 10\%$  range for this purpose. Four used this range in 1997. Two indicate use of a tighter  $\pm 5\%$  range.

#### **Reliability**

Six provinces indicate that confidence intervals are computed and could influence a determination of compliance with assessment level standards.

Four provinces test the reliability of the COD, while two do so for the PRD.

#### **Market Value**

Full value assessment is far more prevalent in Canada than in the U.S. Eight of the reporting provinces assess residential property at 100% of market value. Ten (10) Canadian provinces and territories assess commercial and industrial property at 100% of current market value. Five provinces report annual update of appraised values.

#### **Measures of Assessment Level**

Canadian use of the various measures of assessment level is similar to that in the U.S. Four provinces report testing the normality of the data distribution.

#### **Outliers**

Nine provinces indicate testing for outliers. This is an increase from six in the 1997 survey. Three provinces place limits on the number of sales that may be trimmed.

#### **Sales Chasing**

One province, Quebec, indicates statutes requiring testing for sales chasing.

#### **Sample Size and Representativeness**

Minimum sample size requirements generally are similar to those in the U.S.

Five provinces indicate that they test samples for representativeness. Three provinces stratify samples by value, while four stratify by geographic area.

#### **Legal Action**

Appeals and legal action as a result of ratio studies are indicated in three provinces.

### **CONCLUSIONS**

Ratio studies remain critical as ways of measuring, evaluating, and working toward the improvement of assessment practices in most places. A degree of order in the development and use of these studies has been brought about by the use and availability of the IAAO *Standard on Ratio Studies*. There also appears to be some movement toward adopting the recommendations of the 1999 version of the Standard. Some technical areas covered in the IAAO *Standard on Ratio Studies* have not yet been incorporated into U.S. and Canadian programs.

In 2003, for the first time, the number of states basing assessment level compliance on confidence intervals exceeds the number basing compliance on point estimates. This appears to be a major change in practices toward those recommended in the IAAO Standard.

An even more pronounced trend was observed in Canada, with the number of provinces that moved in this direction jumping sharply from one in 1997 to six in 2003. However, few states and no provinces or territories appear to have responded to the recommendation in the Standard to lower the level of confidence when long term inequities are apparent. This recommendation has only been part of the IAAO Standard since 1999, so it will be interesting to see if it gets more attention with time.

The 1999 Standard focused heavily on outlier review procedures and issues. Since 1997 there has been a dramatic increase in the number of states concerned with this issue, although it is not clear whether procedures demonstrated in the IAAO Standard are in widespread use. Nonetheless, concerns over this issue are apparent. Sales chasing is a concern, and future surveys should explore changes in the number of U.S. states or Canadian provinces or territories with statutes requiring testing of this issue. Follow up questions could explore issues of resolution once sales chasing is identified.

The 1999 IAAO *Standard on Ratio Studies* continues the tradition of providing valuable guidance and assistance, and more features of the Standard have now been implemented. It is hoped that this survey will provide focus for U. S. states and for Canadian provinces and territories, which are attempting to evaluate their ratio study systems and work toward internationally recognized guidelines. It is worth noting that the IAAO Executive Board recently adopted standards review procedures recommended by the Technical Standards Committee. Under these procedures, important technical standards, such as the *Standard on Ratio Studies*, can be reviewed more frequently and can thereby be more reflective of the state of the art in this challenging and ever changing area.

## REFERENCES

- Dornfest, A.S. 1993. Assessment ratio study issues: 1992 survey results. *Property tax journal*. Vol 12, No. 3. September. 275–306.
- Dornfest, A.S. 1995. Ratio study issues revisited: 1994 survey results. *Assessment journal*. Vol. 2, No. 6. November/December. 29–46.
- Dornfest, A.S. 1997. State and provincial ratio study practices: 1997 survey results. *Assessment journal*. Vol. 4, No. 6. November/December. 23–67.
- International Association of Assessing Officers. 1978. *Improving real property assessment*. Chicago, IL: IAAO.
- International Association of Assessing Officers. 1990. *Property appraisal and assessment administration*. Chicago, IL: IAAO.
- International Association of Assessing Officers. 1999. *Standard on ratio studies*. Chicago, IL: IAAO.

Appendix A / Table 2: Tabulation of Comparable Responses											
1994 Question Number	1997 Question Number	2003 Question Number	Topic	Response	UNITED STATES			CANADA			Note:
					1994	1997	2003	1994	1997	2003	
2	2	2	Frequency of Ratio Studies	Annual 1 per 2 years 1 per 3 years Other	35 5 1 5	41 4 0 7	41 0 10 0	1 0 1 5	6 0 1 4	8 0 1 2	
3	3	3	Who does study?	None/Unknown State or Province/Territory only Local only Contracted to private or university Other	26 4 14 2	29 7 14 2	38 7 4 2	6 0 1 0	3 3 4 1	7 1 2 3	
4	4	4	What does study include?	Sales only Appraisals only Both Sales & Appraisals	20 5 21	23 4 25	25 2 24	5 0 2	8 0 3	8 1 1	
4a	4a	4a	If both, combined?	Yes	21	25	24	2	3	1	
4b	4b	4b	Who selects samples?	State or Province/Territory Local							
4c	4c	4c	Who validates sales?	State or Province/Territory Local							
5	5	5	Personal Property (PP) Taxable?	Yes	37	40	40	3	6	3	
5a	5a	5a	PP Ratio Study conducted?	Yes	9	8	7	0	0	0	
5b	5b	5b	For PP Ratio Study, do you use Sales, Appraisals, or Both?	Sales only Appraisals only Both Sales & Appraisals	7 1	8 0	7 0				
5c	5c	5c	PP Ratio Study, if both, combined?								
		5d	How is PP ratio study used?	Deprc. or econ. life tables Iowa curves Other							7 2 1
		5e	PP Appraisal Techniques								

Appendix A / Table 2: Tabulation of Comparable Responses											
1994 Question Number	1997 Question Number	2003 Question Number	Topic	Response	UNITED STATES			CANADA			Notes:
					1994	1997	2003	1994	1997	2003	
8	6	6a	Intangible Personal Property Statutory Exemption?	Yes No	25 17	32 15	37 9	3 4	4 4	6 6	
				Capital Stock			32			3	
				Bonds			33			3	
				Deposits			33			3	
				Contracts and contract rights			34			3	
				Copyrights			35			3	
				Custom computer programs			29			3	
				Customer lists			34			3	
				Goodwill			30			3	
				Licenses			34			3	
				Patents			35			3	
				Rights-of-way			22			2	
				Trademarks			35			3	
				Trade secrets			35			3	
				Other			6			1	
6	7	7	Procedure audit in lieu of ratio study?	Yes	19	17	22	2	3	3	
	7a	7a	if yes, which categories?								
	7c	7b	Ratio study + Procedural Audits = Compliance?	Yes		25	26		4	5	
	7b	7c	Can equalization or reappraisal be ordered from audits?	Yes	11	14	15	2	5	4	
7	8a	8	Disclosure	Yes	30	35	37	6	9	11	(a), (b)
	8a	8a	Legal Requirement?	State or Province/Territory			2			11	
	8a	8a	Disclosure made to:	Local assessors			8			2	
				Both			20			5	
				At deed recording			35			11	
				Within statutory time period			4			0	
				Other			3			0	
				Yes			31			8	
				Sale price statement			17			10	
				Comprehensive questionnaire			7			0	
				Both			7			1	
				Other			8			0	
				Type of disclosure document?							

Appendix A / Table 2: Tabulation of Comparable Responses

Appendix A / Table 2: Tabulation of Comparable Responses											
1994 Question Number	1997 Question Number	2003 Question Number	Topic	Response	UNITED STATES			CANADA			Note:
					1994	1997	2003	1994	1997	2003	
7a	8a	8e	Is disclosure confidential?	Yes	9	6	8	3	4	4	
7b	8b	8f	Value-related fee?	No			39	4	7	8	
7c	8c	8g	Mandatory recordation?	Yes	30	36	34	5	10	10	
			If yes, recordation occurs at what jurisdictional level?	State or Province/Territory	28	25	26	5	8	10	
				Local			10			6	
				Both			14			1	
				Yes			3			0	
		8h	Legal penalties for falsifying?	No			35			9	
				Yes			8			2	
			No element of disclosure?	No	3	4	2	0	0	0	
			Verified sales price adjusted?	Yes	33	34	32	6	9	9	
				Time	14	15	18	4	9	4	
				Financing	16	16	15	3	8	5	
9	9	9	Adjust for:	Personal property (chattels)	31	32	26	6	9	4	
				Closing costs	0	5	2	0	1	1	
				Brokerage fees	1	4	0	0	0	1	
				Intangibles	5	11	11	3	1	3	
				Other	7	4	4	0	2	3	
10	10	10	Blanket or global adjustments?	Yes	8	3	3	1	0	0	
				No	36	45	47	6	10	12	
10a	10a	10a	Describe adjustments	Yes			1				
10b	10b	10b	Court cases?	a. Order adjustments	22	27	26	3	4	2	
				b. Equalize funding	30	31	31	1	3	2	
				c. Order reappraisal	22	31	30	2	1	1	
11	11	11	Purposes of ratio study?	d. Advise local jurisdictions	35	35	43	7	9	5	
				e. Assist mass appraisal			31			9	
				f. Adjust or equalize CAP	13	18	19	0	0	0	
				g. Other			5			3	
				a. Order trend by class/category	11	14	13	1	2	1	
12	12	12	Adjustment procedures?	b. Trend jurisdiction-wide	5	3	3	1	1	0	
				c. Grace period	2	12	3	0	2	1	
13	13	13	Assessment uniformity	d. Other	11	4	10	6	3	0	



Appendix A / Table 2: Tabulation of Comparable Responses											
1994 Question Number	1997 Question Number	2003 Question Number	Topic	Response	UNITED STATES			CANADA			Note:
					1994	1997	2003	1994	1997	2003	
14c	14e	14e	Test for statistical normality?	Yes		13	13		4	4	
	15	15	Testing reliability								
14d	15a	15a	Is compliance based upon:	Point estimates	unknown	26	19		5	3	
				Confidence intervals	13	18	20		1	6	
				95% confidence level			17			4	
				90% confidence level			5			2	
				Other confidence level			0			0	
				No			28			2	
14d	15b	15c	Is a sample mean ratio of 85%, with a 95% confidence interval between 75% and 95%, in compliance?	Yes, confidence interval overlaps		11	13		1	5	
				No change		33	16		1	0	
				May lower level of confidence			2			0	
				May use point estimate only			3			0	
				May review level measures			7			0	
				May use additional info			16			0	
15	16	16	Residential non-ag property appraised at 100% of current fair market value?	Yes	17	22	23	6	6	8	(e)
15a	16a	16a	Property appraised as of a constant base year?	Yes	5	13	13	2	5	5	
	16b	16b	Are property values updated during an interim year?	Yes		18	14		5	5	
			Can local jurisdictions establish different assessment ratios?	Yes			10			0	
				Residential @ 100% of FMV			23			8	
				Farmland @ 100% of FMV			12			7	
				Commercial @ 100% of FMV			30			10	
				Industrial @ 100% of FMV			30			10	
				Utilities @ 100% of FMV			29			5	
				Personal Prop. @ 100% of FMV			18			0	
				Railroads @ 100% of FMV			23			3	
15b	16c	16c	Statutorily set ratios	Minerals @ 100% of FMV			17			2	

Appendix A / Table 2: Tabulation of Comparable Responses												
1994 Question Number	1997 Question Number	2003 Question Number	Topic	Response	UNITED STATES			CANADA				
					Numbers of Responses			Numbers of Responses				
					1994	1997	2003	1994	1997	2003		
17	17	17	Ratio Study Samples	Range of values?		11	18					
	17a			Geographic neighborhood?		20	16					4
		17a	Stratification	School district?		4	8					9
				City (Municipality)		1	12					1
				County			25					4
				Other factors?			12					4
				less than 5		4	7					3
				5 to 9		7	8					1
				10 to 19		3	4					1
16a	17b	17b	Smallest sample	20 to 30		9	13					3
				greater than 30		4	3					1
				other		19	16					2
	17c	17c	Sample size quotas or goals?	Yes		12	11					1
	17d	17d	Do you identify outlier ratios?	Yes			26					9
	17e	17e	If outliers, what action taken?									
	17f		Determine Representativeness?	Yes								
		17f	If yes, which apply?	Stratify by geographic area		21	32					5
	17a			Stratify by property class		21	21					4
				Stratify by value range		Most	29					4
				Other		11	16					3
		17g	Fixed trim points remove outliers?	Yes			6					2
		17h	Limit on trimmed sales?	Yes			16					3
		18	Statutes for sales chasing?	Yes			10					3
17	19	19	Legal action re: ratio study?	Yes		30	32					3
			Legend									
				= These questions are changed from previous surveys								
				= These questions are new to this 2003 survey								
<b>Notes:</b>												
(a)	Question 8 Disclosure: The total for the US for 1997 was revised to reflect an error in tabulating Oregon's response, which should have been counted as a 'Yes'.											
(b)	Question 8 Disclosure: The total for the US for 2003 includes the additions of Pennsylvania and, effective July 2003, New Mexico.											
(c)	Question 14a Allowable variance: Not shown are responses to the 1992 survey, which total 19 'No' US answers to this portion of the question.											
(d)	Question 14a + or - 5% variance: Not shown are responses to the 1985 survey, which total 7 US responses to this portion of the question.											
(e)	Question 16 Assessments = 100% of MV: US responses were edited so that the 'Yes' count reflects only those jurisdictions whose assessment level equals 100% of current (2002 or 2003) market value for all residential properties.											
(f)	Question 18 Sales chasing: The 1997 responses to this question were not compiled for either US or Canada.											

2003 Survey of Ratio Study Practices of US and Canada  
Appendix B / Table 3: Canadian Responses

Question #:	Q2	Q2	Q3				Q4	Q4b	Q4c	Q5	Q5a	Q5e
Province/Territory	How often does your jurisdiction conduct ratio studies?	Every 2 years	Who conducts your ratio study? Provincial/territory, local, university or private under contract or other?				Does your study include sales or appraisals or both?	If sales, who performs sample selection?	Who conducts sales validation?	Are machinery & equipment taxable personal property?	If yes, is a ratio study conducted?	If you use appraisals, what techniques are used?
Alberta	annually		prov/terr				both	local	prov/terr	Yes	No	
British Columbia	more frequent		prov/terr				sales only	state or province	local	No	na	na
Manitoba	every	4				other	sales only	local	local	Yes	No	na
New Brunswick	annually		prov/terr				sales only	prov/terr	prov/terr	No	na	na
Newfoundland	every	3	prov/terr				sales only	prov/terr	prov/terr	No	na	na
Nova Scotia	annually		local				sales only	local	local	No	na	na
Northwest Territories	every				univ. or private		appraisals only			No	na	d/e tables
Ontario	annually					other	sales only	local		No		
Prince Edward Island	annually		prov/terr				sales only	prov/terr	prov/terr	No	na	na
Quebec	annually		local				sales only	prov/terr	prov/terr	No	na	na
Saskatchewan	annually		prov/terr				sales only	local	prov/terr	No	na	na
Yukon Territory	annually		prov/terr				sales only	prov/terr	prov/terr	Yes	No	na

  

Question #:	Q6a	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b	Q6b
Province/Territory	Personal Property Exemption Statute?	Capital stock exempt?	Bonds exempt?	Deposits exempt?	Contracts exempt?	Copy-rights exempt?	Custom computer software exempt?	Customer lists exempt?	Goodwill exempt?	Licenses exempt?	Patents exempt?	Rights of Way?	Trade-marks exempt?	Trade secrets exempt?	Other?
Alberta	Yes														
British Columbia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Manitoba	Yes	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk	unk
New Brunswick	No														
Newfoundland	No														
Nova Scotia															Yes
Northwest Territories	No														
Ontario	No														
Prince Edward Island	No														
Quebec	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Saskatchewan	No														
Yukon Territory	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

**2003 Survey of Ratio Study Practices of US and Canada**  
Appendix D: Financial Canadian Provisions

	Q7	Q7a	Q7b	Q7c	Q8	Q8a	Q8b	Q8c	Q8d	Q8e	Q8f	Q8g	Q8h	Q8i
Province/Territory	Do you audit appraisal procedures in lieu of ratio study?	Procedural audits + ratio study to determine compliance?	Can equalization or reappraisal be ordered as a result?	Do you have a disclosure law?	Disclose to Prov/ Terr or local or both?	Disclose at deed recording?	Do you track disclosure?	Type of disclosure (state, territory, or both)?	Disclosure confidential?	Do you have a deed stamp?	Do you have a ratio study recordation law?	At what level does it occur?	Are there legal issues for liability?	
Alberta	Yes	Yes	Yes	Yes	provider	Yes	Yes	stint.	No	Yes	Yes		No	
British Columbia	No	No	Yes	Yes	both	Yes	Yes	stint.	No	No	Yes	provider	Yes	
Manitoba	No	unk	Yes	Yes		Yes	No		No	Yes	Yes	provider	unk	
New Brunswick	No	unk	No	Yes	provider	Yes	Yes	stint.	Yes	Yes	No		Yes	
Newfoundland	No	unk		Yes	both	Yes	Yes	stint.	No	Yes	Yes		Yes	
Nova Scotia	Yes	Yes		Yes	both	Yes	Yes	stint.	Yes	Yes	Yes	local	Yes	
Northwest Territories	No	No	No	Yes	both	Yes	Yes	stint.	No	Yes	Yes	provider	Yes	
Ontario	No	No		Yes	both	Yes	Yes	stint.	No	Yes	Yes	provider	Yes	
Prince Edward Island	No	unk		Yes	provider	Yes	No		Yes	Yes	Yes	provider	Yes	
Quebec	No	na	Yes	Yes	provider	other	Yes	stint.	No	Yes	Yes		Yes	
Saskatchewan	Yes		Yes	Yes	both	Yes	Yes	both	Yes	Yes	No		No	
Yukon Territory			No	No	No	Yes	Yes	stint.	No	No	Yes	provider	Yes	

  

Question #	Q9	Q9	Q9	Q9	Q9	Q9	Q9	Q9	Q10	Q11a	Q11b	Q11c	Q11d	Q11e	Q11f
Province/Territory	Do you adjust sale prices? If Yes, do you adjust for:	Time?	Financing?	Personal property?	Closing costs?	Brokerage fees?	Intangibles?	Other?	Are blanket or global adjustments made?	Purposes of ratio study?	Purposes of ratio study?	Purposes of ratio study?	Purposes of ratio study?	Purposes of ratio study?	Purposes of ratio study?
Alberta	Yes	Yes	Yes	Yes			Yes		No		equalize		advise		
British Columbia	Yes							Yes	No				advise	assist CAMA	
Manitoba	Yes	Yes	Yes	Yes				Yes	No				advise	assist CAMA	
New Brunswick	No								No	order adjust.			advise	assist CAMA	
Newfoundland	Yes								No					assist CAMA	
Nova Scotia	Yes	No	No	No	No	No	No	Yes	No					assist CAMA	
Northwest Territories	No	No	No	No	No	No	No	No	No					assist CAMA	other
Ontario	Yes							Yes	No						other
Prince Edward Island	No	No	No	No	No	No	No	No	No					assist CAMA	
Quebec	Yes	Yes	Yes	Yes	Yes	Yes	Yes		No		equalize		advise		other
Saskatchewan	Yes	Yes	Yes	Yes					No	order adjust.		order reappraisal	advise	assist CAMA	
Yukon Territory	Yes	Yes		Yes			Yes	Yes	No				advise	assist CAMA	

2003 Survey of Ratio Study Practices of US and Canada  
Appendix B / Table 3: Canadian Responses

Question #:	Q12	Q13a								Q13b	Q13c			
Province/Territory	Which adjustment procedures are used?	Assessment Uniformity: COD/COV Standard?	'99 IAAO Standard or 2 for homogeneous residential?	'99 IAAO Standard or 2 for heterogeneous residential?	'99 IAAO Standard or 2 for rural res. and seasonal?	'99 IAAO Standard or 2 for urban income properties?	'99 IAAO Standard or 2 for rural income properties?	'99 IAAO Standard or 2 for unimproved properties?	Assessment Uniformity: PRD Standard?	Can your jurisdiction initiate any action as a result of assessment uniformity conditions? If yes, please check all that apply:				
Alberta	grace period	Yes	< or =15	IAAO	IAAO	< or =20	IAAO	< or =20	No	Yes	order reappraisal		cod	point estimates
British Columbia		Yes	IAAO	IAAO	< or =15	IAAO	IAAO	IAAO	Yes	Yes	order reappraisal		cod	point estimates
Manitoba		Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	No	Yes		other	cod	unknown
New Brunswick	apply trend factors	Yes	IAAO	IAAO	< or =15	IAAO	IAAO	15U, 20R	No	Yes		other	No	unknown
Newfoundland		Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes	No				
Nova Scotia	other	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes	Yes	order reappraisal		No	unknown
Northwest Territories		No	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	No	No				
Ontario		Yes	8.0	8.0	15.0	20.0	IAAO	IAAO	Yes	No				
Prince Edward Island		No	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	No	No				
Quebec		Yes	< or =20	< or =20	< or =40	< or =20	< or =40	IAAO	Y: 95-1.05	No				
Saskatchewan		Yes							Yes	Yes		other	both	point estimates
Yukon Territory		No							No	Yes	order reappraisal		prd	point estimates

  

Question #:	Q14c	Q14d								Q14e	Q15a	Q15b	Q15c	Q15d
Province/Territory	Do you use confidence intervals?	Arith. Mean Calculation:	Arith. Mean Equalization:	Median Calculation:	Median Calculation:	Weighted (Aggregate) Mean Calculation:	Weighted (Aggregate) Mean Equalization:	Geometric Mean Calculation:	Geometric Mean Equalization:	Do you test for normality?	Testing Reliability:	Which conf. interval do you calculate?	Given example, would you rule in compliance? Yes, conf. interval overlaps the compliance threshold, or No, only point estimates are used?	How would you change previous answer if COD showed poor uniformity? No change, May lower level of confidence; May use point estimate only to evaluate level; May review previous years level measures. May use additional info, e.g., sample size.
Alberta	No			median calc			w equal			No	point est.			
British Columbia	Yes	arith mean calc		median calc		wm calc				No	conf. interval	95%	No	review level meas. additional info
Manitoba	Yes	arith mean calc		median calc						Yes	conf. interval	95%	Yes	
New Brunswick	No	arith mean calc		median calc		wm calc				No	point est.		Yes	
Newfoundland	Yes	arith mean calc		median calc		wm calc				No	conf. interval	90%	Yes	additional info
Nova Scotia	No	arith mean calc		median calc		wm calc				Yes	point est.		No	
Northwest Territories	unknown	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	unk			
Ontario	Yes	arith mean calc		median calc	med eq	wm calc				Yes	conf. interval	95%	Yes	additional info
Prince Edward Island	unknown	arith mean calc		median calc		wm calc				No	unk			
Quebec	Yes	arith mean calc	arith equal	median calc	med eq	wm calc	w equal	geo calc	geo equal	Yes	conf. interval	90%	Yes	review level meas. additional info
Saskatchewan	Yes	arith mean calc		median calc						No	conf. interval	95%		additional info
Yukon Territory	No	arith mean calc		median calc		wm calc				No	unk			



2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q2	Q2	Q3			Q4	Q4b	Q4c	Q5	Q5a	Q5e
State	How often does your jurisdiction conduct ratio studies?	Every ? years	Who conducts your ratio study? State, local, university or private under contract or other?			Does your study include sales or appraisals or both?	If sales, who performs sample selection ?	Who conducts sales validation ?	Are M & E taxable personal property ?	If yes, is a ratio study conducted?	If you use appraisals, what techniques are used? Depreciation or economic life tables?
Alabama	annually	0	state			sales only	state	state	Yes	No	
Alaska	annually	0	state	local		sales only	local	local	Yes	No	
Arizona	more	0	state			sales only	state	state	Yes	No	
Arkansas	annually	0	state			both	state	state	Yes	Yes	depr or econ
California	every	5	state			appraisals			Yes	Yes	depr or econ
Colorado	annually	0			univ. or private	both	local	local	Yes	Yes	depr or econ
Connecticut	annually	0	state			sales only	local	state	Yes	na	
Delaware	every	5			univ. or private	sales only	local	local	No	na	
Dist. Col.	annually	0		local		sales only	local	local	Yes	No	
Florida	annually	0	state			both	state	local	Yes	No	
Georgia	annually	0	state			both	state	state	Yes	No	
Hawaii-Hawaii Co.	annually	0		local		sales only	local	local	No	na	
Hawaii-Honolulu Co.	annually	0				other	sales only	local	local	na	
Hawaii-Kauai Co.	annually	0				other	both	local	local	na	
Hawaii-Maui Co.	annually	0		local		sales only	local	local	No	na	
Idaho	annually	0	state			sales only	state	local	Yes	No	
Illinois	annually	0	state			sales only	state	state	No	na	
Indiana	every	4		local		both	local	local	Yes	No	
Iowa	annually	0	state			both	local	local	No	No	
Kansas	annually	0	state			both	state	state	Yes	No	
Kentucky	annually	0	state			both	local	state	Yes	No	
Louisiana	annually	0	state			both	state	state	Yes	No	
Maine	annually	0	state			both	state	state	Yes	No	
Maryland	annually	0	state			sales only	state	state	Yes	No	
Massachusetts	every	0	state	local		both	state	local	Yes	No	
Michigan	annually	0				other	both	state	state	Yes	No
Minnesota	annually	0	state	local		sales only	state	state	No	na	
Mississippi	every	0	state			sales only	state		Yes	No	
Missouri	every	2	state			appraisals			Yes	No	
Montana	annually	0	state			sales only	state	state	Yes	No	
Nebraska	annually	0	state			sales only	local	local	Yes	No	
Nevada	annually	0	state			both	state	local	Yes	Yes	depr or econ
New Hampshire	annually	0	state			sales only	state	state	No	na	
New Jersey	annually	0	state			sales only	state	state	No	na	
New Mexico	annually	0		local		sales only	local		Yes	No	
New York	annually	0	state			both	state	local	No	na	
North Carolina	annually	0	state			sales only	state	local	Yes	No	
North Dakota	annually	0	state			both	state	local	No	na	
Ohio	more	0	state			sales only	state	state	Yes	No	
Oklahoma	annually	0	state			both	state	state	Yes	No	
Oregon	annually	0		local		both	local	local	Yes	No	
Pennsylvania	annually	0	state			sales only	state	local	No	na	
Rhode Island	annually	0	state			both	state	state	Yes	No	
South Carolina	annually	0	state			sales only	local	local	Yes	No	
South Dakota	annually	0	state			sales only	state	local	No	na	
Tennessee	every	2	state			sales only	local	local	Yes	No	
Texas	annually	0	state			both	state	state	Yes	Yes	depr or econ
Utah	annually	0	state	local		other	sales only	state	local	Yes	depr or econ
Vermont	annually	0	state			both	state	state	Yes	No	
Virginia	annually	0	state	local		sales only	state	state	Yes	No	
Wash	annually	0	state			both	state	local	Yes	Yes	depr or econ
West Virginia	more	0	state			both	state	local	Yes	No	
Wisconsin	annually	0	state			both	state	state	Yes	No	
Wyoming	annually	0	state			sales only	state	local	Yes	No	

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q6a	Q6b													
State	Intangible Personal Property Exemption Statute?	Capital stock exempt?	Bonds exempt?	Deposits exempt?	Contracts exempt?	Copy-rights exempt?	Custom computer software exempt?	Customer lists exempt?	Goodwill exempt?	Licenses exempt?	Patents exempt?	Rights of Way (ROW)?	Trade-marks exempt?	Trade secrets exempt?	Other?
Alabama	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Alaska	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	
Arizona	na														
Arkansas	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
California	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Colorado	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connecticut	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Delaware	No														
Dist. Col.	na														
Florida	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Georgia	No														
Hawaii-Hawaii Co.	na														
Hawaii-Honolulu Co.	No														
Hawaii-Kauai Co.	No														
Hawaii-Maui Co.	No														
Idaho	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Illinois	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Indiana	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	Yes
Iowa	No														
Kansas	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	
Kentucky	No														
Louisiana	No														
Maine	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Maryland	Yes														
Massachusetts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Michigan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Minnesota	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Mississippi	No														
Missouri	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Montana	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nebraska	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nevada	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
New Hampshire	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
New Jersey	No														
New Mexico	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
New York	No														
North Carolina	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
North Dakota	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ohio	Yes														Yes
Oklahoma	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	
Oregon	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Pennsylvania	na														
Rhode Island	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
South Carolina	na														
South Dakota	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Tennessee	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Texas	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Utah	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes		Yes	Yes	Yes
Vermont	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes
Virginia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wash	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes
West Virginia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wisconsin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Wyoming	Yes														

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q6a	Q6b													
State	Intangible Personal Property Exemption Statute?	Capital stock exempt?	Bonds exempt?	Deposits exempt?	Contracts exempt?	Copy-rights exempt?	Custom computer software exempt?	Customer lists exempt?	Goodwill exempt?	Licenses exempt?	Patents exempt?	Rights of Way (ROW)?	Trade-marks exempt?	Trade secrets exempt?	Other?
Alabama	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Alaska	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	
Arizona	na														
Arkansas	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
California	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Colorado	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Connecticut	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Delaware	No														
Dist. Col.	na														
Florida	Yes			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Georgia	No														
Hawaii-Hawaii Co.	na														
Hawaii-Honolulu Co.	No														
Hawaii-Kauai Co.	No														
Hawaii-Maui Co.	No														
Idaho	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Illinois	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Indiana	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes	
Iowa	No														
Kansas	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	
Kentucky	No														
Louisiana	No														
Maine	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Maryland	Yes														
Massachusetts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Michigan	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes	Yes		Yes	Yes	
Minnesota	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Mississippi	No														
Missouri	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Montana	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Nebraska	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Nevada	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
New Hampshire	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
New Jersey	No														
New Mexico	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
New York	No														
North Carolina	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
North Dakota	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ohio	Yes														Yes
Oklahoma	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	
Oregon	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Pennsylvania	na														
Rhode Island	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
South Carolina	na														
South Dakota	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Tennessee	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Texas	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Utah	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vermont	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	
Virginia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wash	Yes	Yes	Yes	Yes		Yes		Yes		Yes	Yes	Yes	Yes	Yes	
West Virginia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Wisconsin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Wyoming	Yes														

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q8	Q8a	Q8b	Q8c	Q8d	Q8e	Q8f	Q8g	Q8g	Q8h
State	Do you have a disclosure law?	Disclose to state, local or both?	Disclose at deed recording ?	Do you track disclosure ?	Type of disclosure doc.: statement, questionnaire or both or other?	Disclosure confidential ?	Do you have a transfer tax or deed stamp?	Do you have a mandatory recordation law?	At what level does it occur?	Are there legal penalties for falsifying ?
Alabama	No									
Alaska	No							Yes	state	na
Arizona	Yes	both	Yes	No	both	No	No	Yes	local	Yes
Arkansas	No						Yes	No		na
California	Yes	local	Yes	Yes	both	No	Yes	No		Yes
Colorado	Yes	local	Yes	Yes	questionnaire	No	Yes	Yes	local	No
Connecticut	Yes		Yes	Yes	statement	No	Yes	Yes	local	Yes
Delaware	No		Yes	Yes	statement	No	Yes	No		No
Dist. Col.	Yes		Yes	Yes	both	No	Yes	Yes	local	Yes
Florida	Yes	both	Yes	Yes	questionnaire	No	Yes	Yes	local	Yes
Georgia	Yes	both	Yes	Yes	other	No	Yes	Yes		Yes
Hawaii-Hawaii Co.	No		Yes	No	other	No	No	Yes	state	No
Hawaii-Honolulu Co.	No		other	Yes	statement	No	Yes	No		Yes
Hawaii-Kauai Co.	Yes	both	Yes	Yes	statement	No	Yes	Yes	state	Yes
Hawaii-Maui Co.	Yes	both	Yes	Yes	other	No	Yes	Yes	state	Yes
Idaho	No					No	No	No		na
Illinois	Yes	both	Yes	No	questionnaire	No	Yes	No		Yes
Indiana	Yes	both	Yes	No	questionnaire	No	No	Yes	local	Yes
Iowa	Yes	both	Yes	Yes	statement	No	Yes	No		Yes
Kansas	Yes	both	Yes	Yes	questionnaire	No	No	No	local	Yes
Kentucky	Yes	local	Yes	Yes	statement	No	Yes	No		Yes
Louisiana	No		Yes	No		No	No	Yes	state	na
Maine	Yes		Yes	Yes	statement	No	Yes	No		Yes
Maryland	Yes	state/provincial	Yes	Yes	statement	No	Yes	No		Yes
Massachusetts	Yes	both	Yes	No		No	Yes	Yes	state	No
Michigan	Yes	local '97	statutory	No	statement	No	Yes	No		Yes
Minnesota	Yes	local '97	Yes	Yes	both	No	Yes	Yes	local	Yes
Mississippi	No						No	Yes	local	na
Missouri	No						No	No		na
Montana	Yes	both	other	Yes	other	Yes	No	Yes	state	Yes
Nebraska	Yes	both	Yes	Yes	statement	No	Yes	No		Yes
Nevada	Yes	both	Yes	No	statement	No	Yes	No		Yes
New Hampshire	Yes	both	statutory	Yes	questionnaire	No	Yes	Yes	local	Yes
New Jersey	Yes	both	Yes	Yes	statement	No	Yes	No		Yes
New Mexico	Yes						No	No		na
New York	Yes	both	statutory	Yes	both	Yes	No	Yes	both	Yes
North Carolina	No						Yes	Yes	local	na
North Dakota	Yes	both	Yes	Yes	statement	Yes	No	No		Yes
Ohio	Yes	both	other	Yes	other	No	Yes	Yes	local	Yes
Oklahoma	No						Yes	No		No
Oregon	Yes	local	Yes	Yes	other	No	No	Yes		Yes
Pennsylvania	Yes	97 No	Yes	No	statement	No	Yes	Yes	both	Yes
Rhode Island	No						Yes	Yes	local	No
South Carolina	Yes	state/provincial	Yes	Yes		No	Yes	Yes	state	Yes
South Dakota	Yes	both	Yes	Yes	questionnaire	No	No	No		Yes
Tennessee	No			No		No	Yes	No		No
Texas	No			No			No	No	state	na
Utah	No						No	Yes		na
Vermont	Yes		Yes	Yes	other	No	Yes	No		Yes
Virginia	Yes	both	Yes	Yes	other	No	Yes	No		Yes
Wash	Yes	both	Yes	Yes	statement	No	Yes	Yes	local	Yes
West Virginia	Yes	97 public	Yes	Yes	both	No	Yes	No		No
Wisconsin	Yes	both	Yes	Yes	statement	No	Yes	Yes	state	Yes
Wyoming	Yes	97 both	Yes	Yes	both	Yes	No	Yes	both	Yes

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q9							
State	Do you adjust sale prices ? If Yes, do you adjust for:	Time ?	Financing ?	Personal property?	Closing costs?	Brokerage fees?	Intangibles ?	Other?
Alabama	Yes							
Alaska	Yes	Yes	Yes	Yes				
Arizona	Yes	Yes						
Arkansas	Yes			Yes				
California	No							
Colorado	Yes	Yes	Yes	Yes			Yes	
Connecticut	No							
Delaware	Yes	Yes	Yes	Yes	Yes		Yes	
Dist. Col.	No							
Florida	Yes							Yes
Georgia	Yes			Yes				
Hawaii-Hawaii Co.	Yes			Yes				
Hawaii-Honolulu Co.	Yes	Yes	Yes	Yes				
Hawaii-Kauai Co.								
Hawaii-Maui Co.	Yes			Yes				
Idaho	Yes	Yes		Yes				
Illinois	Yes	Yes		Yes				
Indiana	Yes	Yes		Yes			Yes	
Iowa	Yes							
Kansas	Yes	Yes	Yes	Yes	Yes		Yes	Yes
Kentucky	No							
Louisiana	Yes	Yes	Yes	Yes				
Maine	No							
Maryland	No							
Massachusetts	Yes	Yes	Yes	Yes			Yes	
Michigan	Yes		Yes	Yes				
Minnesota	Yes	Yes	Yes	Yes			Yes	
Mississippi	No							
Missouri	Yes	Yes	Yes					
Montana	No							
Nebraska	Yes		Yes	Yes			Yes	
Nevada								
New Hampshire	Yes			Yes				
New Jersey	No							
New Mexico	No							
New York	Yes	Yes						
North Carolina								
North Dakota	No							
Ohio	No							
Oklahoma	Yes			Yes				
Oregon	Yes	Yes		Yes			Yes	
Pennsylvania	No							
Rhode Island	No							
South Carolina	No							
South Dakota	Yes		Yes	Yes				
Tennessee	No			Yes				Yes
Texas	Yes	Yes	Yes	Yes			Yes	
Utah	No	Yes	Yes	Yes			Yes	Yes
Vermont	Yes			Yes				
Virginia	No							
Wash	Yes			Yes				
West Virginia	No							
Wisconsin	Yes			Yes			Yes	
Wyoming	Yes	Yes	Yes	Yes				

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q10	Q11a	Q11b	Q11c	Q11d	Q11e	Q11e	Q12
State	Are blanket or global adjustments made?	Purposes of ratio study include ordering readjustments?	Purposes of ratio study include equalization?	Purposes of ratio study include ordering re-appraisal?	Purposes of ratio study include advise of assessment conditions?	Purposes of ratio study include assist CAMA?	Purposes of ratio study include adjust or equalize CAP?	Which adjustment procedures are used: order locals to trend classes/categories, trend equally, grace period, other?
Alabama	No			Yes	Yes	Yes	Yes	
Alaska	No		Yes	Yes	Yes			
Arizona	Yes	Yes		Yes	Yes	Yes		other
Arkansas	No	Yes		Yes	Yes		Yes	other
California	na				Yes			
Colorado	No		Yes	Yes				
Connecticut	No		Yes					
Delaware	No					Yes		
Dist. Col.	No				Yes	Yes		
Florida	Yes		Yes		Yes	Yes	Yes	
Georgia	No		Yes		Yes	Yes	Yes	
Hawaii-Hawaii Co.	No					Yes		na
Hawaii-Honolulu Co.	No	Yes	Yes					na
Hawaii-Kauai Co.	No					Yes		
Hawaii-Maui Co.	No				Yes	Yes		na
Idaho	No	Yes	Yes		Yes	Yes		order local
Illinois	No	Yes	Yes		Yes			trend
Indiana	No	Yes	Yes	Yes	Yes		Yes	order local
Iowa	No	Yes	Yes	Yes	Yes			order local
Kansas	No	Yes	Yes	Yes	Yes	Yes	Yes	grace period
Kentucky	No		Yes	Yes	Yes	Yes		
Louisiana	No	Yes		Yes	Yes			grace period
Maine	No		Yes	Yes	Yes			
Maryland	No				Yes	Yes		
Massachusetts	No		Yes	Yes	Yes	Yes		
Michigan	No	Yes			Yes		Yes	order local
Minnesota	No	Yes	Yes	Yes	Yes	Yes	Yes	order local
Mississippi	No			Yes	Yes			order local
Missouri	No	Yes	Yes	Yes	Yes	Yes		other
Montana	No						Yes	
Nebraska	No	Yes	Yes	Yes	Yes	Yes	Yes	order local
Nevada	No	Yes		Yes	Yes	Yes		grace period
New Hampshire	No		Yes	Yes	Yes	Yes	Yes	
New Jersey	No		Yes	Yes	Yes	Yes		
New Mexico	No	Yes		Yes	Yes	Yes		trend
New York	No		Yes		Yes			
North Carolina	No						Yes	
North Dakota	No	Yes	Yes	Yes	Yes			order local
Ohio	No	Yes		Yes				order local
Oklahoma	No	Yes		Yes	Yes	Yes		order local
Oregon	No	Yes		Yes	Yes	Yes		order local
Pennsylvania	No	Yes			Yes		Yes	other
Rhode Island	No		Yes				Yes	
South Carolina	No				Yes	Yes		
South Dakota	No	Yes	Yes		Yes			other
Tennessee	No	Yes	Yes	Yes	Yes	Yes	Yes	order local
Texas	No		Yes		Yes			
Utah	No	Yes	Yes	Yes	Yes	Yes	Yes	other
Vermont	No	Yes	Yes	Yes	Yes	Yes	Yes	trend
Virginia	No	Yes	Yes	Yes	Yes	Yes	Yes	other
Wash	Yes		Yes				Yes	
West Virginia	No				Yes	Yes		
Wisconsin	No		Yes	Yes	Yes	Yes		
Wyoming	No	Yes	Yes	Yes	Yes	Yes		order local

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q13a								Q13b	Q13c			Q13d	Q13e
	State	Assessment Uniformity: COD/COV Standard?	'99 IAAO Standard or 2 for homogeneous residential?	'99 IAAO Standard or 2 for heterogeneous residential?	'99 IAAO Standard or 2 for rural res. and seasonal?	'99 IAAO Standard or 2 for urban income properties?	'99 IAAO Standard or 2 for rural income properties?	'99 IAAO Standard or 2 for un-improved properties?		Assessment Uniformity: PRD Standard?	Can your jurisdiction initiate any action as a result of assessment uniformity conditions? If yes, please check all that apply: Order reappraisal, withhold funding, or other?			
Alabama	Yes	20	20	20	20	20	20	No	Yes			cod		
Alaska	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes	Yes					
Arizona	Yes	15.0 Maricopa	20.0 All other	20.0	less than 25.0	less than 25.0	less than 25.0	No	Yes				point	
Arkansas	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes	Yes	Yes	cod	point		
California	No	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	No						
Colorado	Yes	15.99 or less	15.99 or less	20.99 or less	20.99 or less	20.99 or less	20.99 or less	Yes			Yes	cod	point	
Connecticut	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes		Yes		point	interval	
Delaware	No							No	Yes			both		
Dist. Col.	Yes							Yes						
Florida	Yes	15% or less		15% or less	20% or less			Yes					point	
Georgia	Yes	15% or less	15% or less	20% or less for	20% or less	20% or less		Yes		Yes	Yes			
Hawaii-Hawaii Co.	No							No						
Hawaii-Honolulu Co.	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes						
Hawaii-Kauai Co.	No							No						
Hawaii-Maui Co.	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes						
Idaho	Yes	15	IAAO	15	20	IAAO	IAAO	Yes	No	No	No			
Illinois	No							No						
Indiana	Yes	15 or less	IAAO	IAAO	20 or less	IAAO	IAAO	No	Yes		Yes	cod	point	
Iowa	Yes	20.0	20.0	20.0	20.0	20.0	20.0	Yes	Yes			both	interval	
Kansas	Yes	20.0 or less	20.0 or less	20.0 or less	20.0 or less	20.0 or less	20.0 or less	Yes	Yes	Yes	Yes	both	interval	
Kentucky	Yes	20 or less	20 or less	20 or less	20 or less	20 or less	20 or less	No			Yes	unkno	unknown	
Louisiana	Yes	20.0 or less	20.0 or less	IAAO	20.0 or less	IAAO	IAAO	Yes	Yes			both	interval	
Maine	Yes	20	IAAO	IAAO	IAAO	IAAO	IAAO	No	Yes			cod	point	
Maryland	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes			Yes	both	point	
Massachusetts	Yes	10%	10%	10%	20%	20%	20%	Yes	Yes		Yes	cod		
Michigan	No							No	Yes				point	
Minnesota	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes				both	interval	
Mississippi	Yes	25.0	25.0	25.0	25.0	25.0	25.0	Yes	Yes	Yes				
Missouri	No							No	Yes	Yes	Yes	both		
Montana	No							No						
Nebraska	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes	Yes			both	point	
Nevada	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO		Yes			cod	interval	
New Hampshire	Yes	20.0	20.0	IAAO	20.0	IAAO	IAAO	Yes			Yes	prd	point	
New Jersey	Yes	15 or less	IAAO	15 or less	15 or less	15 or less	15 or less	No						
New Mexico	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes	Yes			both		
New York	Yes	COD varies by local jurisdiction's population density: Low <=20; Med. <=17; High <= 15						Yes						
North Carolina	No							No						
North Dakota	No							No	Yes			both		
Ohio	Yes							Yes						
Oklahoma	Yes	20	20	20	20	20	20	No	Yes	Yes		both	point	
Oregon	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	No	Yes	Yes		cod	interval	
Pennsylvania	FALSE							No						
Rhode Island	No							No						
South Carolina	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	No						
South Dakota	Yes	25.0 OR LESS	25.0 OR LESS	25.0 OR LESS	25.0 OR LESS	25.0 OR LESS	25.0 OR LESS	No						
Tennessee	No	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	No						
Texas	Yes	30	30	30	30	30	30	No			Yes	cod	point	
Utah	Yes	15	15	20-25	15	20	20-25	No	Yes			cod	point	
Vermont	Yes	20.0 (not on	20.0(not on	20.0(not on	20.0(not on	20.0(not on	20.0(not on	No	Yes	Yes		cod	point	
Virginia	No							No						
Wash	No							No						
West Virginia	Yes	15	IAAO	IAAO	20	IAAO	IAAO	No				cod	point	
Wisconsin	Yes	IAAO	IAAO	IAAO	IAAO	IAAO	IAAO	Yes	Yes			cod	point	
Wyoming	Yes	15.0 or less	IAAO	IAAO	20.0 or less	IAAO	IAAO	Yes	Yes			cod	interval	

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q14c	Q14d								Q14e
		Arith. Mean Calculation:	Arith. Mean Equalization:	Median Calculation:	Median Equalization:	Weighted (Aggregate) Mean Calculation:	Weighted (Aggregate) Mean Equalization:	Geometric Mean Calculation:	Geometric Mean Equalization:	
State	Do you use confidence intervals?									Do you test for normality ?
Alabama	No	Yes		Yes	Yes	Yes				No
Alaska	No	Yes	Yes	Yes	Yes	Yes	Yes			No
Arizona	No	Yes		Yes	Yes	Yes				No
Arkansas	na	Yes		Yes		Yes	Yes			No
California	No					Yes				No
Colorado	No	Yes		Yes	Yes	Yes				No
Connecticut	na				Yes					No
Delaware	Yes				Yes		Yes			No
Dist. Col.	No	Yes		Yes	Yes	Yes				Yes
Florida	Yes	Yes		Yes		Yes	Yes			No
Georgia	Yes			Yes	Yes	Yes				No
Hawaii-Hawaii Co.	Yes	Yes		Yes						No
Hawaii-Honolulu Co.										
Hawaii-Kauai Co.	No									No
Hawaii-Maui Co.	Yes	Yes		Yes		Yes				Yes
Idaho	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Illinois	No	Yes		Yes	Yes	Yes				Yes
Indiana	Yes			Yes	Yes					No
Iowa	No	Yes		Yes	Yes	Yes				No
Kansas	Yes	Yes		Yes	Yes	Yes		Yes		Yes
Kentucky	No			Yes						Yes
Louisiana	Yes	Yes		Yes		Yes				No
Maine	No	Yes	Yes			Yes				No
Maryland	No	Yes		Yes			Yes			Yes
Massachusetts	Yes	Yes		Yes			Yes			No
Michigan	No					Yes	Yes			No
Minnesota	No	Yes		Yes	Yes	Yes				No
Mississippi	No				Yes					No
Missouri	No	Yes		Yes	Yes	Yes	Yes			No
Montana	na					Yes	Yes			No
Nebraska	Yes	Yes		Yes	Yes	Yes	Yes			Yes
Nevada	Yes			Yes						No
New Hampshire	Yes	Yes		Yes	Yes	Yes	Yes	Yes		No
New Jersey	No									No
New Mexico	No	Yes			Yes	Yes				No
New York	Yes					Yes	Yes			No
North Carolina	No	Yes		Yes	Yes					No
North Dakota	No	Yes		Yes	Yes	Yes				No
Ohio	No	Yes	Yes	Yes	Yes	Yes	Yes			No
Oklahoma	Yes	Yes		Yes	Yes	Yes				No
Oregon	Yes	Yes		Yes		Yes		Yes		No
Pennsylvania	No	Yes								No
Rhode Island	No	Yes	Yes	Yes	Yes	Yes	Yes			No
South Carolina	Yes	Yes		Yes	Yes					No
South Dakota	No	Yes		Yes	Yes	Yes				Yes
Tennessee	na	Yes		Yes	Yes	Yes				No
Texas	Yes					Yes				Yes
Utah	Yes	Yes	Yes	Yes	Yes	Yes				Yes
Vermont	No	Yes		Yes		Yes	Yes			No
Virginia	No	Yes		Yes	Yes	Yes				No
Wash	Yes					Yes	Yes			No
West Virginia	No			Yes		Yes				No
Wisconsin	Yes	Yes		Yes		Yes	Yes			Yes
Wyoming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q15a	Q15b	Q15c	Q15d			
State	Testing Reliability: Do you base compliance on point estimates or confidence intervals?	Which conf. Interval do you calculate ?	Given example, would you rule in compliance? <b>Yes</b> , conf interval overlaps the compliance threshold, or, <b>No</b> , only point estimates are used?	How would you change previous answer if COD showed poor uniformity? <b>No change</b> , May <b>lower level</b> of confidence; <b>May use</b> point estimate only to evaluate level; <b>May review</b> previous years level measures; <b>May use</b> additional info, e.g., sample size.			
Alabama	point est.		no, only point est.				may use
Alaska							
Arizona	point est.		no, only point est.	no change			may use
Arkansas	point est.		no, only point est.	no change			
California	point est.		no, only point est.				
Colorado	point est.		no, only point est.				may use
Connecticut	point est.		no, only point est.				
Delaware	conf. int.	95%	no, only point est.			may review	
Dist. Col.							
Florida	point est.	95%	no, only point est.	no change			
Georgia	conf. int.	95%	no, only point est.	no change			
Hawaii-Hawaii Co.	conf. int.	90%	yes, confidence				may use
Hawaii-Honolulu Co.	point est.						
Hawaii-Kauai Co.	point est.		no, only point est.		may use		
Hawaii-Maui Co.	conf. int.						
Idaho	conf. int.	90%	yes, confidence	no change			
Illinois	point est.		no, only point est.	no change			
Indiana	conf. int.	95%	no, only point est.				may use
Iowa	na		yes, confidence	no change			
Kansas	conf. int.	95%	yes, confidence	no change		may review	may use
Kentucky	na		yes, confidence				may use
Louisiana	conf. int.	90%	yes, confidence			may review	may use
Maine	point est.		no, only point est.		may use		
Maryland	point est.		no, only point est.				
Massachusetts	conf. int.	95%	no, only point est.	no change			
Michigan	na						
Minnesota	point est.		no, only point est.				
Mississippi							
Missouri	point est.		no, only point est.	no change			
Montana							
Nebraska	conf. int.	95%	yes, confidence				may use
Nevada	conf. int.	95%	yes, confidence				may use
New Hampshire	conf. int.	90%	yes, confidence	no change			
New Jersey							
New Mexico	point est.		no, only point est.		may use		
New York	conf. int.	95%	yes, confidence			may review	may use
North Carolina			no, only point est.		may lower	may review	may use
North Dakota	point est.		no, only point est.				may use
Ohio	point est.		no, only point est.			may review	may use
Oklahoma	conf. int.	95%	no, only point est.				may use
Oregon	conf. int.	95%	no, only point est.			may review	may use
Pennsylvania							
Rhode Island							
South Carolina	conf. int.	95%	no, only point est.	no change			
South Dakota	na						
Tennessee							
Texas	conf. int.	95%	yes, confidence		may lower		
Utah	conf. int.	95%	no, only point est.	no change			
Vermont	point est.		no, only point est.	no change			
Virginia	point est.		no, only point est.	no change			
Wash	conf. int.	90%	yes, confidence				
West Virginia	point est.		no, only point est.	no change			
Wisconsin	conf. int.	95%	no, only point est.				
Wyoming	conf. int.	95%	yes, confidence				may use



2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q17a							Q17b	Q17c
State	Do you stratify your samples?	Do you stratify by range of values?	Do you stratify by geographic neighborhood?	Do you stratify by school district?	Do you stratify by city?	Do you stratify by county?	Do you stratify by other factors?	What is your smallest sample size?	Do you establish any sample size quotas or goals?
Alabama	No							other	Yes
Alaska	Yes		Yes		Yes	Yes		10 to 19	No
Arizona	Yes	No	Yes	No	No	Yes	Yes	other	No
Arkansas	Yes			Yes	Yes	Yes		>30	Yes
California	No							other	Yes
Colorado	Yes		Yes				Yes	>30	Yes
Connecticut	Yes				Yes			>30	
Delaware	No							10 to 19	No
Dist. Col.	Yes		Yes					20 to 30	No
Florida	Yes	Yes	No	No	No	Yes	No	20 to 30	Yes
Georgia	No	No	No	No	No	No	No	5 to 9	Yes
Hawaii-Hawaii Co.	Yes	Yes	Yes				Yes	>30	No
Hawaii-Honolulu Co.	Yes	Yes	Yes						No
Hawaii-Kauai Co.	Yes		Yes					<5	No
Hawaii-Maui Co.	Yes	Yes	Yes	No	No	No	Yes	<5	No
Idaho	Yes	No	No	Yes		Yes	Yes	5 to 9	No
Illinois	Yes					Yes		20 to 30	No
Indiana	Yes						Yes	5 to 9	No
Iowa	No						Yes	other	Yes
Kansas	Yes					Yes		5 to 9	Yes
Kentucky	No							20 to 30	Yes
Louisiana	Yes	Yes				Yes		>30	No
Maine	Yes							10 to 19	No
Maryland	Yes					Yes		10 to 19	No
Massachusetts	Yes	Yes	Yes	No	No	No	Yes	10 to 19	Yes
Michigan	Yes				Yes	Yes		10 to 19	No
Minnesota	Yes	Yes	Yes	Yes	Yes	Yes		5 to 9	No
Mississippi	Yes	No	No	No	No	Yes	Yes	5 to 9	No
Missouri	No							>30	No
Montana	No							other	No
Nebraska	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10 to 19	Yes
Nevada	No							<5	No
New Hampshire	No							5 to 9	Yes
New Jersey	No							<5	No
New Mexico	Yes		Yes	Yes				<5	Yes
New York	Yes	Yes	Yes					other	No
North Carolina	Yes					Yes		>30	Yes
North Dakota	No							>30	Yes
Ohio	Yes	Yes	No	No	Yes	Yes	Yes	other	Yes
Oklahoma	Yes					Yes		10 to 19	Yes
Oregon	Yes	Yes	Yes					<5	No
Pennsylvania	No							>30	No
Rhode Island	Yes				Yes			5 to 9	No
South Carolina	Yes	Yes		Yes	Yes	Yes		20 to 30	Yes
South Dakota	Yes	Yes		Yes	Yes	Yes	No	other	No
Tennessee	Yes	Yes	Yes		Yes	Yes		none	No
Texas	Yes	Yes		Yes				5 to 9	No
Utah	Yes	No	Yes	No	No	Yes	Yes	10 to 19	Yes
Vermont	No							other	No
Virginia	Yes	Yes	Yes	No	Yes	Yes	No	<5	No
Wash	Yes	Yes	No	No	No	Yes		5 to 9	No
West Virginia	Yes	Yes	Yes	No	No	Yes		<5	No
Wisconsin	Yes	Yes			Yes	Yes		10 to 19	Yes
Wyoming	Yes	Yes	Yes	No	No	Yes		>30	No

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q17d	Q17e
State	Do you identify outliers? If Yes, how do you determine if a ratio is an outlier?	What action do you take if you determine a sample includes outliers?
Alabama	Yes	Determine if its a valid sale or not, or representative to the sample
Alaska	No	Local officials typically exclude 5% on each end
Arizona	Yes	Sales ratio less than 25 or greater than 2.0
Arkansas	No	
California	No	
Colorado	Yes	Assessor investigates outliers
Connecticut	Yes	discard outliers
Delaware	Yes	DISQUALIFY THE OUTLIER
Florida	Yes	Exclude such samples from sale ratio study analysis
Georgia	Yes	Trim if basis is not shown, no more than 5% on either side
Hawaii-Hawaii Co.	No	investigate outliers
Hawaii-Honolulu Co.	Yes	Outliers are referred to appraisers for evaluation
Hawaii-Kauai Co.	No	Varies, eliminate if number of outliers is relatively small
Hawaii-Maui Co.	Yes	Note outliers
Idaho	Yes	Review or delete
Illinois	No	Remove outliers from the study
Iowa	No	Can implement trimming procedures or accommodation through robust estimation
Kansas	Yes	Outliers are removed according to standards set by administrative rule
Kentucky	Yes	exclude from computing stats
Louisiana	Yes	Examine outliers, allow assessors to examine outliers prior to study. Sample of outliers sent to assessors.
Maine	No	
Maryland	No	
Massachusetts	Yes	If the outlier is not representative of the class, it is removed from the study
Michigan	Yes	They are flagged for additional verification. Residential sales with outlier ratios in the largest jurisdictions are trimmed.
Minnesota	Yes	Outliers are excluded from study.
Mississippi	No	We examine the impact on measures (means, median) when different levels for outliers are used.
Missouri	Yes	We contact county and attempt to confirm if sale is arms length or non arms length
Montana	No	No specific action is directed, decisions are based on all information available.
Nebraska	Yes	Trim outliers
Nevada	Yes	Trimming ratios
New Hampshire	No	investigate nature of outlier.
New Jersey	Yes	See item g., below.
New Mexico	No	potential removal from sample
New York	Yes	investigate, eliminate or alter measure of central tendency used
North Carolina	No	Multiply by 4 and divide by 4 the first mean ratio of sales data
North Dakota	No	Notify county of results and request review/adjustments if warranted
Ohio	No	N/A
Oklahoma	Yes	Remove outliers
Oregon	Yes	May be excluded on a case by case basis
Pennsylvania	Yes	Spot sample outliers to determine if arm's length.
Rhode Island	No	Delete Extremes (3x IQR trimming); sales verification questionnaire on outliers (1.5x IQR)
South Carolina	Yes	Remove from valid sales study.
South Dakota	No	review the outliers to determine the cause
Tennessee	No	Evaluate and analyze
Texas	Yes	
Utah	Yes	
Vermont	Yes	
Virginia	Yes	Per IAAC 1999 standard Section 6.6 and table 1, 1.5x3xIQR
Washington	Yes	Up to 5% of sales with ratios <25% or >175% may be invalidated in ratio study
West Virginia	Yes	More than 2 standard deviations from the median
Wisconsin	Yes	problems with data, or special use categories
Wyoming	Yes	

2003 Survey of Ratio Study Practices of US and Canada  
Appendix C / Table 4: US Responses

Question #:	Q17f					Q17g	Q17h	Q17i	Q18		Q19
	Do you attempt to determine representativeness?	If Yes, do you stratify by geographic area?	If Yes, do you stratify by property class?	If Yes, do you stratify by value range?	If Yes, do you stratify by other factor?	Are fixed trim points set to automatically remove outliers?	Is there a limit on % of sales that can be trimmed?	If Yes, what is your %?	Do you have a sales chasing law?	If Yes, describe procedure:	Can there be legal challenge to your ratio study?
Alabama	Yes	Yes	Yes			No	No		No		
Alaska	Yes	Yes	Yes	Yes		No	No		No		No
Arizona	No					Yes	No		No		Yes
Arkansas	Yes	Yes				No	Yes	0	No		Yes
California	No					No			No		No
Colorado	No					No	No		Yes	Comparison of sold and unsold sample and	No
Connecticut	No					No	No		No		Yes
Delaware	Yes		Yes			Yes	No		No		No
Dist. Col.	Yes	Yes	Yes			Yes	No		No		Yes
Florida	Yes	Yes	Yes	Yes	Yes	Yes	No		No		Yes
Georgia	Yes	Yes	Yes			No	Yes	5	No		No
Hawaii-Hawaii Co.	Yes	Yes	Yes			Yes	No		No		No
Hawaii-Honolulu Co.	Yes	Yes	Yes	Yes		No	No		No		No
Hawaii-Kauai Co.	Yes	Yes	Yes			No	No		No		Yes
Hawaii-Maui Co.	Yes	Yes	Yes	Yes		No	No		No		No
Idaho	Yes	Yes	Yes			No	No		No		No
Illinois	No					No	No		No		Yes
Indiana	No					No	No		No		Yes
Iowa	No					No	No		No		Yes
Kansas	Yes	Yes	Yes		Yes	No	Yes	20	No		Yes
Kentucky	Yes		Yes			No	No		No		Yes
Louisiana	Yes	Yes		Yes		Yes	No		No		No
Maine	Yes		Yes			Yes	Yes	30	No	Review PerCent Change in assessed Value	Yes
Maryland	Yes		Yes				No		Yes		
Massachusetts	Yes	Yes	Yes	Yes	Yes	Yes	No		Yes		Yes
Michigan			Yes			No	No		No		Yes
Minnesota	No					No	Yes	5	Yes	We compare sold and unsold market value	Yes
Mississippi	Yes		Yes			No	No		No		Yes
Missouri	No					No			No		Yes
Montana	No					Yes	No		Yes	Within our quality assurance process.	No
Nebraska	Yes		Yes			No	Yes	2	No	Determine pre assessed value to see if A.V.	Yes
Nevada	Yes	Yes	Yes			No	No		No		No
New Hampshire	No					No	No		No	While there is no statutory requirement, we do	Yes
New Jersey	No					No	No		No		Yes
New Mexico	Yes	Yes	Yes	Yes		No	No		No		No
New York	Yes	Yes	Yes	Yes		Yes	No		No		Yes
North Carolina	Yes	Yes	Yes			No	No		Yes		Yes
North Dakota	No					No	No		No		No
Ohio	Yes	Yes	Yes	Yes		Yes	No		No	Compare aggregate value increase by class to	Yes
Oklahoma	No					No	No		No	in administrative rules	Yes
Oregon	Yes	Yes	Yes	Yes		No	Yes	5	No		Yes
Pennsylvania	No					Yes	Yes	200	No		Yes
Rhode Island	Yes	Yes				Yes	No		No		No
South Carolina	Yes		Yes	Yes		No	No		No		Yes
South Dakota	No					No			No		Yes
Tennessee	Yes	Yes	Yes	Yes	Yes	Yes	No		No	not statutory, but tested by split sample survey	Yes
Texas	Yes			Yes		No	No		Yes	concentration and previous years sold	Yes
Utah	Yes	Yes	Yes		Yes	No	No		Yes	Compare % value change from prior year to	Yes
Vermont	No					No	No		No		Yes
Virginia	Yes	Yes	Yes	Yes	Yes	No	No		No		Yes
Wash	Yes		Yes	Yes		Yes	Yes	5	No		Yes
West Virginia	No					No	No		Yes		Yes
Wisconsin	Yes		Yes	Yes		No			No	Annual review of randomly selected parcels.	Yes
Wyoming	Yes	Yes	Yes	Yes		Yes	Yes	5	Yes		Yes

Appendix D: (This is a text version of the online survey)

2003 Ratio Study Survey of States, Provinces & Territories

conducted by

Alan S. Dornfest, AAS  
Property Tax Policy Supervisor

and

Douglas C. Thompson  
Property Tax Appraiser

Idaho State Tax Commission, Boise, Idaho

Contact information for the person completing this survey:

Name: Last: \_\_\_\_\_ First: \_\_\_\_\_ MI: \_\_\_\_

Professional Designation: \_\_\_\_\_ Title: \_\_\_\_\_

Bureau / Department: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_

Agency or Jurisdiction: \_\_\_\_\_ State or Province: \_\_\_\_\_

1. Your jurisdiction:  State agency or  Provincial/territorial agency or  
 Local jurisdiction or  Other (please describe):

2. How often does your jurisdiction conduct ratio studies?  Annually  
or  More frequently or  Every \_\_\_\_\_ years?

3. Who conducts your ratio study? (Please check all that apply)  State  
or  provincial/territorial officials or  Local officials or  University or  
private company under contract or  Other (please explain)

4. Which of the following does your ratio study include?  Sales only or   
Appraisals only or  Both sales and appraisals?

a. If you use both sales and appraisals, do you combine them in  
studying one type or category of property?  Yes or  No Please explain:

b. If sales are used in the ratio study, which jurisdiction  
performs the sample selection?  State or province or  Local

c. Which jurisdiction conducts the sales validation?  State or  
 province or  Local

5. Are business or commercial machinery and equipment considered  
taxable personal property in your jurisdiction?  Yes or  No

a. If yes, is a ratio study conducted for such personal  
property?  Yes or  No

b. If yes to (a.) above, which of the following does your personal property ratio study involve?  Sales only or  Appraisals only or  Both sales & appraisals

c. If you use both sales and appraisals, do you combine them in studying one type or category (e.g., vehicles, machinery) of property?  Yes or  No Please explain:

d. How are the results of your personal property ratio study used? Please explain:

e. If you use appraisals, what techniques does your jurisdiction use? (Please check all that apply)  Depreciation or economic life tables,  Iowa curves  Other (Please list):

6. Regarding intangible personal property:

a. Do you have a statutory exemption for intangible personal property?  Yes or  No

b. If yes, which types of property would receive this exemption? (please check all that apply)  Capital stock,  Bonds,  Deposits,  Contracts and contract rights,  Copyrights,  Custom computer programs,  Customer lists,  Goodwill,  Licenses,  Patents,  Rights-of-way,  Trademarks,  Trade Secrets,  Other (please list):

7. Does your jurisdiction audit appraisal procedures of any class or category of property in lieu of a ratio study?  Yes  No

a. If yes, for which categories:

b. Does your jurisdiction use procedural audits in addition to ratio study information to determine compliance?  Yes  No

c. Can equalization or reappraisal be ordered as a result of such audits?  Yes  No Please explain:

8. Regarding sales price disclosure and recordation:

a. Does your jurisdiction have a law requiring disclosure of real estate sales prices to assessment officials?  Yes  No If yes, is disclosure made to  state/provincial or  local assessors or  both?

b. Does the sale price disclosure occur at deed recording or within a statutory period of time (e.g., 30 days) or Other (please explain):

c. Is a method in place to track a disclosure document for every recorded sale?  Yes  No

d. Please select the type of disclosure document used:  Sale Price Statement or  Comprehensive Questionnaire or  Both or  Other (please explain):

e. Is the disclosed sale price confidential in the jurisdiction to which disclosure was made?  Yes  No

f. Do you charge a value related fee (e.g., transfer tax, deed stamp) for real property transfers?  Yes  No If so, please describe (include rate(s)):

g. Does your jurisdiction have a law making recordation mandatory for real property transfers?  Yes  No If yes, at what level does recordation occur,  state/provincial or  local assessors or  both?

h. Are there legal penalties in place for falsifying information on the sales disclosure document?  Yes  No

9. If a sale is verified to be a valid arm's length market value transaction and is to be used in your ratio study, do you adjust the sale price for any of the following?  Yes  No

If you adjust, approximately what percentage of the sales in a typical ratio study are adjusted? (click all that apply)

- Time % of Sales
- Financing % of Sales
- Personal Property % of Sales
- Closing Costs % of Sales
- Brokerage Fees % of Sales
- Intangibles % of Sales
- Other % of Sales Please describe:

10. Are blanket or global adjustments made to sales prices prior to computing ratios? (For example, some jurisdictions adjust all prices down by 1% in an attempt to adjust for personal property that is difficult to isolate sale by sale; others adjust by 10% for financing considerations.)  Yes  No

a. If yes, please describe types of adjustments and indicate the maximum adjustment generally permitted by this procedure:

b. Are there any court cases in your jurisdiction affirming or disallowing these blanket adjustments?  Yes  No If yes, please give citation:

11. For which of the following purposes is your ratio study used? (click all that apply):

- To order adjustments to locally determined assessed values.
- To equalize state or provincial funding of local jurisdictions.
- To order local jurisdictions to reappraise.
- To advise provincial, state, or local jurisdictions of assessment conditions.
- To assist mass appraisals programs.
- To adjust or equalize centrally determined assessed values (such as utilities)
- Other (please describe):

12. If you use your study to adjust or to order adjustment to locally determined assessed values, which of the following procedures is used?

- Order local officials to apply trending factors to individual classes or categories of property.
- Trend all types of property equally, based on a jurisdiction-wide factor.
- Give local officials a grace period to comply with indicated factors.

Other (please describe):

13. Regarding assessment uniformity:

a. Do you have specific standards or requirements for assessment uniformity as measured by the COD (Coefficient of Dispersion) or COV (Coefficient of Variation)? (These may be statutory or procedural, but in either case would be used to find jurisdictions in or out of compliance.)  Yes  No  
 If yes, please insert any differences your jurisdiction may have from the '99 IAAO Standards:

Uniformity: COD	IAAO '99 COD Standard	Your COD Standard (if different)
Single Family Homes & Condos (homogeneous)	10.0 or less	
Single Family Homes & Condos (heterogeneous)	15.0 or less	
Rural Residential & Seasonal	20.0 or less	
Income Producing Properties (larger, urban jurisdictions)	15.0 or less	
Income Producing Properties (smaller, rural jurisdictions)	20.0 or less	
Unimproved Properties	20.0 or less	

b. Do you have standards for price related bias (vertical inequity) as measured by the PRD (Price Related Differential) or other statistical tests?  Yes  No

Uniformity (Vertical Equity): PRD	IAAO '99 PRD Standard	Your PRD Standard (if different)
All Property Types	0.98 - 1.03	

c. Can your jurisdiction initiate any action as a result of assessment uniformity conditions?  Yes  No If yes, please check all actions that apply:  Order reappraisal,  Withhold funding (e.g., revenue sharing),  Other action (please describe):

d. If you answered Yes to 13 (c) above, do you calculate reliability measures, such as confidence intervals, on uniformity statistics around the  COD or the  PRD or  Both?

e. If you initiate action as a result of assessment uniformity, is such action dependent upon  point estimates or  interval estimates?

14. Testing assessment level:

a. Do you have an assessment level standard that allows some amount of variance from your statutorily required assessment level?  Yes  No  
 If yes, please click on your amount of variance permitted:  ± 10%, or  ± 5%, or  Other (please specify):

b. If yes, is this variance set by statute?  Yes  No If no, please click on the legal authority:  administrative rule, or  Other (please describe):

c. If you use your ratio study to test assessment level

compliance, are allowances made for sample reliability using statistical tests such as confidence intervals?  Yes  No Please explain:

d. Please check the measures of level you calculate and those you may use for equalization:

Measure	Calculate	Equalization
Arithmetic Mean	<input type="checkbox"/>	<input type="checkbox"/>
Median	<input type="checkbox"/>	<input type="checkbox"/>
Weighted (aggregate) mean	<input type="checkbox"/>	<input type="checkbox"/>
Geometric mean	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify):	<input type="checkbox"/>	<input type="checkbox"/>

e. Do you test the distribution of ratios to see if it is statistically normal?  Yes  No

If yes, how would this determination affect the measure(s) of level listed above that would be used for testing compliance or equalization? Please explain:

15. Testing reliability:

a. Is statistical compliance with standards for appraisal level based on  point estimates or  confidence intervals?

b. If yes, which test(s) do you use?  95% level of confidence, or  90% level of confidence, or  Other level of confidence (please describe):

c. Assume that there is a legal requirement for assessments, as measured by the ratio study sample mean to fall between 90% and 110% of market value. An equalization order could be issued if the standard is not met. A study sample has a mean ratio of 85% and a 95% confidence interval between 75% and 95%. Would you rule this result in compliance with statutory assessment level requirements?

No, only point estimates are used to make inferences about compliance, or

Yes, the confidence interval overlaps the threshold for compliance.

d. How would you revise the response to question 15.b. above if the sample COD (or other measure of uniformity) showed very poor uniformity? Please check all that apply:  No change,  May lower the level of confidence,  May use the point estimate only to evaluate level,  May review level measures from previous years, or  May use additional information, such as sample size, to make a final determination.

16. Do you appraise any non-agricultural property at 100% of current market value (full cash value)?  Yes  No, only the interest sold

a. Do you appraise all property as a constant base year (e.g., 1990)?  Yes  No If yes, what year is used?

Is property that is not required to be appraised during a given year required to have its value updated during such interim year?  Yes  No Please explain how your appraisal and valuation update cycles work:

b. Can your local jurisdictions establish different assessment ratios?  Yes  No If yes, please explain:

c. What is the state or provincial statutorily set assessment ratio for the major types of property?

Type of Property	Your Jurisdiction's Ratios		
Residential	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %
Farmland	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio or indicate use value %
Commercial	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %
Industrial	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %
Utilities	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %
Personal	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %
Railroads	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %
Minerals	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %
Other type:	100% of Market Value?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, please enter your ratio %

17. Regarding ratio study samples:

a. Within any property type do you stratify your sample?  Yes  No If yes, by:

- Range of values?  Yes  No
- Geographic neighborhood?  Yes  No
- School District?  Yes  No
- City?  Yes  No
- County?  Yes  No
- Other factors?  Yes  No If yes, please list:

b. What is the smallest sample you will use to evaluate any category of property?  less than 5, or  5 to 9, or  10 to 19, or  20 to 30, or  greater than 30,  other (please specify):

c. Do you establish any sample size quotas or goals (e.g., 3% of parcels in category or number based on statistical sample size formula)?  Yes  No If yes, please explain how are these established?

d. Do you identify outlier ratios?  Yes  No If yes, how do you determine if a ratio is an outlier?

e. What action do you take if you determine a sample includes outliers?

f. Do you attempt to determine how representative the sample is?  Yes  No If yes, please check all that apply to your procedure:

- Stratify by geographic area
- Stratify by property class
- Stratify by value range
- Other (please describe):

g. Are fixed trim points (such as all ratios below 50% or above 200%) set to automatically remove outliers?  Yes  No

h. Is there a limit on the percentage of sales that can be trimmed out of a sample?  Yes  No If yes, please enter the %:

18. Do you have statutory requirements to check for sales chasing?  Yes  No  
If yes, please describe your procedure for testing and correcting:

19. Can a taxing district or third party initiate legal action as a result of your jurisdiction's ratio study?  Yes  No If yes, please describe:

Additional comments:

Your time and expertise in completing this survey are greatly appreciated. Thank you.

Would you like a copy (Adobe Acrobat .pdf<sup>®</sup> electronic format) of the report prepared from this information sent to your e-mail address?  Yes  No  
If you wish that it be sent to another e-mail address, please enter it here:

Please submit your responses on or before July 7, 2003 by clicking this button: