

Sampling Issues in State and Local Tax Audits

by Lynn A. Gandhi, Joshua A. Labat, and Elizabeth Gallio

Reprinted from *Tax Notes State*, August 10, 2026, p. 401

Sampling Issues in State and Local Tax Audits

by Lynn A. Gandhi, Joshua A. Labat, and Elizabeth Gallio



Lynn A. Gandhi



Joshua A. Labat



Elizabeth Gallio

Lynn A. Gandhi is a partner with Foley & Lardner LLP in Detroit, Joshua A. Labat is an associate in the firm's New York office, and Elizabeth Gallio is an associate with the firm in Houston.

In this installment of *Smitten With the Mitten*, the authors explore the most prevalent sampling methods used in state tax audits, how these methods are applied, and examine the most common issues that arise. They review taxpayer rights regarding the use of sampling, and suggest best practices to minimize disputes and assist with case strategy.

Copyright 2026 Lynn A. Gandhi,
Joshua A. Labat, and Elizabeth Gallio.
All rights reserved.

Introduction

Notwithstanding the increasing sophistication of internal reporting systems, the use of cloud-based computing, and the integration of artificial intelligence into business processes, taxpayers continue to face poorly executed sampling audits that often result in contested matters. While predominantly arising in sales and use tax audits, sampling may also be used in transfer pricing reviews, requests (or demands) for the use of an alternative apportionment method, and refund claims across tax types. This article provides an overview of the most prevalent methods and how they are applied, examines some of the most common issues that arise, highlights taxpayer rights regarding the use of sampling, and suggests best practices to minimize disputes and assist with case strategy.

Overview of Sampling Methods

In conducting audits, it is often impractical for both the taxpayer and the state to examine the entire transaction populations.¹ For example, a sales tax audit with a three-year audit period of a large remote seller or marketplace facilitator may involve millions of individual transactions that require review. Rather than reviewing each transaction, states implement sampling methods that allow the auditor to review a representative subset of transactions and draw conclusions about the entire population from that subset.²

¹ See Multistate Tax Commission, "Sales & Use Tax Audit Manual," sections 2.18 and 8.06; see also MTC, "Sampling Policy & Guideline Manual," section 3.01.

² See MTC, "Sales & Use Tax Audit Manual," section 8.06; California Department of Tax and Fee Administration (CDTFA), "Use of Sampling in Auditing."

For taxpayers, the challenge is that there is no single, universal sampling method that states have adopted.³ When facing multiple state audits, each state may use a different sampling method to review a taxpayer's transactions.⁴ As a result, even if the total population of sales across states is consistent, each state's audit results could vary widely depending on the sampling method it chooses. Also, a state may select different sampling methods for subsequent audits under the theory that multiple sampling methods will produce the most accurate audit results.⁵

Generally, audit sampling methods can be grouped into two categories: statistical sampling methods and nonstatistical sampling methods.⁶

Statistical Sampling

Statistical sampling refers to a method in which an auditor uses a random mathematical selection process to choose transactions to review.⁷ In theory, using a statistical sampling method is preferred by states because it creates a random and equal chance that every transaction or invoice that occurred during the audit period will be selected for review.⁸ States generally recommend statistical sampling methods when electronic records are available and maintained by the taxpayer.⁹ There are four statistical sampling methods that states primarily rely upon.

Random Sampling

The simplest statistical sampling method is random sampling. With random sampling, a sample size is selected from the taxpayer's transaction population, with each transaction in the population having an equal chance of selection.¹⁰ Ideally, the random selection of specific transactions eliminates auditor bias and produces results that can be objectively evaluated

using probability theory.¹¹ Random sampling is often used when there are a large number of transactions or invoices in the audit period. Software is used to select the random transactions.¹²

Stratified Random Sampling

Stratified random sampling is a more refined random sampling method that divides the audit transaction population into groups or strata.¹³ Generally, transactions are divided into strata based on shared characteristics, such as a range of dollar amounts.¹⁴

The benefit of using a stratified random sampling method is that extreme values are eliminated from the sample transaction population (both at the top and bottom range).¹⁵ Ideally, this will reduce the potential for distortion in the audit results by eliminating the largest and smallest value transactions from consideration and improve the precision and representativeness of the sample.¹⁶ Generally, stratified sampling yields a more precise estimate of population parameters than random sampling, especially when there is significant variation between groups. Stratification ensures that each subgroup is adequately represented in the sample, which is critical for making proper inferences about the population as a whole.

Cluster Sampling

Cluster sampling is when transactions are organized into contiguous groups, such as a sequential group of invoices or a folder of purchase records.¹⁷ A state may choose to use cluster sampling when a taxpayer's transactions are organized numerically.¹⁸ For example, if a

³ See MTC, "Sales & Use Tax Audit Manual," section 8.06.

⁴ *Id.*

⁵ *Id.*

⁶ See, e.g., Wisconsin Department of Revenue, Publication 515, "Sampling in Sales and Use Tax Audits" (May 2022).

⁷ See MTC, "Sampling Policy & Guideline Manual," section 2.

⁸ *Id.* at section 1.04.

⁹ See, e.g., Michigan Department of Treasury, Tax Compliance Bureau, Audit Division, "Audit Sampling Manual" (Apr. 2026).

¹⁰ See MTC, "Sampling Policy & Guideline Manual," section 2.

¹¹ See New York State Department of Taxation and Finance, Publication No. 132 (Jan. 23, 2025); CDTFA, *supra* note 2.

¹² See New York State Department of Taxation and Finance, *supra* note 11; Wisconsin DOR, *supra* note 6.

¹³ See MTC, "Sampling Policy & Guideline Manual," section 2.

¹⁴ Florida DOR, GT-800059, "Sampling and Your Audit" (Aug. 2015).

¹⁵ Tennessee DOR, "Statistical Sampling for Sales and Use Tax Audits" (2018).

¹⁶ *Id.*

¹⁷ See MTC, "Sampling Policy & Guideline Manual," section 5.06; see also Michigan Department of Treasury, *supra* note 9, at 47.

¹⁸ See, e.g., Texas Comptroller Decision No. 28,222 (Apr. 20, 1992).

taxpayer has 20 million transactions in an audit period, an auditor using cluster sampling may select 2,000 transactions by grouping them into clusters and randomly examining the invoice clusters.¹⁹ Cluster sampling can be preferable when the transactions in the audit period are so voluminous that clustering the invoices for examination results in audit efficiencies. However, like stratified random sampling, cluster sampling may introduce distortions if the selected clustered invoices relate to large-value transactions. Including those invoices may distort the audit results.

Systematic Sampling

Systematic sampling is when an auditor selects a sample beginning with a random starting point and then selects every “nth” item, such as every 10th transaction from the population.²⁰ Since the sample is spread evenly across the population, a reasonable audit result should be reached.²¹ However, the weakness of systematic sampling is when transactions have continuous or repetitive patterns, which are exacerbated by the selection and produce audit results limited to certain patterns.²² To avoid distorted audit results, auditors should understand the cyclical nature of the business they are auditing and should consider using multiple starting points, such as selecting every third and 10th transaction for review. While selecting two starting points may lessen audit efficiency, in theory it would reduce any pattern bias.²³

Nonstatistical Sampling

Nonstatistical sampling relies on the auditor’s professional judgment to select which records to examine without using random selection or mathematical precision measurements.²⁴ A state

may elect to use a nonstatistical sampling method when the taxpayer does not have electronic records or easily accessible records.²⁵ Nonstatistical sampling can lead to distortion if an auditor limits its selection to transactions from a particular period, such as one month or a quarter, in which the taxpayer had an unusually high volume of transactions, or to transactions from a particular customer who makes non-reoccurring purchases.

Judgment Sampling

Judgment sampling relies on an auditor’s professional expertise, experience, and knowledge of the taxpayer’s business to select transactions for review.²⁶ Judgment sampling is inherently subjective and introduces the risk of selection bias.²⁷ For example, if a national retailer sells seasonal clothing, the selection of a sample during the winter months would be biased toward costly coats and snowsuits, as well as the holiday season, when retailers generally have the greatest volume of annual sales. By introducing such bias into the sampling, the population chosen for review will likely overstate the true tax liability. To safeguard against auditor bias, most states require that the workpapers explain why that method was used.²⁸

Block Sampling

Block sampling is a type of judgment sampling in which an auditor, using their judgment, selects a group or block of sequential transactions for examination.²⁹ The block sampling method applies to transactions that are within a unit, such as months or years.³⁰ While block sampling can be efficient, it lacks the accuracy of statistical sampling because a larger sample than necessary may be selected, and the method assumes that the selected block is representative of the entire population.³¹

¹⁹ *Id.*

²⁰ See Michigan Department of Treasury, *supra* note 9, at Appendix A.

²¹ See MTC, “Sampling Policy & Guideline Manual,” section 5.07.

²² *Id.*

²³ *Id.*

²⁴ See MTC, “Sales & Use Tax Audit Manual,” section 8.06; see also Wisconsin DOR, *supra* note 6.

²⁵ See, e.g., Michigan Department of Treasury, *supra* note 9.”

²⁶ See MTC, “Sampling Policy & Guideline Manual,” section 2.

²⁷ *Id.*

²⁸ *Id.* at section 3.03.

²⁹ *Id.* at section 2.

³⁰ See Louisiana DOR, “Non-Statistical Sampling Guidelines,” at 7 (July 9, 2009).

³¹ *Id.*

Common Sampling Issues

It is critical to understand the most common issues that arise in selecting the sampling method and in the actual sample draw, because states are generally loath to redo a sample or change a sample method once the sample has been drawn.

Failure to Understand the Taxpayer's Business

Auditors must take the time to understand the taxpayer's business, including the seasonality or cycles of the business, the product mix, the impact that may or may not exist because of geographic locations, the impact of certain key events during the year (such as Thanksgiving or winter storms), and the impact of changes in business structure, as well as non-reoccurring extraordinary events, such as regional conflicts, national disruptions, and environmental events. Understanding the taxpayer's business allows the auditor to analyze the heterogeneity of the population; the larger and more complex the population, the more nuanced the sample design should be. Failure to understand the taxpayer's business and plan the sample appropriately creates an unstable foundation from which to design a sample.

Failure to Achieve Representativeness

A sample will not be representative of the total population unless it is properly designed to be a subset that accurately reflects the characteristics of the entire population. Achieving representativeness allows meaningful conclusions to be drawn regarding the full population based on a review limited to the sample data.

The sample unit is the basic unit, and the sample frame is the representation from which the sample will be drawn. The sample size is simply the number of units included in the sample. The number of units must be large enough to be statistically defended. Often, taxpayers are led to believe that a limited sample size will be the easiest for them to prepare. However, a sample that is too limited, particularly in a complex population, will yield unstable estimates with an unacceptably high variance. Auditors often rush to select a limited sample size with a few spares selected. Sample size is critical to define early in the audit process, as proper

sample design is needed to reduce bias (systematic errors) in the sample selection.³²

Failure to Address Changes in Customer Purchases and Behavior

The increasing use of remote sales has changed customer behavior. Product offerings may differ, and customers tend to purchase larger and heavier items online, while in-store sales may have a higher percentage of impulse and seasonal offerings. Online sales are also heavily influenced by offers for free shipping and other perks, with a focus on certain products at specific times.

Extraordinary events also significantly change customer behavior. Everyone remembers the quest for toilet paper and disposable gloves during the COVID-19 pandemic, as well as the scarcity of bread flour and hand sanitizer. When the conflict with Iran broke out, air travel significantly reduced, while domestic travel increased.³³ When product populations differ, they should be segregated and sampled individually, and sample size should also be accommodated. It is the responsibility of the auditor to understand how these differences affect the sampling method to be used.

Failure to Segregate Distinct Populations

Different lines of business can have different populations, which may be attributable to geographic diversity, product selection and availability, and different types of store formats. The easiest way to account for distinct populations is through the use of stratification. The failure to stratify different populations increases the risk that the sample will not be representative of the total population. Auditors often overlook differences in populations, focusing solely on transactions. Again, failure to properly design the sample at the commencement of the audit leaves taxpayers to argue against the audit results, which obscures that the primary culprit of an unexpectedly large assessment was poor audit design.

³² See William G. Cochran, *Sampling Techniques* (1977); Sharon Lohr, *Sampling: Design and Analysis* (2022).

³³ Bill Chappell, "How the Iran War Is Disrupting Air Travel — And Advice if You're Planning a Trip," Oregon Public Broadcasting, Mar. 11, 2026.

Failure to Evaluate Sample Quality

After selecting the sample and performing the calculations, the result must be evaluated. There are two key criteria to review. The first is precision, which is measured by the standard deviation and is referred to as the standard error. The second is the confidence level, which refers to the level of certainty within an acceptable range, usually expressed as a percentage.³⁴ For those who are not math aficionados, it is simple to remember that a higher confidence level yields a wider confidence interval. This reflects greater certainty that the interval contains the true value, but less precision about its value. A 95 percent confidence level means that if you were to repeat the study multiple times, 95 percent of the resulting confidence intervals would be expected to contain the true population parameter.

States' Sampling Practices and Taxpayer Rights

Selection of Sampling Method

In jurisdictions with detailed sampling guidance, statistical sampling is often the preferred approach when reliable data is available because it allows for the use of random selection and measurable projection. Michigan's audit guidance, for example, recommends statistical sampling when electronic records are available, even though its administrative rule recognizes both statistical and nonstatistical sampling as permissible techniques.³⁵

Other states frame the inquiry as a reasonableness exercise rather than a hierarchy of approved methods. California explains that sampling may be used in auditing, while New York describes random sampling as a method that can be evaluated objectively using probability theory.³⁶ Wisconsin's published materials similarly distinguish statistical from nonstatistical

sampling, and its administrative rule establishes specific criteria for field audits using statistical sampling.³⁷

Taxpayer Rights and Procedural Safeguards

Because sampling extrapolates a limited record review into an assessment for the full audit period, taxpayers should focus on defining the population, the sampling unit, the treatment of outliers, and whether the selected sample is representative of the population. These issues have both procedural and substantive aspects: A sample that overweighs peak sales periods, high-dollar transactions, or a nonrepresentative customer base can materially overstate tax liability.

Taxpayer protections differ by state, with several recurring safeguards in published authorities. Even when a state does not provide a formal right to select the sampling method, taxpayers should document any agreement or objection to a particular sampling method contemporaneously. The Multistate Tax Commission's guidance for judgment sampling underscores the importance of documentation by requiring the auditor to include a workpaper statement explaining the reasons for using judgment sampling. Such documentation may be critical for later challenges regarding whether the sample was representative or the projection was reliable.³⁸

Specific State Examples

California

At the commencement of an audit, the California Department of Tax and Fee Administration (CDTFA) is required to explain the audit process, taxpayer rights, appeal rights, and the reason for requesting the information. It must conduct an opening conference addressing the audit scope, procedures, refund claims, anticipated timing, future appointments, and the names and telephone numbers of the audit supervisor.³⁹ Audit procedures must be applied

³⁴ Statistical estimates are normally reported as: "The estimate is \$500 +/- \$35 (the precision) at a 95 percent confidence."

³⁵ Michigan Department of Treasury, *supra* note 9; Mich. Admin. Code r. 205.2009.

³⁶ CDTFA, *supra* note 2; New York State Department of Taxation and Finance, *supra* note 11.

³⁷ Wisconsin DOR, *supra* note 6; Wis. Admin. Code Tax section 11.905.

³⁸ MTC, "Sampling Policy & Guideline Manual," section 3.03.

³⁹ Cal. Code Regs. tit. 18, section 1698.5(c)(4)(K); CDTFA Publication 76, "Audits" (June 2023).

fairly and consistently, whether the audit results in a deficiency or refund, and auditors must consider materiality by weighing the potential adjustment against the time required to audit the issue.⁴⁰ Taxpayers must be invited and encouraged to attend status conferences throughout the audit, and the auditor must keep them apprised of the audit's status.⁴¹

Notably, the lead auditor is directed to consult with a "computer audit specialist" (CAS) to determine the electronic records required and prepare appropriate sampling plans.⁴² The lead auditor should introduce the CAS to the taxpayer at the preaudit conference.⁴³ The taxpayer may address specific technical questions regarding the data to the CAS; however, the taxpayer should be made aware that all questions and issues related to the audit approach and scope of work should be directed to the lead auditor.⁴⁴ If the lead auditor and the taxpayer are unable to agree on a sampling plan, the auditor will make the final decision on, and be responsible for, the sampling characteristics and the sampling method.⁴⁵ A taxpayer has a statutory remedy to file a suit for damages if CDTFA staff disregard published procedures during an audit, thereby reinforcing compliance with the rights and procedures established by the Taxpayers' Bills of Rights.⁴⁶

Michigan

Michigan has promulgated administrative rules governing audit conduct, including requiring auditors to treat taxpayers fairly and courteously.⁴⁷ Taxpayers have the right to receive copies of complete audit workpapers and the audit report of findings (a narrative prepared by the auditor) upon request.⁴⁸ Any audit performed

must be performed in accordance with auditing standards, which include, but are not limited to, confidentiality; technical training; independence; due professional care; planning; supervision; understanding of the entity audited, including internal controls; and an assessment of risk, audit evidence and documentation, sampling and sampling projections, and elements of the audit report of findings.⁴⁹

Michigan's Audit Sampling Manual, published by the Department of Treasury's Tax Compliance Bureau, includes several safeguards to ensure that sampling is conducted in accordance with generally acceptable statistical methods and yields reliable, defensible results. Yet there are many times when an auditor ignores or deviates from the manual. For example, the manual requires thorough preaudit planning, including a conference with the taxpayer to discuss the sampling method, determine audit potential and feasibility, and gain a mutual understanding of sampling objectives and techniques.⁵⁰ Yet, in our practice we have seen many instances when the auditor has a predetermined audit plan and resists any taxpayer suggestions or concerns, even those noted in the Manual.

The manual establishes minimum sample size requirements designed to ensure statistical credibility. For transaction-based statistical samples, all samples should initially contain at least 250 items of interest, with the formula adjusting upward based on the percentage of items of interest within the population.⁵¹ For time-period sampling, minimum sample sizes are prescribed based on the unit of time: a minimum of 30 days or batches, a minimum of 20 weeks, or a minimum of six months must be selected.⁵²

Further safeguards are embedded in the sample evaluation process. The manual requires that the representativeness of the sample be assessed at multiple stages — initial, intermediate, and final — by comparing the

⁴⁰ Cal. Code Regs. tit. 18, section 1698.5(b)(4)(A), (B).

⁴¹ Cal. Code Regs. tit. 18, section 1698.5(c)(8); CDTFA, "Audit Manual," sections 0401.10, 0401.12, 0401.14.

⁴² CDTFA, *supra* note 41, at section 0402.06.

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.* at section 0403.12.

⁴⁶ Cal. Rev. & Tax. Code section 7099; CDTFA Publication 468, "California Taxpayers' Bills of Rights Statutes" (Mar. 2019).

⁴⁷ Mich. Admin. Code r. 205.1002(1).

⁴⁸ Mich. Comp. Laws section 205.21(1). You must request the audit report of findings because it is not automatically provided, and many auditors fail to inform taxpayers of its existence.

⁴⁹ Mich. Comp. Laws section 205.21(1).

⁵⁰ Michigan Department of Treasury, *supra* note 9, at 1.

⁵¹ *Id.* at 49.

⁵² *Id.* at 50.

average sampling unit with the average population unit, with a guideline that this comparison should be within a 15 percent variance.⁵³ If the variance exceeds 15 percent, the auditor must evaluate whether to expand or replace the sample.⁵⁴ The manual also incorporates an intermediate “25 percent short-test” that requires examining sampling units in the order selected after 25 percent have been reviewed, allowing the auditor to evaluate sample quality early and make cost-effective decisions about whether to continue, expand, or abandon the sample.⁵⁵ Special transaction handling rules — for missing items, negative transactions, extraordinary items, voids, duplicates, and installments — are designed to further protect the integrity of the sample by providing protocols for addressing irregularities before and after sample selection.⁵⁶ Again, the manual is quite thorough, but not always followed.

Texas

The Texas comptroller of public accounts has the statutory authority to conduct sample audits.⁵⁷ The use of sampling techniques is appropriate if any of the following conditions exist:

- the taxpayer’s records are so detailed, complex, or voluminous that an audit of all detailed records would be unreasonable or impractical;
- the taxpayer’s records are inadequate or insufficient, so that a competent audit for the period in question is not otherwise possible; or
- the cost of an audit of all detailed records to the taxpayer or to the state will be unreasonable in relation to the benefits derived, and sampling procedures will produce a reasonable result.

Before using a sampling method, the comptroller must notify the taxpayer in writing of the sampling procedure to be used.⁵⁸ Any sample “must reflect as nearly as possible the normal conditions under which the business was operated during the audit period.”⁵⁹ Sampling should not be used when records are inadequate to accurately reflect the taxpayer’s business operations.⁶⁰ If a taxpayer demonstrates that a transaction in a sample period is not representative, that transaction must be eliminated and separately assessed in the audit.⁶¹ If the taxpayer demonstrates that the sampling method was not in accordance with generally recognized sampling techniques, the audit will be dismissed for that portion, and a new audit may be performed.⁶²

Best Practices

Require the Auditor to Fully Explain the Sampling Method

Whether short on staff or overworked, do not rush into commencing an audit to meet the statute of limitations. While not preferred, taxpayers may be well served by executing a statute of limitations waiver if it permits the sample size to be appropriately designed. Our experience is that once a method has been selected and the sample drawn, it is far too late to begin anew without expending considerable effort. It is difficult to “fix” a bad sample if the issue is really segregation of populations or the size of the population. Swapping out a sample unit with a “spare” may not resolve the underlying deficiency.

The auditor may have limited experience in your industry or company size, or your internal staff may lack sufficient experience to understand the nuances of the population and designing the sample. Errors can be made by both parties. With large volumes of data, it is imperative to have

⁵³ *Id.* at 58-59.

⁵⁴ *Id.* at 59.

⁵⁵ *Id.* at 60.

⁵⁶ *Id.* at 18-21.

⁵⁷ Tex. Tax Code section 111.0042(b)(1-3).

⁵⁸ Tex. Tax Code section 111.0042(c).

⁵⁹ Tex. Tax Code section 111.0042(d).

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.* For additional guidance on the standard of proof to be met to overcome the presumption of correctness of the department’s sampling method and the execution of that method, a useful resource is *Audit Sampling: Audit Guide* (2025), published by the American Institute of CPAs.

sufficient time to review your data before providing it to the auditor. This is critical for obtaining the most precise result possible.

reviewing the root causes and identifying the appropriate challenges to assist in contesting the outcome.⁶⁴ ■

Document the Method and Raise Concerns Early

Evaluate every step of the sample process and document your concerns. This will establish that you are not merely contesting the audit liability, you are contesting the foundation upon which it was built. Review not only the strata and exceptions but also insist that the auditor explain the quality of the sample and the precision of the audit results. Question the level of precision and be suspicious of a figure that appears too high, as an extremely high precision generally falls outside acceptable levels.⁶³ Samples that are too small, as applied against populations in the billions, tend to be highly unrepresentative of the sample. If the sample is not representative of the population, it will be impossible to draw conclusions that are valid.

Consult With a Professional Statistician to Develop Your Defense Strategy

Engaging a professional statistician can be extremely worthwhile. This allows you to evaluate the audit as it is progressing, as well as providing you with a knowledgeable expert witness should you contest the audit. Engaging a professional statistician will assist you in not only asking the right questions but also ensuring that you understand the answer.

Conclusion

Taxpayers are likely to encounter some form of sampling method during an audit. It is important to be informed regarding the method being employed, recognize the common pitfalls that often accompany sampling, and work with the auditor to obtain fair audit results. If this cannot be achieved, or your best-laid plans go astray, significant benefits can be achieved by

⁶³ Many states use the short-test evaluation, which may align only to one parameter of the population. This test focuses on the variance between the sample average and the population average and is generally acceptable if within a certain range. However, the test has no bearing on the variability of the final sampling results.

⁶⁴ Cal. Rev. & Tax. Code section 7099; CDTFA, *supra* note 46.