



SAS® for Government Tax Audits

SAS® for Government Tax Collections

Effectively identify and prioritize tax returns for audit -
then increase success in collecting on taxes due

Overview

At the state and federal levels, revenue departments collect only about 83 to 90 percent of tax revenues that are due. The “tax gap” represents billions of dollars of uncollected revenue that could support vital public services and help reduce budget deficits without increasing taxes and fees for citizens.

There are three main contributing factors to the tax gap: failure to file, underreporting and failure to pay taxes owed. Traditional, rules-based projects have not done enough to resolve these issues.

SAS solutions use advanced analytics to dramatically improve audit and collections success for municipal, state and federal tax authorities:

- **SAS® for Government Tax Audits** uses sophisticated modeling and self-learning techniques to identify tax returns with a high likelihood of underreporting and a high magnitude of potential collections.
- **SAS® for Government Tax Collections** identifies and prioritizes cases where additional taxes are due, and provides a road map that shows which actions will be most effective for each case.

SAS is unique in delivering *analytically derived scores* that pinpoint and prioritize exactly where audit and collections efforts will be most productive.



Challenges

- **Limited resources.** At federal, state and municipal levels alike, audit departments are understaffed and can only examine a small percentage of potentially problematic tax returns.
- **Evolving tactics.** When agencies focus on specific tactics, evaders become more covert and use strategies that the agencies have not yet learned to detect.
- **Low-quality leads.** Projects based on rules tend to produce a lot of false positives and false negatives, diminishing staff effectiveness and citizen goodwill.
- **No priorities.** With traditional methods, it is difficult or impossible to determine how to prioritize the cases identified for audit or collections actions - the ones that will produce the best results.
- **No data-driven action plan.** Revenue agencies rarely have reliable, data-driven ways to determine what collection strategies will be most productive for each situation.



Improve the effectiveness of audit and collection efforts

The SAS® Solution

SAS® for Government Tax Audits goes beyond traditional, rules-based approaches and applies a combination of analytic techniques to the issue.

Without requiring audit teams to become statistical gurus, the SAS solution identifies potential underfiled tax returns and ranks them by the likelihood of underreporting, magnitude of the revenue to be collected and expected cost per audit.

Advanced models generate three different types of scores for each return identified. With this combination of insights, auditors can then focus their attention on the cases most likely to produce the best results. Adding SAS Analytics with scoring can improve audit success by as much as 20 to 50 percent.

When returns have been targeted as candidates for collections, **SAS® for Government Tax Collections** prioritizes those returns and identifies the best tactics to use – such as letters, calls, field actions or transfers to a collections agency. Revenue departments can choose the best approaches, based on likelihood of payment, cost and policy – not just on balance due.

The SAS® Approach

SAS is unique for its powerful analytical capabilities, the ability to assess the entire contingent of tax files and generate high-quality, predictive insights.

SAS models uncover complex relationships. Nonlinear models consider *multiple* data elements simultaneously, in relation to each other. Looking at dozens or more interrelated variables in holistic context, nonlinear models can identify patterns and interactions that a less sophisticated model – or the human eye – would miss.

SAS models use a combination of “learning” methods. Because new patterns of underfilling emerge all the time, not all variables and assumptions will be known. SAS scoring models use a combination of supervised, unsupervised and semisupervised methodologies to continually improve success rates, even when all the information is not known. Combining these methods in one solution produces robust models with very high predictive quality.

SAS models are proven in high-volume commercial applications. SAS models based on these approaches have been successfully deployed for more than a decade, monitoring billions of transactions in similar applications, such as detecting credit/debit card fraud, money laundering and insurance fraud.

Benefits

- **Better identify audit cases.** SAS advanced models look not only at the characteristics of a return or a population, but also subtle relationships among thousands of variables to more accurately identify cases for review.
- **Use auditor time more effectively.** Analytically driven scoring makes it clear which returns are likely to produce the best revenue gains and should be prioritized for action.
- **Improve audit results.** In preliminary audit tests, SAS Analytics with scoring have delivered significantly better detection rates than legacy rules-based systems - improving audit success by as much as 20 to 50 percent.
- **Adjust priorities to match available resources.** When more auditor time is available, you can go deeper into the scoring range to select cases; when fewer auditors are available, you can concentrate on the higher-scoring tiers.
- **Increase collection rates.** By identifying the cases with the highest likelihood and magnitude of payment – and the best actions to use for each case – SAS has a positive and immediate impact on revenue collections.

Capabilities

SAS® for Government Tax Audits combines three distinct analytic models and learning styles to assign scores to selected returns:

- An audit risk replacement (ARR) score identifies and ranks tax underfilers based on attributes similar to other underfilers who have been successfully audited in the past.
- An audit risk augmentation (ARA) score identifies and ranks the potential risk in unusual tax returns, such as returns where fields were out of normal range or internally inconsistent.
- An audit magnitude (AM) score identifies anomalous behavior and ranks the returns by the magnitude of the potential underpayment.

With the combination of scores, auditors can then focus their attention on the most serious cases first - the ones most likely to be successful and produce the largest revenue gains. Scores also enable revenue departments to intelligently adjust their caseload by score levels to match available resources.

SAS is unique in using analytical scores to optimize collections as well. With SAS® for Government Tax Collections, models score all accounts coming into the collections system. This initial action (IA) score, generated via supervised learning, indicates how the department should prioritize accounts for initial actions.

Accounts are scored again as partial payments are made, payment promises are broken and additional debt is added to the account. These action effect (AE) scores are used to identify and rank-order the best possible actions for each account in collections. The state tax department can choose the action with the highest score or use some other prioritization scheme based on the availability of resources.

Better identify the taxpayers most likely to have underreported their tax liability.

Prioritize the returns selected for review based on the likelihood of fraud and potential dollar amount.

Focus on the cases most likely to yield the best possible results.

Identify the best tactics to maximize success in each collections case.

The SAS® Difference

Until recently, revenue departments relied largely on rules-based systems to target returns for audit. More sophisticated revenue departments are starting to augment their rules-based systems with scores generated by analytical modeling. And when it comes to analytics, SAS is the leader.

- SAS uses the most advanced modeling techniques, able to assess a multitude of data points across the entire tax-filer base, looking simultaneously at thousands of variables and conditions.
- SAS develops and maintains all elements of the solution, so customers do not have to worry about the integration issues common with proprietary niche solutions.
- SAS is unique in applying analytics and optimization techniques to the issue of tax collections - a capability that is otherwise almost nonexistent in the market.
- The SAS team that implements the tax audit and collections solution for customers has deep knowledge, advanced degrees and experience in optimization and fraud management capabilities.
- SAS models are commercially proven in intensive, large-scale applications, such as credit risk, revenue and profit protection, insurance claims cost prediction, fraud management and optimization.

About SAS

SAS is the leader in [business analytics](#) software and services, and the largest independent vendor in the business intelligence market. Through innovative solutions delivered within an integrated framework, SAS helps customers at more than 45,000 sites improve performance and deliver value by making better decisions faster. Since 1976 SAS has been giving customers around the world THE POWER TO KNOW®



SAS Institute Inc. World Headquarters +1 919 677 8000

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