Data Analytics in Audit
Illinois Perspective

2018 MSATA Annual Meeting

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Agenda

- Goals

- Staffing/Support

- Software

- Modeling

Goals

- Use of data analytics tools to identify audit candidates
- Allow assignment of the best audits
- Identify potential areas to target in the audits
- Reduce the number of no liability audits
- Learn from the results to continually improve the selection process

Staffing/Support

Key to include staff that understand the Audit Process and how audits are selected

- Knowledgeable
- Analytical Thinkers
- Good communicators

Audit Staff (Income and Sales & Use)

- Audit Planning Supervisor
- Audit Planning Auditors
- Audit staff from other units in Audit

Data Analytics Program

- Statewide Office in Centralized IT (DoIT) for the State
- IDOR Research Office
    - Data Scientists

Software

- GenTax Data Analytics Manager
- Python
- R
- Power BI
- Tableau
- FDS

Modeling

- Income Tax
  - 1 Income Tax Model has been built with test audits established
    - Business Intelligence weights applied to every line on the Income Tax Returns
    - Looked at Periods 10-12 for historical audit details
    - Adding additional Internal and External Data Sources to drill into NAICS, return and line adjustment correlations
    - Tracking 37 Audits set up based on weighted return line analysis
  - Additional Steps
    - Variable Testing and Impacts
    - Additional Data Sources
  - Multiple other models in various stages of development
    - No Liability Audits
    - Audit Requests
    - Audit Referrals
    - Amended Return audits
    - Geographic model
      - To integrate auditor location/experience (Auditor Level) with locations of taxpayer books and records for audits

Modeling

- Sales & Use/Miscellaneous Taxes
  - 1 Sales Tax Model has been built with test audits established
    - Determined based on auditor levels, internal return data and prior audit history through the same process simulation as was done in Audit Selection Program (ASP)
    - Adding additional Internal and External Data Sources to drill into NAICS, return and line adjustment correlations
    - Tracking 26 Audits set up based on data analyzed similar to ASP
  - Additional Steps
    - Variable Testing and Impacts
    - Additional Data Sources
  - Multiple other models in various stages of development
    - All Productive Sales/Use tax Audits
    - Sales tax only audits
    - Use Tax only audits
    - Non-filers
    - Cash Business Audits
    - No Liability Audits

Other Department Activities

- Account Processing
  - Fraud Identification Processes
- Collections
  - What is best Program to use amongst the various tools available

Lessons Learned Thus Far

- While in infancy stages we have learned:
  - Involve proper and sufficient staff for the project
  - Trust institutional knowledge
  - Analytics shows the correlations not seen without comparisons
  - Brainstorm to invoke creative thinking skills
  - Weekly meetings keeps the Team engaged
  - Request data from 3rd party sources using all available tools
  - Invite assistance from other states, giving information to receive information in return
  - Identify behaviors/business trends/new endeavors/clusters
  - Data Sources are numerous and voluminous
    - Information needs to be dissected for effectiveness
    - Information is powerful and extremely useful

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