**Introduction**:

**Purpose**: This paper aims to explore potential optimization opportunities within nonprofit organizations' financial filings, specifically focusing on Form 990. The goal is to identify any issues or inconsistencies in the filings, as these forms are publicly available and can be used for research purposes. Additionally, the paper seeks to conduct diagnostic analytics to determine if there are any insufficiencies or benefits that organizations could gain by using one version of Form 990 over another.

**The Importance and Nuances of Tax Codes for Nonprofit Organizations:**

The complexity of the tax system often leads to various issues, especially for nonprofits (McClellan, 2006). Among the most notable federal laws affecting nonprofit organizations are the CARES Act and the Tax Cuts and Jobs Act (TCJA). The TCJA, signed into law by President Donald Trump on December 22, 2017, significantly impacted the tax landscape, not only for corporations but also for nonprofits. One of its key provisions was the elimination of the unrelated business income tax (UBIT) on certain fringe benefits. Prior to this change, nonprofits were required to pay UBIT on specific employee fringe benefits; however, the TCJA revised the tax rules concerning transportation and parking benefits provided by tax-exempt organizations, as long as those benefits aligned with the organization's primary mission.

The TCJA was controversial, as it shifted the tax burden predominantly onto the working class, affecting individuals across all socio-economic levels except for the highest earners, while providing tax cuts that disproportionately benefited corporations and business owners. Although low- and middle-income earners received temporary benefits such as expanded child tax credits and other deductions, these measures are set to expire in 2025 unless renewed or altered. Conversely, tax cuts for corporations and high-income earners were made permanent (Floyd, 2018). Additionally, the TCJA permanently removed the individual mandate from the Affordable Care Act (Tax Policy Center, 2024).

While proponents of the TCJA argued it would stimulate economic growth, the actual results were mixed. Real GDP growth data showed modest improvements, but the COVID-19 pandemic had a significant impact on the 2020 figures (Floyd, 2018).

The **CARES Act**, passed in 2020 in response to the COVID-19 pandemic, also had a significant impact on nonprofits. This law included provisions for greater flexibility in reporting charitable contributions on Form 990 and temporarily increased limits on charitable deductions. The Consolidated Appropriations Act, 2021, passed in December 2021, further extended the provisions of the CARES Act.

The CARES Act supported nonprofits through several key provisions, such as the Paycheck Protection Program (PPP) loans, which could be forgiven if used for eligible expenses like payroll, and Economic Injury Disaster Loans (EIDL), offering grants and low-interest loans to cover financial losses. The Employee Retention Credit (ERC) provided tax credits for retaining employees, and nonprofits also benefited from expanded charitable contribution deductions, which allowed individuals to deduct up to $300 without itemizing. These provisions were critical in helping nonprofits maintain financial stability and continue their operations during the pandemic (The Investopedia Team, 2020).

Some members of the Pennsylvania Senate Finance Committee have argued that certain charities must be "purely public" to maintain their tax-exempt status (Daniels, 2015). In contrast, others highlight concerns regarding internal control deficiencies in nonprofits, particularly related to their funding infrastructure. Despite receiving tax breaks through mechanisms like Form 990, many nonprofits still face significant financial challenges (Petrovits et al., 2011). This contrasts with for-profit organizations, which, while driven by self-interest, benefit from greater stability and long-term social contributions (Bhattacharjee et al., 2017).

There is ongoing debate about whether nonprofits provide a greater public good than the taxes they are exempt from. While someone must ultimately bear the cost, the effectiveness of tax breaks comes into question if nonprofits fail due to mismanagement of time and resources. Certain loopholes in the system, such as those related to capital gains and estate taxes, raise moral concerns and contribute to the complexity of the tax code (McClellan, 2006).

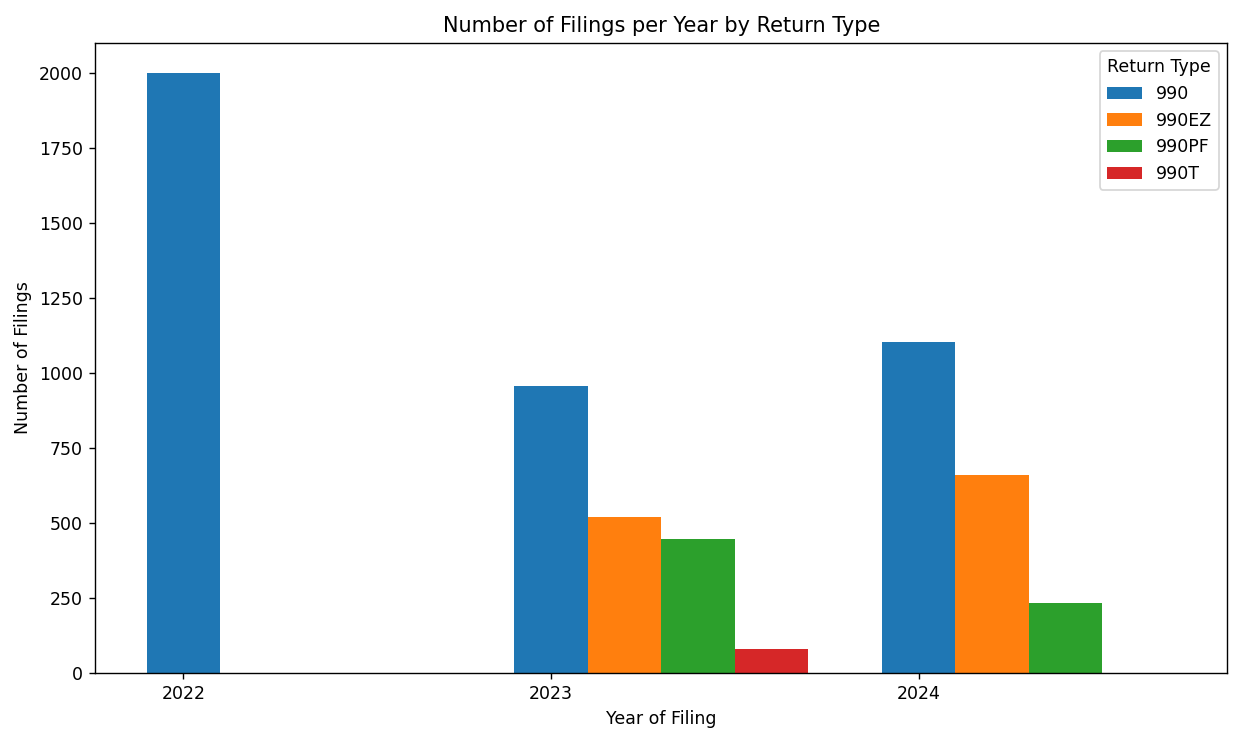
**990 FORMS:**

According to the IRS website (2016), the **Form 990** is essential for maintaining transparency and accountability for tax-exempt organizations. It provides detailed information about an organization’s financials, governance, and activities. Below are the key types of Form 990:

* **Form 990**: This is the standard return for most tax-exempt organizations, such as public charities. It is required for larger organizations with gross receipts exceeding specific thresholds.
  + An organization with **under $200,000** in annual income but over **$500,000** in assets must file Form 990.
  + An organization with **under $500,000** in assets but over **$200,000** in annual income must file Form 990.
* **Form 990-EZ**: A shorter version of Form 990, typically used by smaller organizations. It is filed if:
  + Gross receipts are **under $200,000** for the year, **and**
  + Total assets are **under $500,000** at the end of the year. It requires less detailed financial information but still provides the necessary data to maintain tax-exempt status.
* **Form 990-PF (Private Foundation)**: Used by private foundations to report their financial information, income, expenditures, and activities. It ensures compliance with tax laws but is specifically designed for private foundations.
* **Form 990-T**: This form is used by tax-exempt organizations to report **unrelated business income (UBI)**. If an organization earns income from activities not related to its primary tax-exempt purpose, it must file Form 990-T and may need to pay taxes on that income.
  + A nonprofit can manage a business.
  + If the business generates unrelated business income (not related to the nonprofit's exempt purpose), the nonprofit must file Form 990-T.
  + If the business income is related to the nonprofit’s mission, it is not subject to Form 990-T requirements.

Any space for efficiencies like format conversion from XML to another file to make filing and data analysis easier?

Previously, there was research into the benefits of XML files and the broader access to these files for public use, especially for IRS data, which was previously only available in PDF format (unstructured data) (Barreto et al., 2019). Researching, manipulating, and even downloading this data can be challenging due to its complex structure. The process of handling large zipped, hierarchical XML files (3D or 4D) with millions of filings can be time-consuming, particularly when trying to process, load, or delete them if they are accidentally downloaded. A notable advancement for 2016 to 2021 data was made by Abu-Khadra et al. (2023), who successfully converted XML files into flat 2D or 1D Excel files using SQL. While XML files and other limitations may hinder effective nonprofit research, they do not obstruct access to the millions of records in Form 990 filings. Today, IRS Form 990 data is more accessible than ever before, but the website still only provides XML files, and there is no public access to the SQL tools that could convert these files into more user-friendly formats like CSV or Excel.



*\*The sample size for each year from 2022 to 2024 consisted of 2,000 filings, for a total of 6,000 data points.*

*\*All filings were submitted electronically (e-file).*

Used columns: SUB\_DATE and RETURN\_TYPE

Modified SUB-DATE to be a full date in the YEAR-MONTH-DAY format (XXXX-XX-XX)

* Python did not accept year alone (i.e 2022, 2023, and 2024)

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| Instructions per Abu-Khadra et al. (2023),  **The following steps describe the shredding process:**  1. Create a table in SQL server using the following code: CREATETABLEdbo.XMLFilesTable ( Id INT IDENTITY PRIMARYKEY, FileName VARCHAR(100), XMLDataXML, LoadedDateTime DATETIME ) GO  2. Download all XML compressed folders from the IRS repository and then extract them to a predefined loca tion. The following directory path was used in the included code. If the storage folder is different, please update the storage path in the code. F:\FinancialResearch\IRS\2017\Files\  3. Runthe code.  4. The code will create a “MasterFinal” virtual table. Verify the outcome.  **To export the dataset to Excel, please follow these steps**:  1. Open anew Excel sheet.  2. Choose the data from the menu bar and click on “Get Data,” then select “From Database” and “From SQL Server Database.”  3. A dialogue box titled “SQL Server Database” will appear. In the field titled Server, enter the IP address for your SQL server.  4. Anewdialogue box titled “Navigator” will appear. Choose your SQL folder and the “MasterFinal” Table.  5. At the bottom right side of the screen, click “load.”  6. You can convert the Excel file to CSV by using the “Save As” menu and choosing the “CSV Comma Delimited” file type. |

Resolution Suggestions:

* Improve data accessibility by transforming and converting files from PDF and XML formats to CSV and Excel, making it easier for researchers, elected officials, and the public to apply the data for research purposes.
* Enhance transparency in filings by making forms beyond the 990 (e.g., 990-W, Form 8868, Form 5500) more accessible to the public. This will allow more data points for research since public data is very limited to the public for research

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nd-economic-security-cares-act-4800707

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| Appendix: |
| import pandas as pd  import matplotlib.pyplot as plt  # Load the dataset  file\_path = r'C:\Users\ \*\*\*'  data = pd.read\_csv(file\_path)  # Check the first few rows  print(data.head())  # Handle the SUB\_DATE column to extract the year  # Try to convert SUB\_DATE to a datetime, if it fails (e.g., it is just a year), we will handle it separately  data['SUB\_DATE'] = data['SUB\_DATE'].astype(str)  # Ensure it's treated as a string  # If the date is in a full date format like "01/01/2024", we extract the year  # If it's just a year (e.g., "2024"), we directly use it as the year  data['YEAR'] = pd.to\_datetime(data['SUB\_DATE'], errors='coerce', format='%m/%d/%Y').dt.year  # For rows where SUB\_DATE is just a year, handle them  data['YEAR'] = data['YEAR'].fillna(data['SUB\_DATE'].apply(lambda x: int(x) if x.isdigit() else None))  # Check for any missing or NaN years  print(data[data['YEAR'].isna()])  # Group by YEAR and RETURN\_TYPE and count the number of filings  grouped\_df = data.groupby(['YEAR', 'RETURN\_TYPE']).size().reset\_index(name='COUNT')  # Print the grouped data to check counts  print(grouped\_df)  # Plotting the grouped data  plt.figure(figsize=(10, 6))  # Plot bars for each return type  for return\_type in grouped\_df['RETURN\_TYPE'].unique():      data\_to\_plot = grouped\_df[grouped\_df['RETURN\_TYPE'] == return\_type]      plt.bar(data\_to\_plot['YEAR'] + (0.2 \* (return\_type == '990EZ')) +              (0.4 \* (return\_type == '990PF')) + (0.6 \* (return\_type == '990T')),              data\_to\_plot['COUNT'], width=0.2, label=return\_type)  # Adding labels and title  plt.title('Number of Filings per Year by Return Type')  plt.xlabel('Year of Filing')  plt.ylabel('Number of Filings')  plt.xticks([2022, 2023, 2024])  # Set x-axis ticks to be the years 2022, 2023, 2024  plt.legend(title='Return Type')  # Show the plot  plt.tight\_layout()  plt.show() |