Toronto Police Budget in 2023*

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This dataset includes a line-by-line breakdown of the Toronto Police Service's approved budget at a Service-wide level in 2023. It details how funds are allocated across various districts within the TPS. The analysis reveals a significant investment in personnel costs and operating expenses, highlighting the financial priorities of the police department. The findings provide insights into the financial planning and resource allocation strategies of the TPS, which are important for ensuring effective community safety.

1 Introduction

In recent years, public scrutiny of police budgets has increased, driven by demands for greater transparency and accountability in the use of public funds. Effective financial management is essential for public safety unit to ensure that they achieve their operational goals and serve their communities efficiently. The Toronto Police Service (TPS), as one of the largest municipal police forces in Canada, plays a critical role in maintaining public safety and order. Its budget reflects the complexity and scope of its operations. However, the allocation of its large budget is often the subject of debate among policymakers, community leaders, and the public. This paper provides a comprehensive analysis of the 2023 approved budget for the TPS, with a detailed breakdown of expenditures by districts, categories, and cost elements.

An important gap in the current discussion is the lack of detailed, accessible information on police budget structures and expenditures. The analysis addresses the gap by breaking down the budget into various components to provide a transparent view of where and how resources are allocated. By examining these allocations, we aim to provide a clear picture of financial priorities and operational strategies of the TPS and how these translate into operational effectiveness and community safety outcomes. The findings reveal that a substantial portion of

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the budget is dedicated to personnel costs, including regular salaries, premium pay, and benefits. Additionally, significant investments are made in operational expenses such as materials, equipments, and services required for daily operations.

The importance of this analysis lies in its ability to inform stakeholders, policymakers, and the public about the financial priorities of the TPS. It enhances public understanding and facilitated informed discussions on police funding and resource management. It provides a basis for assessing the efficiency and effectiveness of TPS in discharging its responsibilities. It helps to ensure that public funds are used responsibly and in ways that align with community needs and expectations.

In this analysis, we use R Core Team (2023) to analyze data and plot graphs. The data used is from Gelfand (2022). Alexander (2023) provides necessary process and techniques of analyzing and visualizing data. The structure of the analysis and documents use the starter folder of Wickham et al. (2019) as a reference.

In Section 2, we begin with an overview of the dataset and the methodology used for analysis. This is followed by a breakdown of the budget categories, highlighting key findings and trends.

2 Data

2.1 Overview

The fundamental dataset used for this paper is TPS Budget 2023 from Gelfand (2022). We selected year 2023 from all dataset among year 2020 to year 2024 because 2023 has the most recent and comprehensive data. We first clean the data and remove several unwanted variables. The data used for the analysis is analysis_data. This dataset represents the financial transactions of TPS in 2023, given the detailed breakdown of expenses across various districts and categories. The data includes salaries, benefits, materials, supplies, equipment, services, and revenues, providing a comprehensive view of the organization's financial activities.

2.2 Variables

x_id: A unique identifier for each observation. district_name: This variable categorizes expenses by different districts, such as "Corporate Communications", "Disciplinary Hearing Office", "Centralized Service Charges", and etc. feature_category: This variable categorizes expenses into broader 7 types: "Salaries", "Premium Pay", "Benefits", "Materials & Supplies", "Equipment", "Services", and "Revenues". cost_element_long_name: Provides a detailed description of the expense, such as "Regular salaries - Civilian A", "Books & Magazines", "Consulting - Creative communication", and etc. amount: The monetary value of the expense,

Table 1: Summary Statstics of Data

```
# A tibble: 7 x 5
  feature_category       total_amount mean_amount median_amount sd_amount
  <chr>                         <dbl>       <dbl>         <dbl>     <dbl>
1 1-Salaries                913100300    1732638.         96600  5856103.
2 2-Premium Pay              60988400     218596.          7000  1397392.
3 3-Benefits                265274300     575432.         64700  2245203.
4 4-Materials & Supplies     28848900      93665.          1700   787816.
5 5-Equipment                 5919800      84569.         13200   200124.
6 6-Services                112385800     117805.          1700  1009333.
7 7-Revenues               -166473600   -3397420.       -640200  8491792.
```

which is the most essential for the analysis. date: The date of the expense is set to be the last day of 2023.

2.3 Visualization

The following table (Table 1) is the summary statistics of the analysis data. It provides a summary of the total, mean, median, and standard deviation of amounts for each feature category.

Talk more about it.

And also total expenses by district (Figure 1).

Talk way more about it.

Total expenses by category (Figure 2).

3 Results

Our results are summarized in Table 2.

4 Discussion

4.1 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.
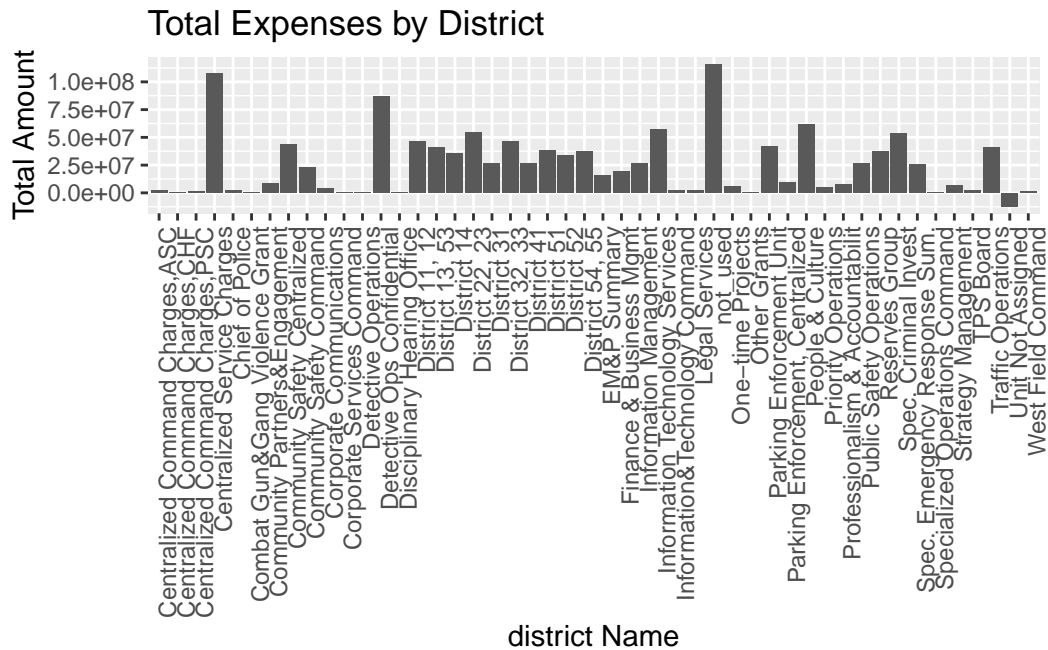
Total Expenses by District

Figure 1: Total Expenses by District

Expense Distribution by Category

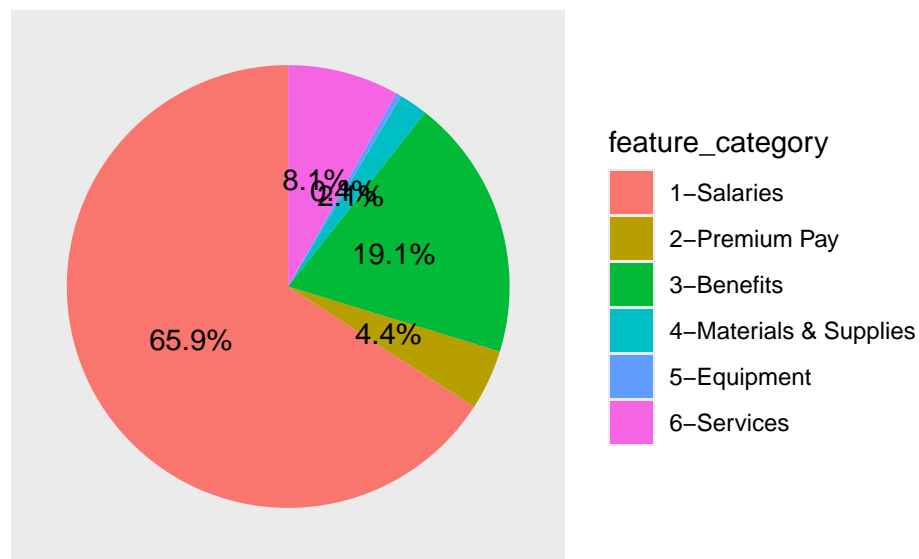Figure 2: Total Expenses by Category

Table 2: Explanatory models of flight time based on wing width and wing length

	First model
(Intercept)	1.12
	(1.70)
length	0.01
	(0.01)
width	−0.01
	(0.02)
Num.Obs.	19
R2	0.320
R2 Adj.	0.019
Log.Lik.	−18.128
ELPD	−21.6
ELPD s.e.	2.1
LOOIC	43.2
LOOIC s.e.	4.3
WAIC	42.7
RMSE	0.60

4.2 Second discussion point

4.3 Third discussion point

4.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

Appendix

A Additional data details

B Model details

B.1 Posterior predictive check

In **?@fig-ppcheckandposteriorvsprior-1** we implement a posterior predictive check. This shows…

In **?@fig-ppcheckandposteriorvsprior-2** we compare the posterior with the prior. This shows…

Examining how the model fits, and is affected by, the data

B.2 Diagnostics

Figure 3a is a trace plot. It shows… This suggests…

Figure 3b is a Rhat plot. It shows… This suggests…

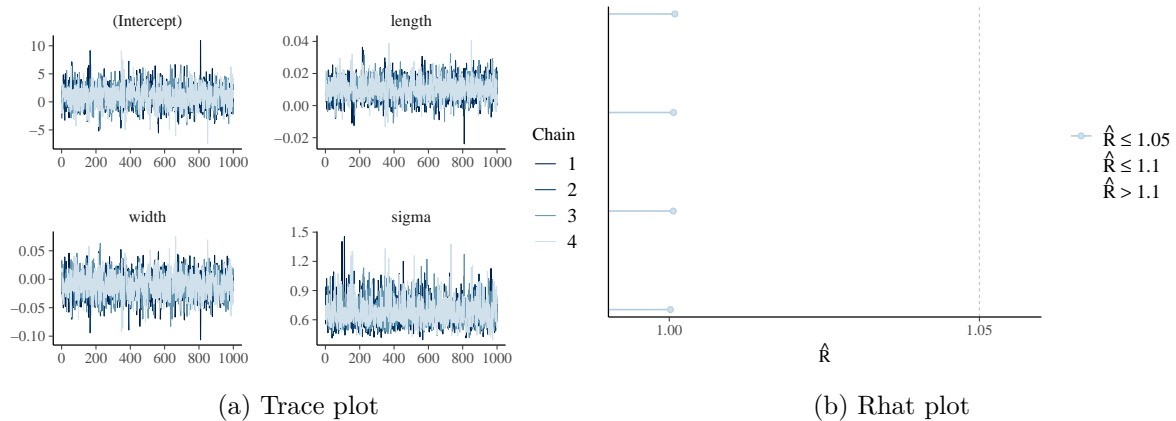(a) Trace plot   (b) Rhat plot

Figure 3: Checking the convergence of the MCMC algorithm

References

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Gelfand, Sharla. 2022. *Opendatatoronto: Access the City of Toronto Open Data Portal.* https://CRAN.R-project.org/package=opendatatoronto.

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