

**Analyzing the Distribution of Grant Payments in Alberta (2023–2024)**

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## **Introduction**

Resources are limited, and this is especially true when it comes to financial resources. Like any finite asset, public funds must be managed carefully and responsibly. Governments play a central role in ensuring the efficient administration of public resources, and transparency in this process is essential to maintaining public trust. One of the mechanisms through which transparency is achieved is by making public spending information accessible to citizens.

In this context, the Government of Alberta provides open data about GRANT PAYMENTS made by its departments and certain arms-length agencies. These payments are intended to support a wide range of programs and initiatives throughout the province. The dataset includes detailed records of the grants, such as the recipient, program, amount, and whether the payment was funded by the Lottery Fund.

The objective of this project is “ANALYZING HOW THE GRANT PAYMENTS WERE DISTRIBUTED IN THE PROVINCE OF ALBERTA DURING THE 2023 - 2024 FISCAL YEAR”. This includes examining which ministries provided the most funding, identifying key beneficiaries, and analyzing the types of programs that received support. Understanding this distribution can shed light on government priorities and provide insight into how resources are allocated to meet provincial needs.

It is important to clarify that this dataset differs significantly from the Consolidated Financial Statements of the Government of Alberta. While the grant payments dataset reflects actual cash disbursements made during the reporting period, the Consolidated Financial Statements follow the accrual accounting principle, recognizing expenses when they are incurred rather than when payments are made. This distinction is crucial for correctly interpreting the

data. The purpose of the grant payments dataset is to ensure transparency in the distribution of funds through these grants. Therefore, the analysis focuses on the total amount invested rather than the average, as the objective is to highlight the overall scale of budget allocation.

## Analysis Questions

MAIN OBJECTIVE: Analyze how the grant payments were distributed in the province of Alberta during the 2023 - 2024 fiscal year

1. What was the monthly distribution of grant payments made by the Government of Alberta during the 2023–2024 fiscal year?

This question helps identify when funds were disbursed, offering insights into spending patterns and possible fiscal cycles.

2. How were grant payments allocated across different ministries in Alberta?

This analysis reveals Alberta's policy focus by showing how funds were distributed among ministries. Ministries will also be grouped by thematic areas to better understand government priorities.

3. Which five programs received the highest grant payments, and which five received the lowest?

This highlights specific programs receiving the most and least funding, offering a clearer picture of investment priorities and niche areas that require minimal but targeted support.

4. Which ten institutions or recipients received the highest total grant payments?

Identifying top recipients (whether public or private) helps clarify where major investments are going and who benefits most from provincial funding.

5. What proportion of total grant payments was funded by the Lottery Fund, and which programs benefited the most from this funding source?

During the data cleaning process, it was discovered that the Lottery Fund column was entirely empty for this fiscal year, indicating that no payments were made from this source in 2023–2024. However, the analysis revealed that the University of Calgary was

one of the top ten recipients of grant payments. As a result, a deeper analysis was conducted to explore how the University of Calgary is utilizing the funds it received. This led to a new research question: **How is the University of Calgary allocating its grant funding?**

## **Data Sourcing and Justification**

The dataset used for this project was obtained from the official website of the Government of Alberta: <https://www.alberta.ca/grant-payments-disclosure>. This dataset is released under the Open Government Licence – Alberta, which allows for its use, modification, and sharing with proper attribution. The document was published by Treasury Board and Finance and created by Service Alberta.

This dataset contains detailed information about grant payments made by Government of Alberta departments and selected arms-length agencies during the 2023–2024 fiscal year, includes over 150,000 records and consists of the following nine attributes:

- **Ministry:** Indicates the ministry from which the funds originated.
- **BUName:** Refers to the specific business unit or organization responsible for issuing the payment. This may be the ministry itself or a department within it.
- **Recipient:** The entity (e.g., organization or institution) that received the funds.
- **Program:** Specifies the program for which the funds were allocated.
- **Amount:** The value of the payment. Negative amounts represent refunds due to project cancellations or unused funds being returned by recipients.
- **Lottery:** Indicates whether the payment was funded by the Lottery Fund.
- **PaymentDate:** The exact date of the payment (day, month, and year). Note that the fiscal year in Alberta typically starts in April and ends in March of the following year, so this dataset spans from April 2023 to March 2024.
- **FiscalYear and DisplayFiscalYear:** Both refer to the applicable fiscal year of the payment.

This dataset was chosen because it directly addresses the main objective of the project: to analyze how grant payments were distributed across the province of Alberta during the 2023–2024 fiscal year. Unlike other datasets that provide aggregated or high-level financial information, this dataset offers granular, transaction-level detail, including the name of the program, the specific recipient, and the exact amount paid. This level of detail enables a more meaningful and transparent analysis of public resource allocation.

These insights will help fulfill the main goal of understanding how public funds were distributed across different areas and stakeholders in Alberta.



## Data Cleaning

The dataset was reviewed to ensure it was imported correctly. The first row contained the column names, so the appropriate adjustment was made to set them as headers. Figure 1 shows the change before and after updating the column names.

**Figure 1.**

*Column names before and after correction*

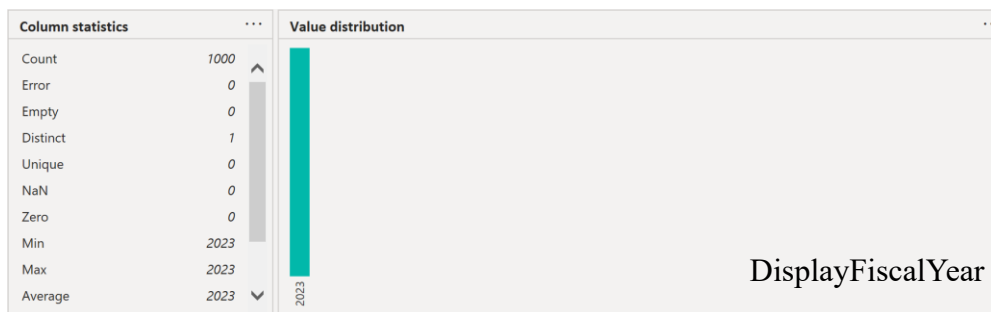
Before		After	
A <sup>B</sup> <sub>C</sub> Column1	A <sup>B</sup> <sub>C</sub> Column2	A <sup>B</sup> <sub>C</sub> Ministry	A <sup>B</sup> <sub>C</sub> BUName
Ministry	BUName	ADVANCED EDUCATION	ADVANCED EDUCATION
ADVANCED EDUCATION	ADVANCED EDUCATION	ADVANCED EDUCATION	ADVANCED EDUCATION
ADVANCED EDUCATION	ADVANCED EDUCATION	ADVANCED EDUCATION	ADVANCED EDUCATION
		ADVANCED EDUCATION	ADVANCED EDUCATION
		ADVANCED EDUCATION	ADVANCED EDUCATION

After changing the name of the columns each column in the dataset was reviewed to assess its relevance to the analysis. During this process, it was observed that the ‘FiscalYear’ and ‘DisplayFiscalYear’ columns contained only a single repeated value: 2023–2024, which corresponds to the fiscal year covered by the dataset. Since this information was identical across all rows and did not contribute any additional insight, both columns were removed.

As shown in Figure 1, all rows in these two columns contained the same value, confirming that they provided no meaningful variation for analysis.

**Figure 2.**

*Values in the 'FiscalYear' and 'DisplayFiscalYear' columns*



## Missing Values

The dataset was examined for missing values, and the columns were sorted in descending order based on the number of missing entries. The columns with missing data were Lottery, Recipient, and PaymentDate:

- Lottery was removed from the dataset because it contained 100% missing values and therefore provided no useful information for the analysis.
- Recipient contained several missing values. According to the official website, organizations that received only one grant payment are not individually listed in the dataset. These records likely correspond to such cases. To preserve the completeness of the data, the missing values were replaced with the label "Other Organizations", referring to various small recipients that were not explicitly named due to limited grant activity.
- PaymentDate includes the specific date the grant was issued (day, month, and year). To impute the missing values, the mode was selected as the most appropriate method. However, instead of using the global mode, the imputation was conditioned by the

Ministry providing the grant. Therefore, missing dates were filled using the most frequent payment date for each corresponding Ministry. Since this operation was not possible in Power BI, it was performed using Pandas in Jupyter Notebook. The code used is shown in Figure 3.

**Figure 3.**  
*Code used to impute missing values in PaymentDate*

```
import pandas as pd

#Read csv
df = pd.read_csv('tbf-grants-disclosure-2023-24.csv', encoding='latin1')

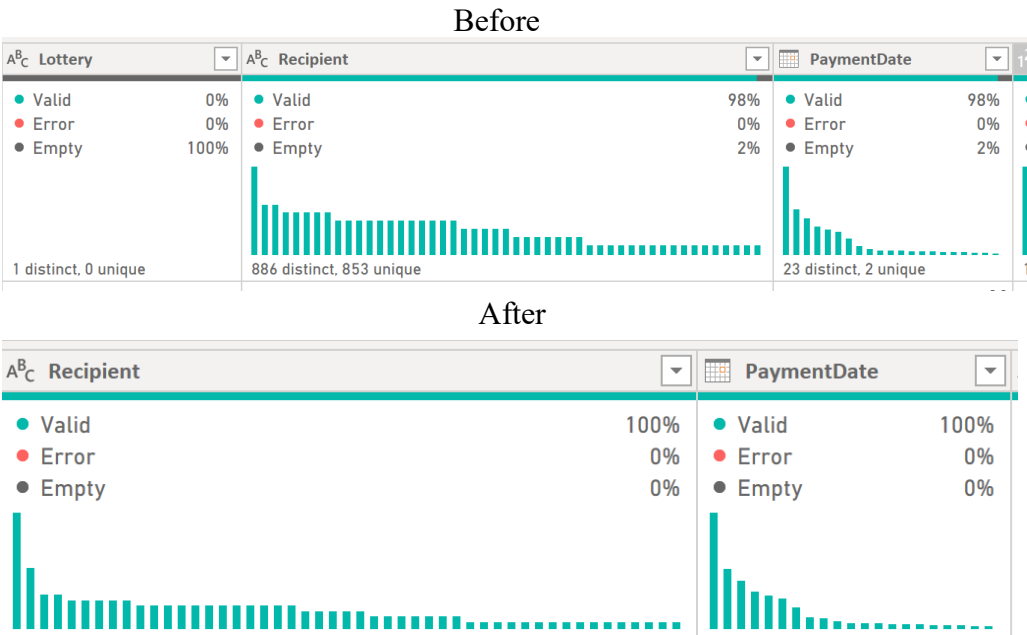
#Convert data to datetime
df['PaymentDate'] = pd.to_datetime(df['PaymentDate'], errors='coerce')

#Filling missing values
df['PaymentDate'] = df.groupby('Ministry')['PaymentDate'].transform(
    lambda x: x.fillna(x.median())
)

#Checking missing values
percent_missing = df.isnull().mean() * 100
percent_missing
```

The results before and after the imputation are displayed in Figure 4.

**Figure 4.**  
*Missing values before and after imputation*



## Feature Engineering

The Government of Alberta operates through 34 ministries, making it challenging to analyze each one individually. To facilitate a more meaningful interpretation of the government's priorities during the 2023–2024 fiscal year, ministries were grouped based on shared objectives and areas of focus. The groupings were defined as follows:

1. Education and Skills Development

Group Objective: Investment in academic, technical, and professional training.

Included Ministries: (Advanced Education, Education, Skilled Trades and Professions)

2. Health and Social Wellbeing

Group Objective: Provision of medical care, mental health services, and social support.

Included Ministries: (Health, Mental Health and Addiction, Seniors and Housing, Seniors, Community and Social Services, Children's Services, Children and Family Services)

3. Public Safety and Justice

Group Objective: Protection of citizens, judicial services, and emergency response.

Included Ministries: (Justice, Public Safety and Emergency Services, Executive Council)

4. Environment, Natural Resources, and Agriculture

Group Objective: Environmental management, agricultural development, and sustainable resource use.

Included Ministries: (Environment and Protected Areas, Agriculture and Irrigation, Forestry and Parks, Forestry, Parks and Tourism, Energy, Energy and Minerals)

5. Infrastructure and Transportation

Group Objective: Infrastructure development and enhancement of regional connectivity.

Included Ministries: (Infrastructure, Transportation and Economic Corridors)

6. Economy, Employment, and Innovation

Group Objective: Economic growth, technological advancement, and trade.

Included Ministries: (Jobs, Economy and Trade, Jobs, Economy and Northern Development, Technology and Innovation, Service Alberta and Red Tape Reduction, Treasury Board and Finance, Trade)

7. Immigration and Multiculturalism Culture, Inclusion, and Identity)

Group Objective: Promotion of cultural development, gender equity, and diversity.

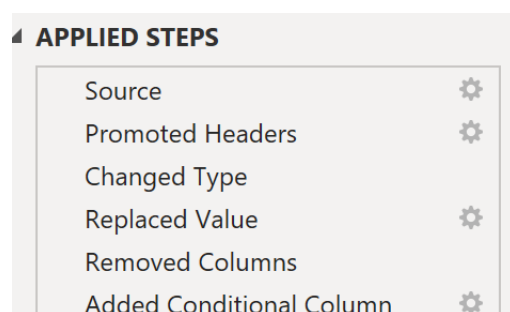
Included Ministries: (Arts, Culture and Status of Women, Culture, Tourism and Sport, Immigration and Multiculturalism, Indigenous Relations)

This was achieved by creating a new column in Power BI that assigns each ministry to its corresponding group based on a conditional logic (i.e., if the ministry matched a predefined value, it was categorized under the appropriate group name).

Figure 5 shows the Query Settings panel in Power BI, which displays the complete set of transformation steps applied to structure the dataset prior to conducting the analysis.

**Figure 5.**

*Query Settings view in Power BI*



## Visualizations and Findings

### Exploratory Data Analysis

#### *1. What was the monthly distribution of grant payments made by the Government of Alberta during the 2023–2024 fiscal year?*

In this analysis, I created a area chart to visualize the monthly distribution of grant payments over time. I chose this type of graph because it clearly illustrates both the temporal progression, and the total amount disbursed each month.

**Figure 6.**  
*Monthly Total Distribution of Grant Payments*

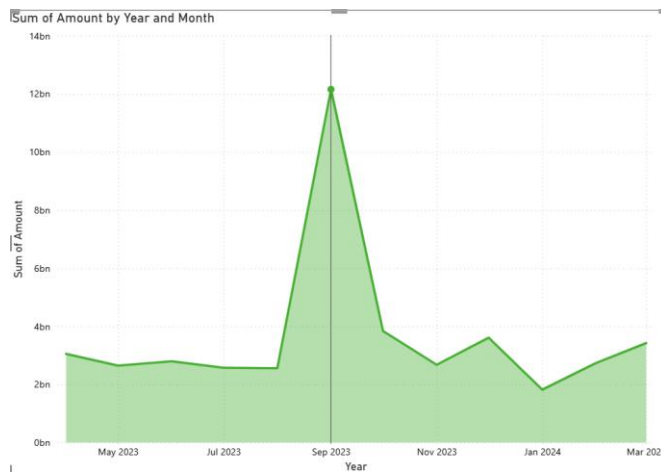


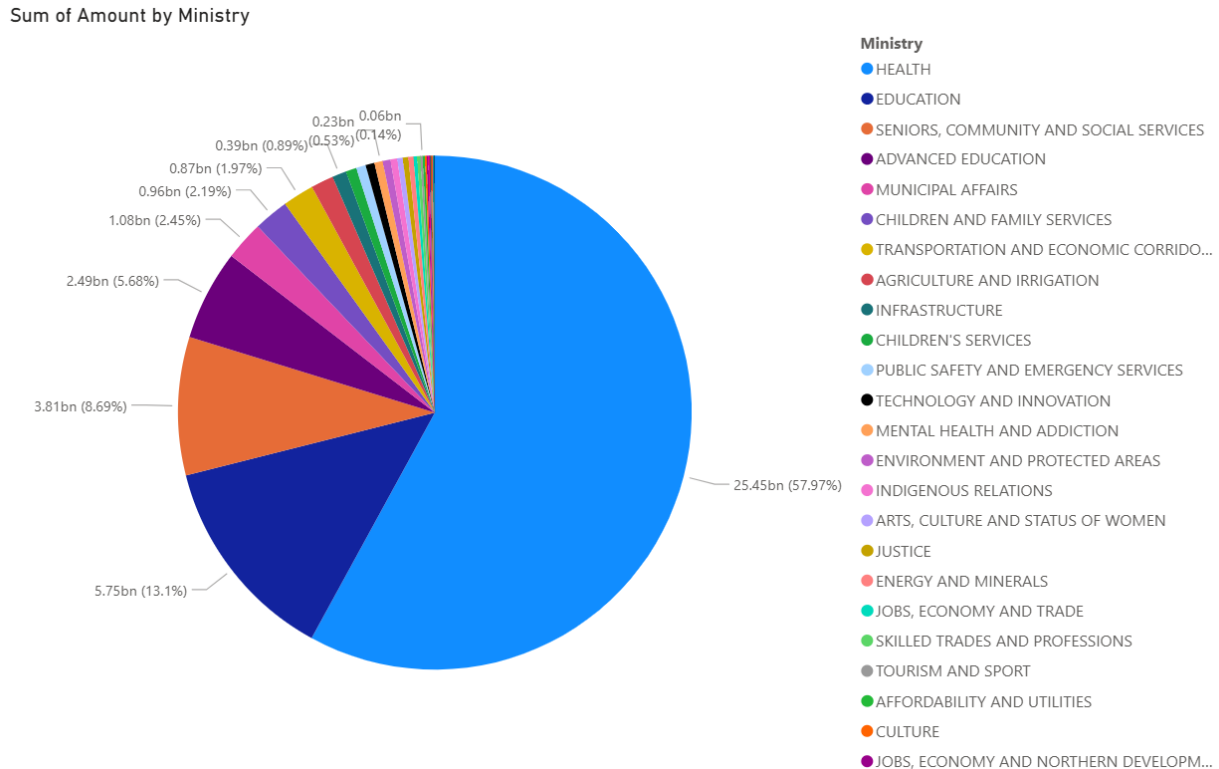
Figure 6 shows the distribution of payments throughout the 2023–2024 fiscal year, which spans from April 2023 to March 2024. We observe that grant payments were relatively consistent across most months. However, there is a significant spike in November, where the amount disbursed is nearly four times the average monthly value. This peak, occurring approximately eight months into the fiscal year, may be due to specific program deadlines.

## 2. How were grant payments allocated across different ministries in Alberta?

To answer this question, I used a pie chart, as it allows for a clear visualization of the proportion of total grant payments made by each ministry during the 2023–2024 fiscal year.

**Figure 7.**

*Percentage of Total Grant Payments by Ministry in the 2023–2024 Fiscal Year*



As shown in Figure 7, nearly 58% of all grant payments were made by the Ministry of Health, providing a clear illustration of the provincial government's spending priorities. The Ministry of Education follows with approximately 13%, and the Ministry of Seniors, Community and Social Services accounts for about 8.96%. The Ministry of Advanced Education ranks fourth. The remaining 30 ministries each account for less than 3% of the total payments. Given the large number of ministries, a detailed analysis of each would be impractical; however, the data highlights a clear trend toward prioritizing health, education, and social services.

To better understand the government's strategic priorities and resource allocation, I grouped ministries with similar objectives and created a clustered bar chart to clearly show which areas receive the most funding, like a ranking. I also included a pie chart to visualize the percentage distribution.

**Figure 8.**

*Total Grant Payments by Ministry Group with Similar Objectives*

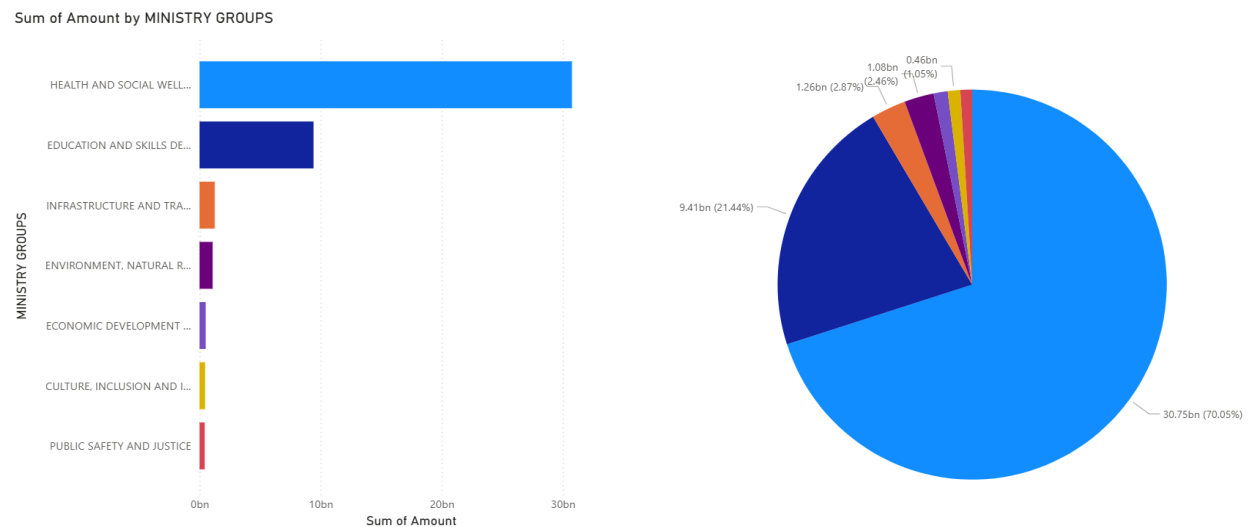


Figure 8 shows that the "Health and Social Wellbeing" group received over 70% of total grant payments, followed by "Education and Skill Development" at 21.44%. On the other hand, the groups with the lowest investment were "Culture, Inclusion and Identity" and "Public Safety and Justice," each receiving less than 2% of the total funds in the 2023–2024 fiscal year.

**3. Which five programs received the highest grant payments, and which five received the lowest?**



To compare program-level data, I used bar charts, as they make it easier to identify differences in payment amounts. Additionally, I used color coding to indicate the ministry group associated with each program.

**Figure 9.**

*Top Five Programs with the Total Highest Payments in the 2023–2024 Fiscal Year*

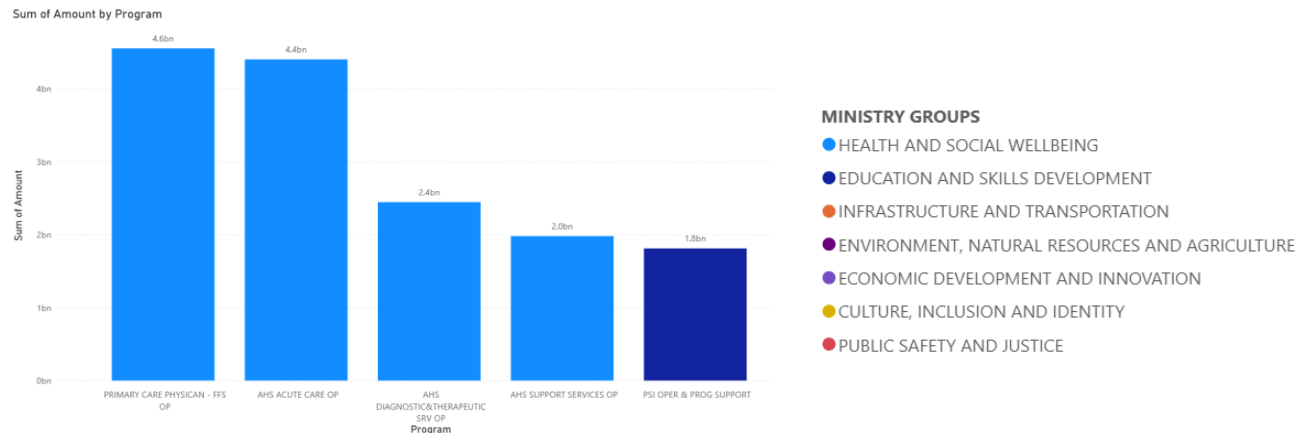


Figure 9 reveals that four of the top five programs fall under the "Health and Social Wellbeing" group. The program with the highest investment was *Primary Care Physician Compensation*, followed by *Diagnostic & Therapeutic Services*. These findings underscore the government's strong focus on public health—both in terms of treatment and preventative care. The fifth program in the ranking belongs to the "Education and Skill Development" group.

**Figure 10.**

*Top Five Programs with the Total Lowest (Negative) Payments*

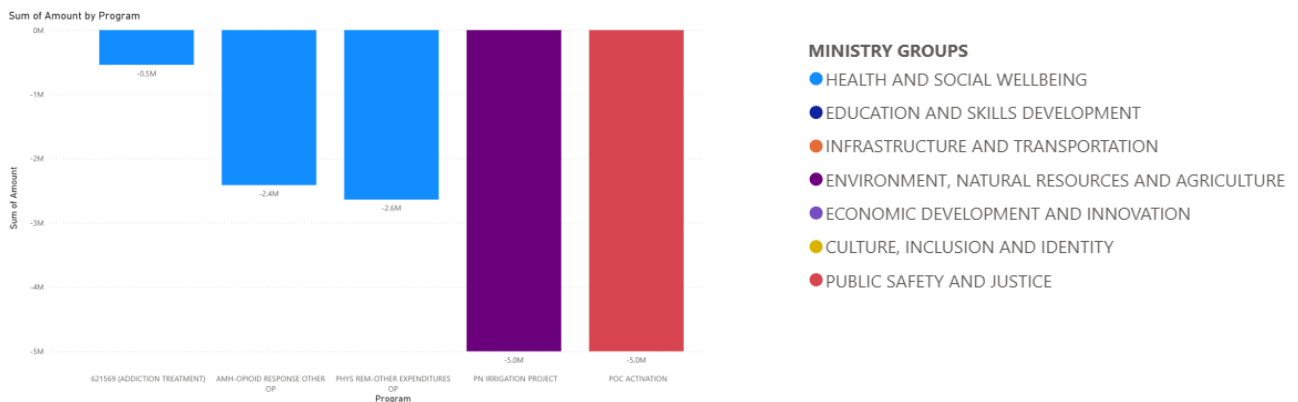
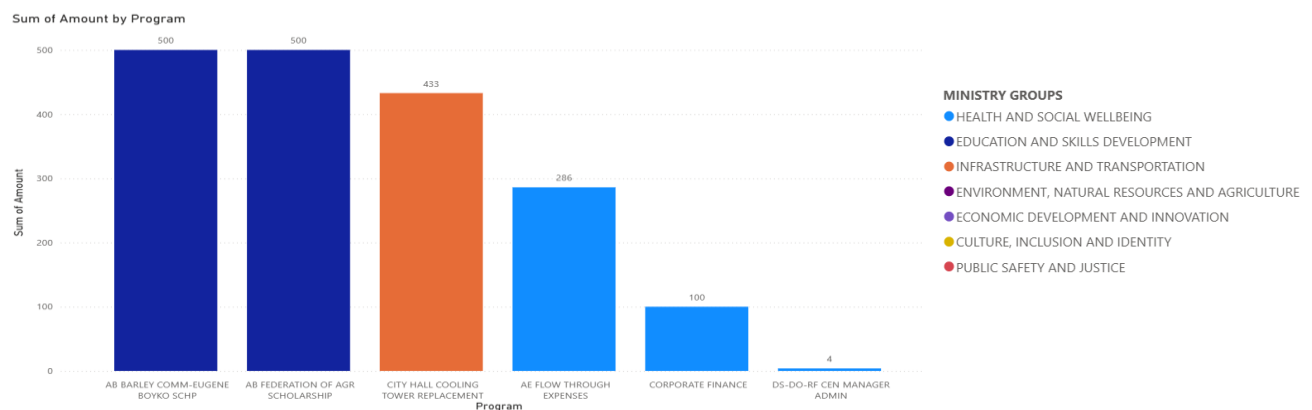


Figure 10 presents the five programs with the lowest grant payments, all of which reported negative values. These negative amounts suggest that funds were either returned or unspent due to program closures or underutilization. The program with the largest negative balance (more than -\$5 million) belongs to the "Public Safety and Justice" group, indicating a lower prioritization of public safety initiatives during this fiscal year.

**Figure 11.**  
*Top Five Programs with the Lowest Positive Payments*



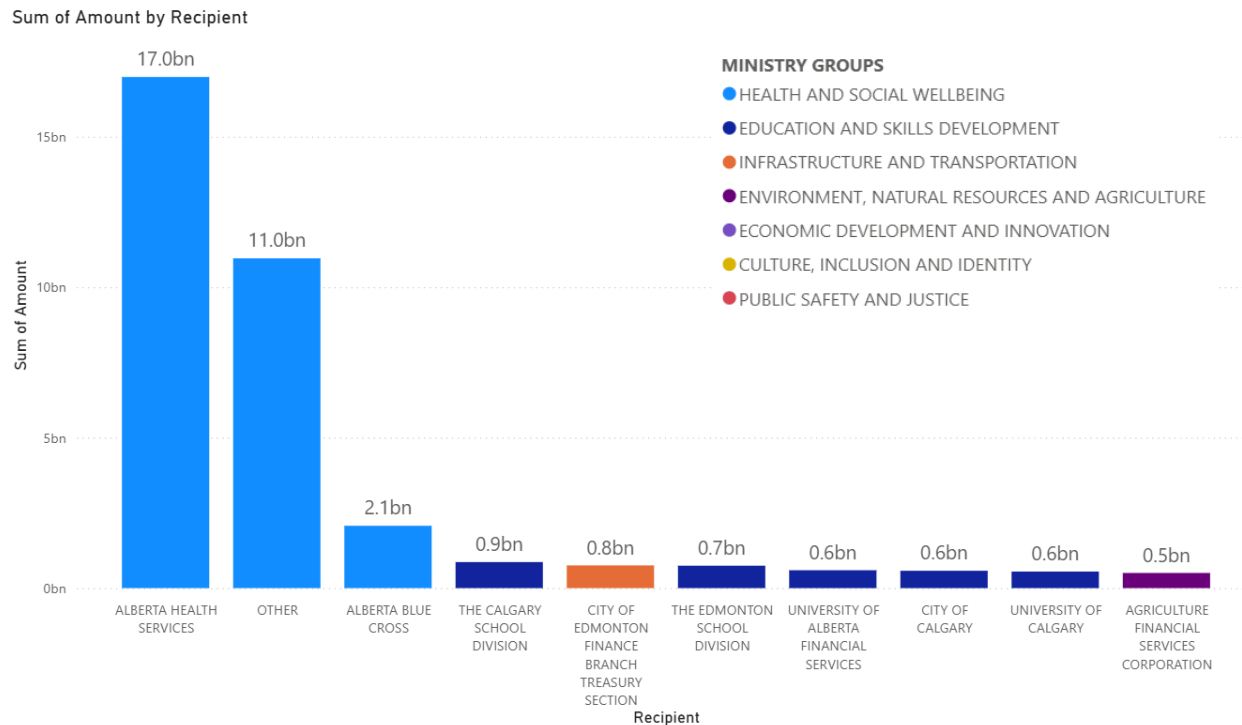
In the figure 11, I focused on the smallest positive grant payments to illustrate how minimal investments are still directed toward community well-being. The two lowest-funded programs fall under the "Health and Social Wellbeing" group, specifically in administrative and financial matters. The two highest-funded programs in this group are scholarships, which belong to the "Education and Skill Development" group.

#### ***4. Which ten institutions or recipients received the highest total grant payments?***

I used a bar chart to answer this question, as it provides a clearer comparison of total grant amounts than a box plot, which made it harder to interpret the overall distribution.

**Figure 12.**

*Top 10 Recipients of Grant Payments in the 2023–2024 Fiscal Year*



In Figure 12, Alberta Health Services stands out as the leading recipient, being the province’s primary public healthcare provider. The second category, labeled “Other,” includes smaller organizations that received single payments—often without identifying names. However, these were primarily funded by the Ministry of Health, reinforcing the provincial government’s health-centered funding approach.

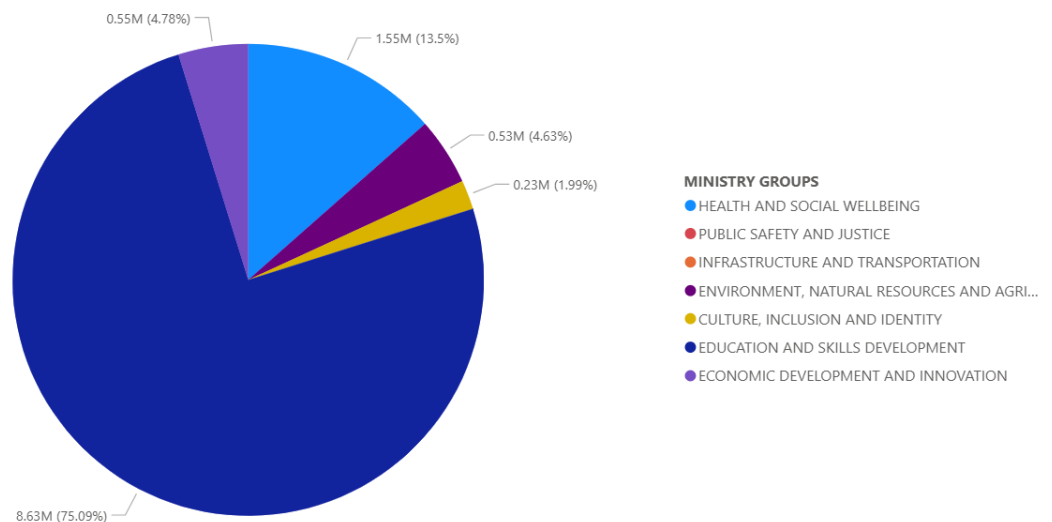
The remaining top recipients include post-secondary institutions such as the University of Alberta, the University of Calgary, and the Edmonton School Division. Government entities like the City of Calgary also appear on the list, with most of their funding going toward education-related initiatives.

### 5. How is the University of Calgary allocating its grant funding?

For this analysis, I used a pie chart to visualize the proportion of funds allocated to different areas, based on the ministry group that issued the payments.

**Figure 13.**

*Distribution of Grant Payments at the University of Calgary by Ministry Group (2023–2024)*

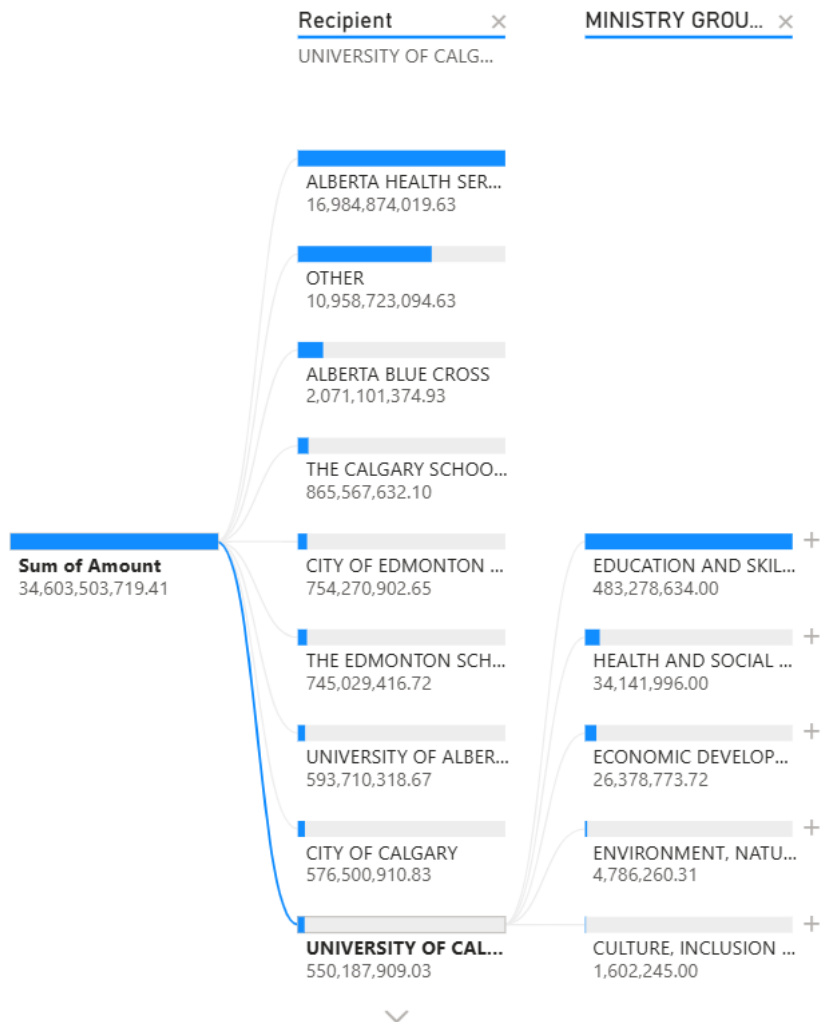


As shown in Figure 13, more than 75% of grant funding received by the University of Calgary was allocated to "Education and Skill Development," aligning with the university's core mission of academic training and professional development. The second largest share (13.5%) came from the "Health and Social Wellbeing" group. Both "Environment, Natural Resources and Agriculture" and "Economic Development and Innovation" accounted for roughly 5% each, likely used for campus maintenance and sustainability initiatives. Lastly, "Culture, Inclusion and Identity" received less than 2% of the total funds.

I selected a decomposition tree for Figure 14 because it allows for a more detailed breakdown of how the University of Calgary ranked among the top 10 entities in grant payments during the 2023–2024 fiscal year, and how its funding sources were distributed.

**Figure 14.**

*Decomposition Tree of Top 10 Grant Recipients and the University of Calgary (2023–2024)*



## Discussion

This analysis examines Alberta's 2023–2024 grant distributions, highlighting key trends that reflect the government's priorities, as well as areas of lower priority that may suggest opportunities for more balanced allocation. A sharp spike in monthly disbursements occurred in November, likely due to fiscal deadlines. Health-related ministries dominated funding, receiving 70% of total allocations, led by the Ministry of Health (58%), followed by Education (21.4%). These figures emphasize the province's prioritization of the Health and Education sectors.

Top-funded programs in healthcare are the Primary Care Physician Compensation and Diagnostic & Therapeutic Services. In contrast, underfunded initiatives were primarily related to administrative or restructuring efforts within Health and Social Wellbeing. The Public Safety and Justice sector received the lowest allocation, suggesting a lack of initiatives or active programs in this area.

Major recipients included Alberta Health Services, universities, and municipalities such as Calgary. For instance, the University of Calgary received grants primarily aimed at supporting education and skill development (75%), as well as student health and social wellbeing.

Future analyses could investigate multi-year trends, the effectiveness of funding, geographic and demographic equity, and sectors that remain underfunded—such as Public Safety.

## Reference

Government of Alberta. (2025, March 3). *Grant payments disclosure: 2023–2024 fiscal year*.

Open Government. <https://open.alberta.ca/dataset/grant-disclosure/resource/0c7e93c1-1c28-460d-92eb-f6934e9ba4a8>