Visible Minorities and Economic Inequality: An Examination of Rosedale-Moore Park and Downtown Yonge East*

Exploring Demographic Disparities in Toronto's Diverse Neighborhoods

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This paper examines socio-economic disparities between two Toronto neighborhoods, Rosedale-Moore Park and Downtown Yonge East, focusing on visible minorities, income, education, and language proficiency. It finds that Rosedale-Moore park has a higher number of non-visible minorities, income levels, educational attainment and linguistic abilities, while Downtown Yonge East experiences greater socio-economic challenges. This research highlights how systemic inequalities across neighborhoods impact social mobility, access to opportunities, quality of education, healthcare access, and overall community cohesion in urban settings.

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*Code and data are available at: https://github.com/LexiKnight/neighborhoods_toronto/tree/main

1 Introduction

Toronto, one of Canada's most diverse cities, features neighborhoods with marked socio-economic differences. This paper examines two such neighborhoods: Rosedale-Moore Park and Downtown Yonge East. Despite their proximity, these areas show clear contrasts in ethnic populations, income levels, educational attainment, and language knowledge, highlighting the socio-economic inequalities present in urban centers like Toronto.

Visible minorities in Toronto have become concentrated in specific neighborhoods, driven by economic factors and structural constraints. Research shows that segregation of visible minorities is not solely voluntary; it stems from historical and socio-economic factors that restrict opportunities for many communities (Goel, 2023). In both Rosedale-Moore Park and Downtown Yonge East, the presence of visible minorities varies significantly, shaping community dynamics and resource access. These patterns reflect broader trends in residential segregation and inequality across the city.

Income levels sharply differentiate these neighborhoods. Studies reveal that residential income segregation affects access to resources, services, and overall quality of life (Quick & Revington, 2021). While Rosedale-Moore Park is home to higher-income residents with better access to amenities, Downtown Yonge East faces lower incomes and associated challenges. This income

divide plays a critical role in shaping the socio-economic mobility of each neighborhood's residents.

Educational attainment further distinguishes the socio-economic landscape of these neighborhoods. Higher proportions of residents in Rosedale-Moore Park hold advanced degrees, which corresponds with greater employment opportunities and higher incomes (Goel, 2023). In contrast, Downtown Yonge East shows lower levels of educational attainment, reflecting broader socio-economic inequalities that persist in the city.

Language knowledge, particularly English and French, also plays a key role in shaping socio-economic outcomes. Bilingual individuals in Toronto earn 40% more than unilingual anglophones (Jedwab, 2003). Although both neighborhoods are linguistically diverse, proficiency in official languages affects employment prospects and access to services, reinforcing the socio-economic divides seen between Rosedale-Moore Park and Downtown Yonge East.

The remainder of this paper is structured as follows: Section 2 presents the methods used to analyze these demographic differences, followed by Section 3, which details the results of the comparison between Rosedale-Moore Park and Downtown Yonge East. Section 4 offers a discussion of the findings, highlighting the implications for understanding residential segregation in Toronto. Finally, Section 5 concludes with a reflection on the limitations of the study and suggestions for future research directions.

2 Data

2.1 Software and R-packages

This project was created using statistical software, `R` (R Core Team, 2023). For data simulation and manipulation, the `tidyverse` (Wickham, Averick, et al., 2024) package was utilized. This included the use of `dplyr` (Wickham, François, et al., 2024) for tasks such as filtering, summarizing, and joining datasets, as well as `stringr` (Wickham, 2024a) for text processing.

For downloading datasets, the `httr` (Wickham, 2024b), `readxl` (Wickham & Bryan, 2024), and `tidyverse` (Wickham, Averick, et al., 2024) packages were employed, facilitating the efficient retrieval and import of data.

During the data cleaning phase, the `readr` (Wickham, Hester, et al., 2024) package was employed for efficient reading of rectangular text data, and `dplyr` (Wickham, François, et al., 2024) was utilized for various data cleaning tasks.

To ensure the accuracy of the dataset and its related functions, unit testing was performed using the `testthat` (Wickham et al., 2024a) package, and `here` (Müller, 2024) was used for managing file paths and organizing the project structure.

For visualizing the data, `ggplot2` (Wickham et al., 2024b) was employed to create the graphs, while `patchwork` (Pedersen, 2024) was used to arrange multiple plots into cohesive visual

representations. Lastly, `showtext` (Qiu, 2024) was utilized to enhance the aesthetics of the graphs by enabling custom fonts.

TODO: havent used patchwork or showtext yet, will do in the results section. update any other packages used upon completeion of resutls section.

2.2 Methodology

The data for this study were collected from a comprehensive database comprising 158 neighborhoods in Toronto, consisting of 2,604 rows detailing demographic, social, and economic characteristics. The neighborhoods were outlined in the 1990s by the City of Toronto and have remained consistent to this day, allowing for comparison across Census years. This data was collected prior to April 2021 and is available on `opendatatoronto` ("Open data toronto," 2024), a dataset sourced from Toronto, Ontario.

2.2.1 Data Collection

I obtained data on individuals from two neighborhoods, comparing differences in their ethnic backgrounds, income levels, highest education attained, and knowledge of the official languages of Canada. The selected neighborhoods, Rosedale-Moore Park and Downtown Yonge East, are within walking distance of each other. They were chosen based on the expectation of significant differences in the demographic profiles of their residents.

2.2.2 Data Cleaning

After obtaining the dataset, I focused on the columns of interest: Rosedale-Moore Park and Downtown Yonge East. Next, I filtered the rows to include categories related to visible minorities as well as non-minorities. For income attainment, I grouped the data by categories of $10,000, calculated after tax.

Additionally, I included categories for education that illustrate the highest level of education completed and knowledge of Canada's official languages. To enhance clarity, I renamed the total category for visible minorities to a shortened version.

In refining the education categories, I chose to exclude the row labeled "postsecondary certificate, diploma, or degree" in favor of more specific categories within that branch. I also omitted the row for "apprenticeship certificate," as I retained the more specific category of "apprenticeship or trades certificate or diploma." Furthermore, I excluded the row "bachelor's degree or higher" since the more specific categories were already represented in subsequent rows.

Overall, excluding these three rows did not impact the total counts or ratings, as more specific categories were available. This decision aimed to minimize unnecessary categories in the

dataset, ensuring a clearer representation of the various levels of education when plotting the data.

2.2.3 Data Analysis

To compare the two neighborhoods, I created four bar charts representing different demographic aspects: ethnic groups, income levels, highest education attained, and knowledge of official languages. Each chart displayed the number of individuals on the y-axis, with the x-axis representing the respective categories. The charts were color-coded by neighborhood, facilitating easy visual comparison between Rosedale-Moore Park and Downtown Yonge East. This approach allowed for a clear assessment of the disparities and similarities in demographic profiles without the need for summary statistics.

TODO:add more on this once do results section

2.3 Features

The dataset is comprised of several key features being compared between the two neighborhoods, including demographic, social and economic characteristics. These features are ethnicity, income, highest level of education and knowledge of official language.

2.3.1 Ethnicity

One of the key features analyzed in this study is the distribution of minority and non-minority groups. There are nine specific minority groups, along with an additional category for individuals who identify as part of multiple minority groups, and a category for non-minorities.

This metric serves as an indicator of individuals' backgrounds on both cultural and religious levels. By examining the distribution of these ethnic groups, I aim to determine whether there is a greater or lesser presence of visible minority groups in a downtown neighborhood, such as Downtown Yonge East, compared to a neighborhood with more green space, like Rosedale-Moore Park. Understanding the trends in where visible minority individuals reside can provide insights into social dynamics, community support systems, and potential disparities in access to resources.

Through a comprehensive analysis of visible minority groups, I seek to elucidate the factors influencing their residential choices, such as socioeconomic status, housing availability, and community amenities. This understanding can contribute to broader discussions about urban planning, social equity, and the integration of diverse populations within Toronto.

Figure 1 illustrates the proportion of visible and non visible minorty groups in each neighborhood. On the x-axis we have the ethnic groups, most of which are non-minority groups, multiple and a category of non- visible minority individuals. The y-axis displays the number of

inviduals. Grouped bar charts were used for eacy comparion between the two neighborhoods. In looking at Figure 1, there is an overwhelming trend that individuals identifying as non-visible minorities live in Rosedale-Park. There are more than double non-visible minorities as compared to the Downtown East Yonge neighborhood. All the other categories are fairly similar. In terms of visible minorities, Chinese and South Asian are next most prominent in Rosedale-Moore Park. In Downtown Yonge East, these same two groups, Chinese and South Asian are the most prominent non-minority categories. In comparing Rosedale and Downtown visible minority groups only, there are clearly more individuals downtown.

TODO consider comparing visible vs. non visible minority categories (perhaps in the results section)

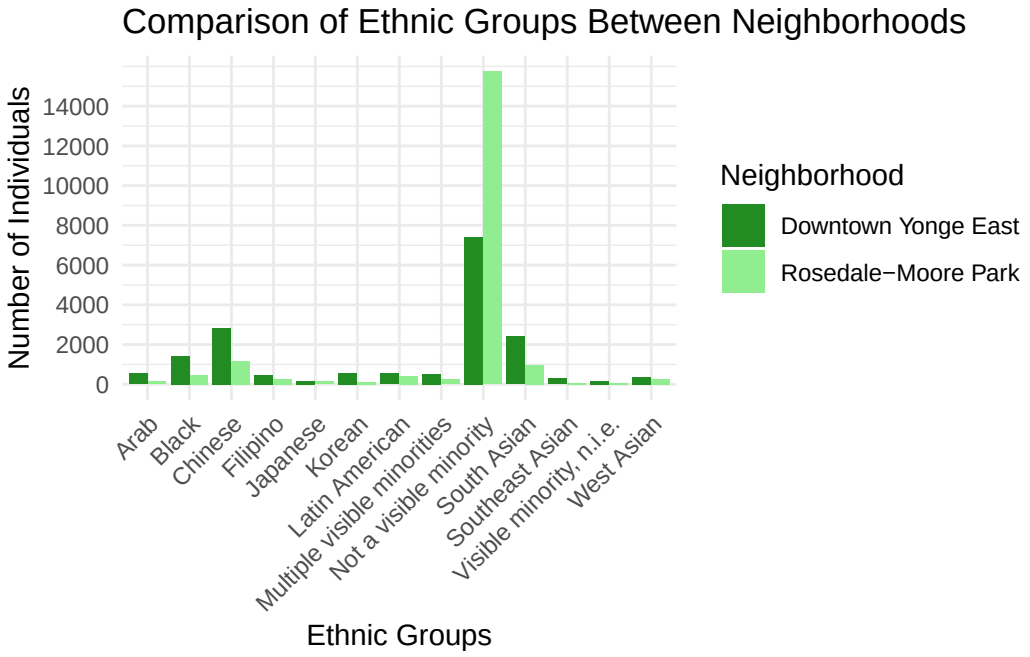

Figure 1: The chart illustrates the distribution of various ethnic groups across two Toronto neighborhoods, Rosedale-Moore Park and Downtown Yonge East, highlighting differences in ethnic diversity.

2.3.2 Income

Another key feature analyzed in this study is the distribution of income levels among residents in the selected neighborhoods. The income categories under consideration start at under $10,000 and go up by $10,000 up until"$150,000 and over."

This metric serves as a significant indicator of individuals' socioeconomic status, which can reveal disparities in income distribution between the two neighborhoods. By examining the

distribution of income levels, I aim to determine whether residents in a downtown area, such as Downtown Yonge East, exhibit different income patterns compared to a more residential neighborhood like Rosedale-Moore Park. Understanding these trends can shed light on economic disparities, access to resources, and overall community wellbeing.

Through a comprehensive analysis of income levels, I seek to explore the factors influencing the economic profiles of residents, such as employment opportunities, housing costs, and local amenities. This understanding is essential for fostering discussions about economic equity, community development, and the implications of income diversity within urban environments.

Figure 2 illustrates the distribution of income levels in each neighborhood. On the x-axis, I have the income categories, which represent a range of financial situations experienced by residents. The y-axis displays the number of individuals within each income category. Grouped bar charts were employed for easy comparison between the two neighborhoods.

In examining Figure 2, there is a noticeable trend indicating that Rosedale-Moore Park tends to have higher income levels compared to Downtown Yonge East in categories one hundred thousand dollars and upward. Every other category below this amount is dominated by the downtown populations, with the twenty to thirty thousand annual income to be the highest. There is a fairly even distribution across the neighborhoods for individuals making fifty to ninety thousand dollars.

TODO: idea that most individuals in the downtown area make twenty to thirty thousand sounds annually is insane. perhaps they are students, but I am wondering how they can afford daily life expenses, nevermind accomodation?! idea for the conclusion - overall, this analysis of income distribution highlights the economic diversity present within Toronto neighborhoods and provides insights into the broader socioeconomic landscape of the city.

2.3.3 Highest Level of Education

Another key feature analyzed in this study is the distribution of educational attainment among residents in the selected neighborhoods. The education categories considered in this analysis range from no certificate to categories of bachelors degree or higher.

This metric serves as a significant indicator of individuals' educational backgrounds, which can reflect broader trends in skill levels and access to employment opportunities within the neighborhoods. By examining the distribution of educational attainment, I aim to determine whether residents in a downtown area, such as Downtown Yonge East, exhibit different educational profiles compared to a more residential neighborhood like Rosedale-Moore Park. Understanding these trends can provide insights into community support systems, social mobility, and potential disparities in access to educational resources.

Through a comprehensive analysis of education levels, I seek to explore the factors influencing the educational profiles of residents, such as socioeconomic status, availability of educational

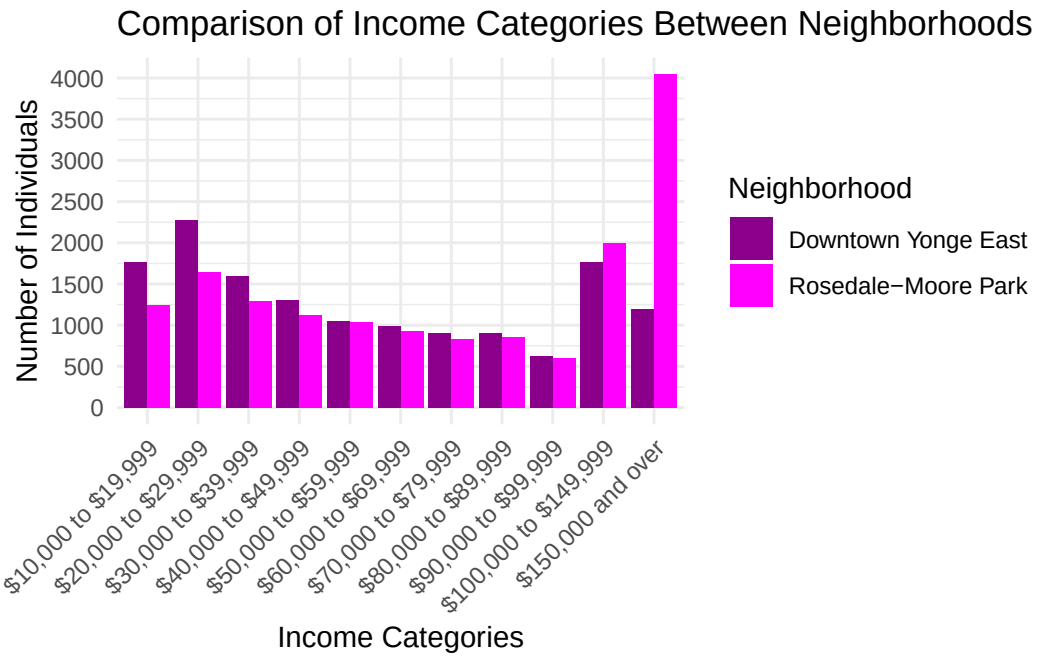

Figure 2: This bar chart compares the distribution of income categories in Rosedale-Moore Park and Downtown Yonge East, highlighting significant differences in income distribution and reflecting thier economic diversity.

institutions, and local employment trends. This understanding is essential for fostering discussions about educational equity, workforce development, and the implications of educational diversity within urban settings.

Figure 3 illustrates the distribution of highest levels of education attained in each neighborhood. On the x-axis, I have the education categories, which represent various levels of educational qualifications achieved by residents. The y-axis displays the number of individuals within each educational category. Grouped bar charts were employed for easy comparison between the two neighborhoods.

In examining Figure 3, there is not a noticeable trend in which neighborhood contains more education individuals. Most levels of education attainment are fairly equal. For categories higher than a bachelors degree, there are more individuals with a masters and earned doctorate degree in Rosedale-Moore Park as compared to Downtown Yonge East.

TODO: fix issue that high school diploma or equivalence category is not showing up in figure TODO: results - Overall, this analysis of educational attainment highlights the diverse educational backgrounds present within Toronto neighborhoods and provides insights into the potential implications for community development and social equity.

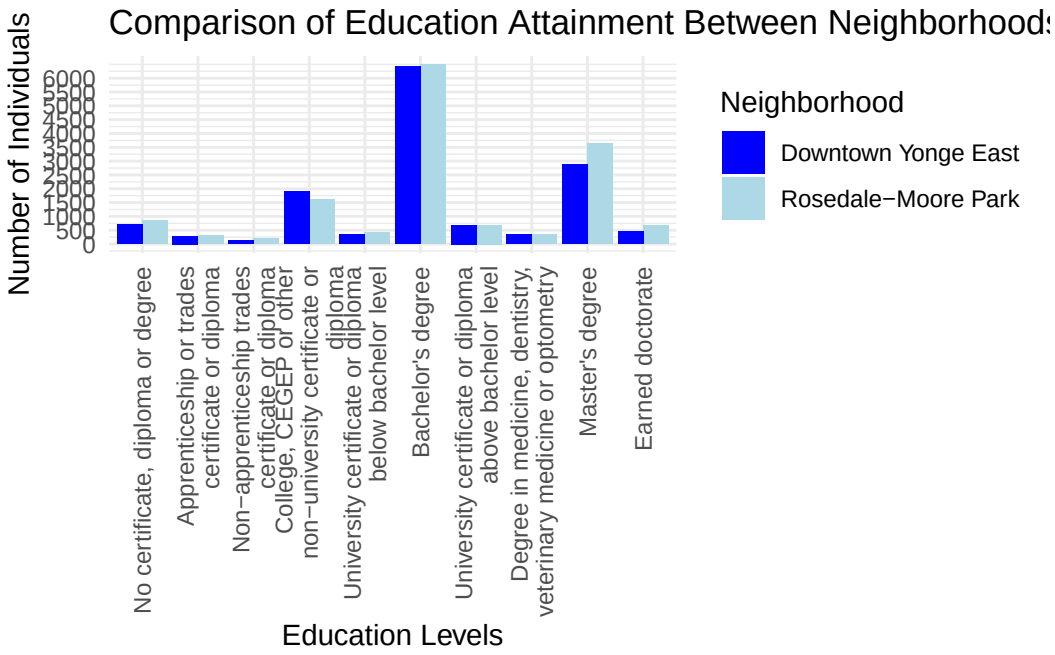

Figure 3: This bar chart illustrates the distribution of educational attainment levels in Rosedale-Moore Park and Downtown Yonge East, revealing disparities in educational qualifications and differences in access to education opportunies.

2.3.4 Knowledge of Official Language

Another key feature analyzed in this study is the distribution of knowledge of Canada's official languages among residents in the selected neighborhoods. The language categories considered in this analysis are as follows: "English only," "French only," "English and French," and "Neither English nor French."

This metric serves as an important indicator of individuals' linguistic capabilities, which can reflect cultural integration, community engagement, and access to resources in a bilingual country like Canada. By examining the distribution of language knowledge, I aim to determine whether residents in a downtown area, such as Downtown Yonge East, exhibit different language profiles compared to a more residential neighborhood like Rosedale-Moore Park. Understanding these trends can provide insights into social dynamics, communication barriers, and the potential for community cohesion.

Through a comprehensive analysis of language knowledge, I seek to explore the factors influencing the linguistic profiles of residents, such as immigration patterns, educational backgrounds, and community support systems. This understanding is essential for fostering discussions about linguistic diversity, social inclusion, and the implications of language proficiency within urban settings.

Figure 4 illustrates the distribution of knowledge of official languages in each neighborhood. On the x-axis, I have the language categories, which represent the various levels of language proficiency among residents. The y-axis displays the number of individuals within each language category. Grouped bar charts were employed for easy comparison between the two neighborhoods.

In examining Figure 4, there is a noticeable trend indicating that Rosedale-Moore Park has a higher proportion of residents who speak only english and those that speak both offical langugaes of Canada compared to Downtown Yonge East. The presence of individuals who speak "Neither English nor French" is relatively low in both neighborhoods, however there is slightly more in the neighborhood of Downtown Yonge East. In terms of individuals who only speak french, there are none in Rosedale and very few in Downtown.

TODO- results - Overall, this analysis of language knowledge highlights the linguistic diversity present within Toronto neighborhoods and provides valuable insights into the implications for communication, community engagement, and social integration.

3 Results

3.1 Overview

In this section, I present the results of the analysis comparing Rosedale-Moore Park and Downtown Yonge East across four key demographic features: ethnicity, income levels, highest

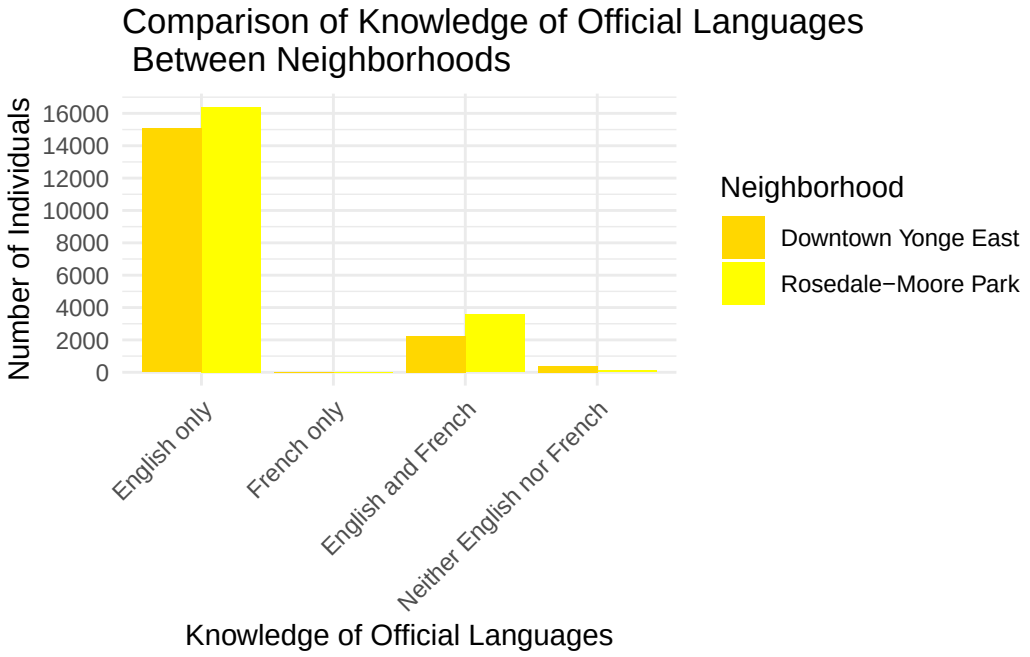

Figure 4: This bar chart depicts the distribution of knowledge of official languages among residents of Rosedale-Moore Park and Downtown Yonge East, highlighting variation in language knowledge, reflecting their diverse linguistic profiles.

levels of education attained, and knowledge of official languages. The following figures illustrate the distributions and comparisons for each of these features.

```
# #| warning: false
# #| echo: false
# #| message: false
# #| label: fig-five
# #| fig-cap: This scatterplot depicts the relationship between the highest level of educatio
# #| fig-width: 15


# install libraries
# install.packages("tidyverse")
# install.packages("dplyr")
# install.packages("ggplot2")
# install.packages("tidyr")
# install.packages("stringr")

# Load necessary libraries
library(tidyverse)
library(dplyr)
library(ggplot2)
library(tidyr)
library(stringr)

# Check if the file exists and load it
# file_path <- here::here("inputs/data/analysis_data/neighborhood_analysis_data.csv")

# if (file.exists(file_path)) {
  #analysis_data <- read_csv(file_path)
  #print("File found and loaded successfully!")
#} else {
 # stop("Error: File not found at the specified path.")
#}

# Define income and education categories
#income_categories <- c("Under $10,000", "$10,000 to $19,999", "$20,000 to $29,999",
                       #"$30,000 to $39,999", "$40,000 to $49,999",
                       #"$50,000 to $59,999", "$60,000 to $69,999",
                       #'$70,000 to $79,999", "$80,000 to $89,999",
                       #"$90,000 to $99,999", "$100,000 to $149,999",
                       #"$150,000 and over")
```

```
#education_categories <- c("No certificate, diploma or degree",
                           #"High school diploma or equivalency certificate",
                           #"Postsecondary certificate or diploma",
                           #"Apprenticeship or trades certificate or diploma",
                          # "Non-apprenticeship trades certificate or diploma",
                        #   "College, CEGEP or other non-university certificate or diploma",
                           #"University certificate or diploma below bachelor level",
                          # "Bachelor's degree",
                           #"University certificate or diploma above bachelor level",
                           #"Degree in medicine, dentistry, veterinary medicine or optometry"
                           #"Master's degree",
                           #"Earned doctorate")
```

3.2 Ethnicity Distribution

Figure 1 shows the distribution of ethnic groups in Rosedale-Moore Park and Downtown Yonge East. The grouped bar chart indicates that Rosedale-Moore Park has a significantly higher number of non-visible minorities compared to Downtown Yonge East, with more than double the population in this category. Notably, the South Asian and Chinese communities are the most prominent visible minority groups in both neighborhoods, but Downtown Yonge East has a greater overall presence of visible minorities. This suggests that the downtown area is more culturally diverse, which may influence social dynamics and access to community resources.

3.3 Income Distribution

Figure 2 illustrates the distribution of income levels among residents in the selected neighborhoods. The chart reveals a distinct trend: Rosedale-Moore Park residents generally have higher income levels, particularly in the categories of $100,000 and above. Conversely, Downtown Yonge East has a greater concentration of individuals earning between $20,000 and $39,999, indicating potential socioeconomic challenges in the downtown area. This disparity raises questions about housing affordability and the economic diversity present within urban neighborhoods.

3.4 Highest Level of Education Attained

In Figure 3, the distribution of educational attainment is depicted. The analysis reveals no significant trend favoring one neighborhood over the other in most educational categories. However, Rosedale-Moore Park shows a higher concentration of individuals with master's degrees and earned doctorates, indicating a potential for higher academic achievement in this area. Conversely, the representation of individuals with only a high school diploma is equally

shared between neighborhoods, suggesting similar foundational educational backgrounds. This reflects the need for equitable access to educational resources in both neighborhoods.

3.5 Knowledge of Official Languages

Finally, Figure 4 presents the distribution of knowledge of Canada's official languages among residents. The data indicates that Rosedale-Moore Park has a higher proportion of residents who speak only English and those who speak both official languages, compared to Downtown Yonge East. Interestingly, the proportion of individuals who speak neither English nor French is slightly higher in Downtown Yonge East, while very few residents in either neighborhood identify as speaking French only. This trend highlights the linguistic dynamics within each neighborhood and suggests that Rosedale-Moore Park may be more linguistically integrated with Canada's official languages.

3.6 Summary

Overall, the analysis highlights significant demographic differences between Rosedale-Moore Park and Downtown Yonge East. Rosedale-Moore Park is characterized by higher income levels, educational attainment, and proficiency in official languages, while Downtown Yonge East showcases a more diverse population with a greater presence of visible minorities and a concentration of lower income levels. These findings underscore the importance of understanding urban demographic trends for effective community planning and resource allocation.

4 Discussion

4.1 First discussion point

The analysis of ethnic group distribution between Rosedale-Moore Park and Downtown Yonge East reveals significant demographic contrasts. Rosedale-Moore Park's predominance of non-visible minorities, coupled with a smaller visible minority population, suggests a more homogeneous cultural environment. In contrast, Downtown Yonge East's diversity may contribute to richer cultural dynamics and social interactions, but it could also present challenges in terms of resource allocation and community cohesion. Understanding the implications of these demographic differences is crucial for developing targeted social programs that address the needs of diverse populations.

4.2 Second discussion point

Income distribution data highlights a stark socioeconomic divide between the two neighborhoods. The higher income levels in Rosedale-Moore Park indicate greater economic stability, while the concentration of lower-income residents in Downtown Yonge East raises concerns about affordability and access to essential services. This disparity could lead to a range of social issues, including housing insecurity and limited access to education and employment opportunities. Addressing these income disparities should be a priority for policymakers and community organizations to ensure equitable development across Toronto neighborhoods.

4.3 Third discussion point

Educational attainment appears relatively balanced between the neighborhoods, but Rosedale-Moore Park's higher representation of individuals with advanced degrees suggests a link between education and income levels. This relationship indicates that access to quality education is critical for social mobility. Programs aimed at improving educational resources in lower-income neighborhoods like Downtown Yonge East could help bridge the gap in educational attainment, leading to improved economic outcomes for residents.

4.4 Weaknesses

While the study provides valuable insights, it is important to acknowledge its limitations. The reliance on census data may not capture the most current demographic shifts, as changes in population dynamics can occur rapidly. Additionally, the analysis focused on only two neighborhoods, which may not be representative of broader trends across Toronto. Future research should consider a larger sample size and more recent data to enhance the robustness of findings.

4.5 Future Directions

Future studies could explore the underlying factors contributing to the demographic differences observed in this analysis. Investigating the role of local policies, housing markets, and community support systems in shaping these neighborhoods could provide a deeper understanding of urban dynamics. Furthermore, longitudinal studies examining trends over time would help identify shifts in demographic patterns and their implications for community development.

5 Conclusion

In conclusion, this analysis underscores the importance of understanding demographic, socioeconomic, and educational disparities between Toronto neighborhoods. The findings highlight the need for targeted interventions that address the unique challenges faced by diverse populations. By fostering equitable access to resources, educational opportunities, and community support, we can work towards building inclusive urban environments that benefit all residents.

A Appendix

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