

# Demography of Education in Toronto's neighbourhoods with Highest and Lowest Income

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## Abstract

what was done, what was found, and why this matters. Descriptive, no prediction

## Wellbeing Toronto - Demographics: NHS Indicators

The data set package we delved into is *Wellbeing Toronto - Demographics: NHS Indicators*, which provides information from the 2011 National Household Survey (NHS) and presents a profile of Toronto. Data is broken down by the 140 neighbourhoods that make up the City of Toronto. With this data set package, we first identify the two neighbourhoods that have the highest income and the lowest income and then analyze the education demographics in these two neighbourhoods to understand difference of education attainment between these two neighbourhood. We also identify the median household income and the average education levels of the city to be compared with the two neighbourhoods.

There are two data sets in this package in which we combine into one single data set: *Demographics NHS Indicators 2011* and *Education NHS Indicators 2011*. *Demographics NHS Indicators 2011* shows the following indicators: population breakdown by ethnicity, household income, education level, employment, age and sex. We extract the indicator of household income to identify the two neighbours that has the highest household income and the one with the lowest. Although this data set provides data for education levels, the indicators are not completed since the data for education level higher than bachelor is not provided. To obtain the indicators of all education levels, we use *Education NHS Indicators 2011*, which provides complete education level indicators ranged from no-certification to postgraduate-level certification.

The neighbourhoods in the package are coded by numbers. To retrieve the names of neighbourhood, we also include the housing data set from *Wellbeing Toronto - Housing* package. We incorporate the housing data set strictly for extracting the names of the neighbourhoods; no housing indicators are used in our analysis.

## Demographics NHS Indicators 2011 data set

*Demographics NHS Indicators 2011* shows the profile of each neighbourhood regarding population breakdown by ethnicity, household income, education level, employment, age and sex. The indicators we are interested in are *Median household total income* and *Median after-tax household income*. These two columns show the median household income of every neighbourhood before and after tax in Canadian dollars.

```
## # A tibble: 6 x 3
##   `Hood#` `Median household total income $` `Median after-tax household income ~
##   <chr>   <chr>                               <chr>
## 1 ID      incprhh14                                incprhh58
## 2 1        66241                             59703
## 3 2        49934                             46986
## 4 3        62042                             57522
## 5 4        56545                             51194
## 6 5        50846                             49425
```

## Education NHS Indicators 2011

*Education NHS Indicators* is provided for the population of age 15 and over living in private households. The data set presents the distribution of people's most advanced education level in each neighbourhood. The levels we selected in the analysis are presented as follow.

```
## New names:
## * `` -> ...12
## * `` -> ...13

## [1] "No certificate, diploma or degree"
## [2] "High school diploma or equivalent"
## [3] "College, CEGEP or other non-university certificate or diploma"
## [4] "Bachelor's degree"
## [5] "University certificate, diploma or degree above bachelor level"
```

## Wellbeing Toronto - Housing

*Wellbeing Toronto - Housing* data set is used in order to extract the names of the neighbourhood. The indicators of housing are not in the scope of our analysis.

=== Writing below this section is not yet started ===

```
## [1] "West Humber-Clairville"           "Mount Olive-Silverstone-Jamestown"
## [3] "Thistletown-Beaumont Heights"    "Rexdale-Kipling"
## [5] "Elms-Old Rexdale"                "Kingsview Village-The Westway"
```

## Merging all datasets

Explanation

```
## [1] 52660

## [1] 55426 62730 9031 9369 15542 2721 3738 9083 796 2358 812 5117
## [13] 3120

## ID neighbourhood total_population
## 1 41 Bridle Path-Sunnybrook-York Mills 8715
## 2 72 Regent Park 10010
## 3 NA Toronto 52660
## median_after_tax_household_income median_household_total_income
## 1 161448 208674
## 2 30794 32172
## 3 55426 62730
## total_visible_minority_population not_a_visible_minority
## 1 1965 6685
## 2 7005 2310
## 3 9031 9369
## total_population_aged_15_years_and_over_by_highest_certificate_diploma_or_degree
```

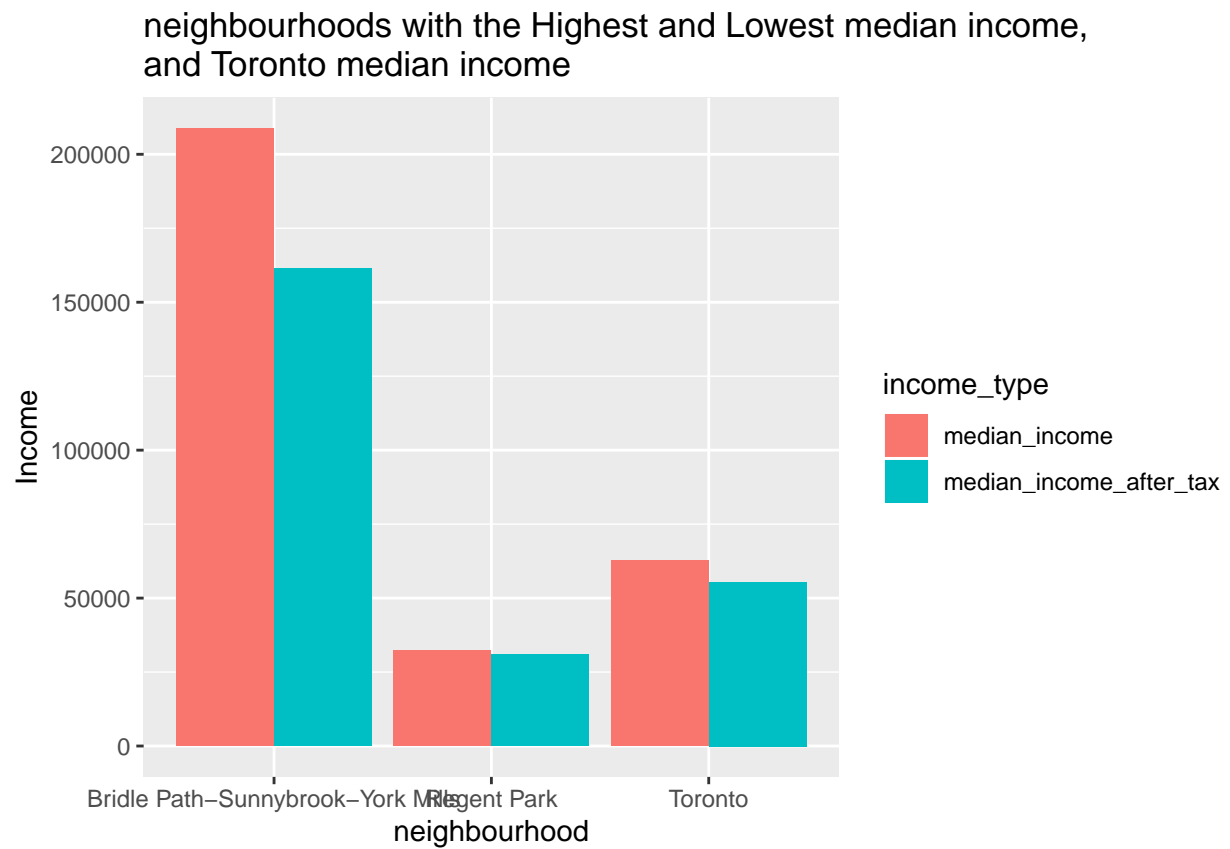
```

## 1 7195
## 2 7280
## 3 15542
## no_certificate_diploma_or_degree high_school_diploma_or_equivalent
## 1 630 1170
## 2 1465 2095
## 3 2721 3738
## postsecondary_certificate_diploma_or_degree
## 1 5395
## 2 3720
## 3 9083
## apprenticeship_or_trades_certificate_or_diploma
## 1 50
## 2 385
## 3 796
## college_cegep_or_other_non_university_certificate_or_diploma
## 1 695
## 2 1085
## 3 2358
## university_certificate_or_diploma_below_bachelor_level
## 1 355
## 2 315
## 3 812
## university_certificate_diploma_or_degree_at_bachelor_level_or_above
## 1 4295
## 2 1945
## 3 5117
## bachelors_degree
## 1 2390
## 2 1315
## 3 3120

```

#Create Graph1 dataframe Median household income Finally, the median total income is presented in a bar graph comparing the median for that neighbourhood as compared to the median for the entire city of Toronto.

Plotting the graph



Create graph2 dataframe

Plotting Graph2

