

Apartment Evaluations Have Been Beneficial to the City of Toronto*

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Abstract

Building evaluations are always important to conduct, not only from a safety perspective, but also to promote people buying and renting more property. The RentSafeTO program started in 2017, and the data is updated daily on Open Data Toronto, and we will be looking at the various factors that play in the role of giving a better score. Over the last 5 years, we have seen a generally upward trend in building scores. We also find that there are certain features, like multiple stairwells and higher security, that tend to procure a extra points.

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*Code and data are available at: www.github.com/ritvikpuri/sta304-paper-1

1 Introduction

The city of Toronto introduced a new bylaw enforcement program in July 2017 that is used to ensure that the apartment building owners and operators comply with the necessary building maintenance standards, known as RentSafeTO. These standards are applied to all apartment buildings with 10 or more units or with 3 or more stories. (T. C. of Toronto 2022)

Owners of such apartments are required to register with RentSafeTO as well as maintain the standards defined by this program. Tenants need to contact their respective landlord in case they face an issue. These issues could either be vital, such as heat or hydro fault, or service requests, such as window flaws or common area cleaning. If the landlord does not comply to these requests, then according to the bylaws of RentSafeTO program, legal action can be taken against them. (C. of Toronto 2022)

Each property that falls under the program gets inspected by an officer and receives an evaluation score, which is made available to not only the landlord and tenant, but also to the potential tenants. If the score of a building is 86 or above, it will be evaluated again in the next three years. If it is between 66 and 85, it will be evaluated again within two years. If it is between 51 and 65, it will be evaluated again within a year. If a building gets a score of 50 or below, then the full building will undergo a comprehensive inspection. (T. C. of Toronto 2022)

Home safety evaluations are necessary to protect residents from potential hazards which may lead to personal injury if left unchecked. In a city like Toronto, where a lot of people do not own their personal property and live in rented apartments, it is critical that the landlord is kept informed of their building's condition so that they can ensure a tenant's safety.

What has been the results of introducing such a system? Has it been beneficial? Are there any specific features in a building that can give it more points and result in a better score?

2 Data

We have taken Apartment Evaluation Score Data from Open Data Toronto (Data 2022) and we will use this to gain a better understanding of whether there have been any improvements in the apartment building conditions. The data almost 10,000 entries spread over 40 columns. These columns give us a variety of information about each evaluation conducted, ranging from year built, year evaluated, property type, score, building address, wardnames, confirmed storeys, confirmed units, stairwells, security rooms, laundry rooms, number of entrances, exits and a lot more. (Data 2022)

To analyze our dataset, I will be using R (R Core Team 2020), `tidyverse` (Wickham et al. 2019), `dplyr` (Wickham et al. 2021) along with `ggplot2` (Wickham 2016), `scales` (Wickham and Seidel 2016), `patchwork` (Thomas Lin Pedersen 2020) and `viridis` (Garnier et al. 2021). There were multiple steps I took to clean and extract the necessary data. The first thing I did was change the necessary column types from character to numeric, because initially columns such as SCORE and WARD were character type and it would not have been possible to graph them. Since we have a lot more entries of PRIVATE property type than PUBLIC and TCHC property types, I filtered out all entries that were not PRIVATE. Thus we will only be assessing the building evaluations for private apartment buildings.

First I decide to take a look at the average scores of all the buildings based on the categories defined by the RentSafeTO Program (T. C. of Toronto 2022). This meant categorizing scores according to the ranges they mentioned (Figure 1). To categorize the scores I added another column to the database that gave the category based on their scores. I also reported the max, min, mean and standard deviation of all the scores in our dataset. (Table ??). Along with these two plots, I also made a bargraph based on the average scores of each of the 25 wards the apartment buildings are classified into. (Figure 2)

The next four graphs are to see what helps buildings get a higher score than the rest. Since we have a lot of columns, I decided to focus on the most basic ones. Namely, Stairwells, Security, Laundry Rooms and Elevators. I made scatterplots using `ggplot2` (Wickham 2016) to see if any of these factors promote scores.

Table 1: Variation of Ward Scores

Score Min	Score Max	Score Mean	Score Standard Deviation
0	100	72.41891	10.13594

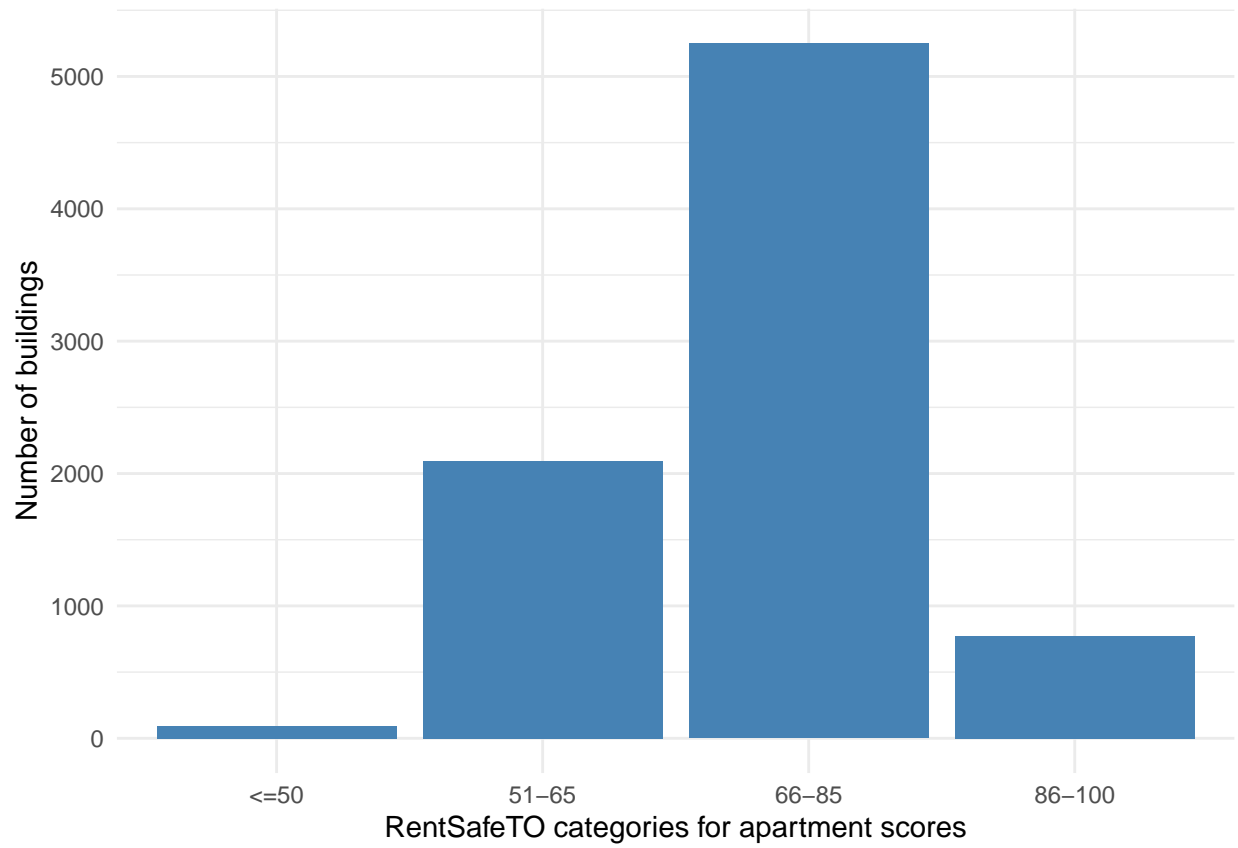


Figure 1: Number of buildings in each of the 4 RentSafeTO evaluation categories

We can see how there are a lot of apartment building with a score that's between 66 and 85, which means they won't be evaluated for the next 2 years and are considered to be in good condition overall. But what makes the score of these buildings higher than the rest? And what do the few buildings with a score of more than 86 do that separates them from the rest?

3 Models

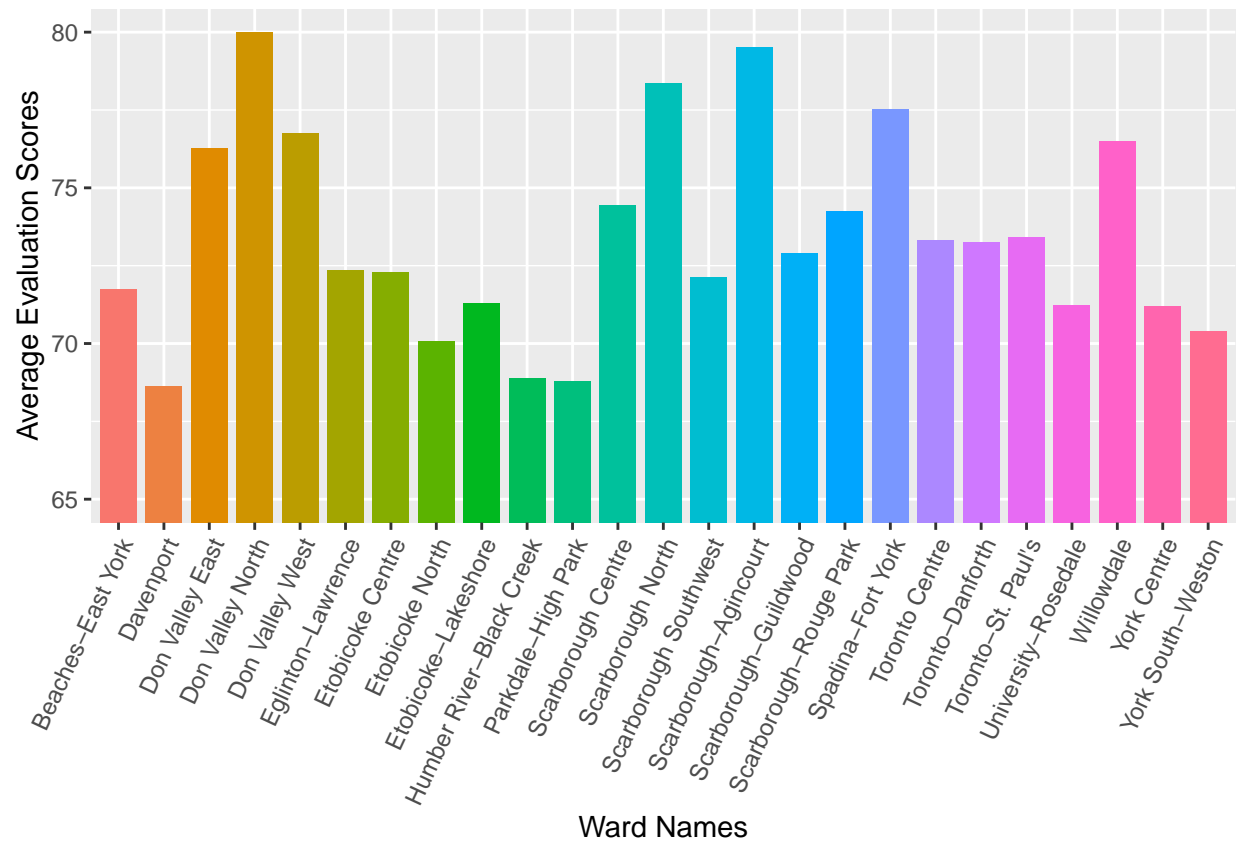


Figure 2: Variation of the average scores for each ward

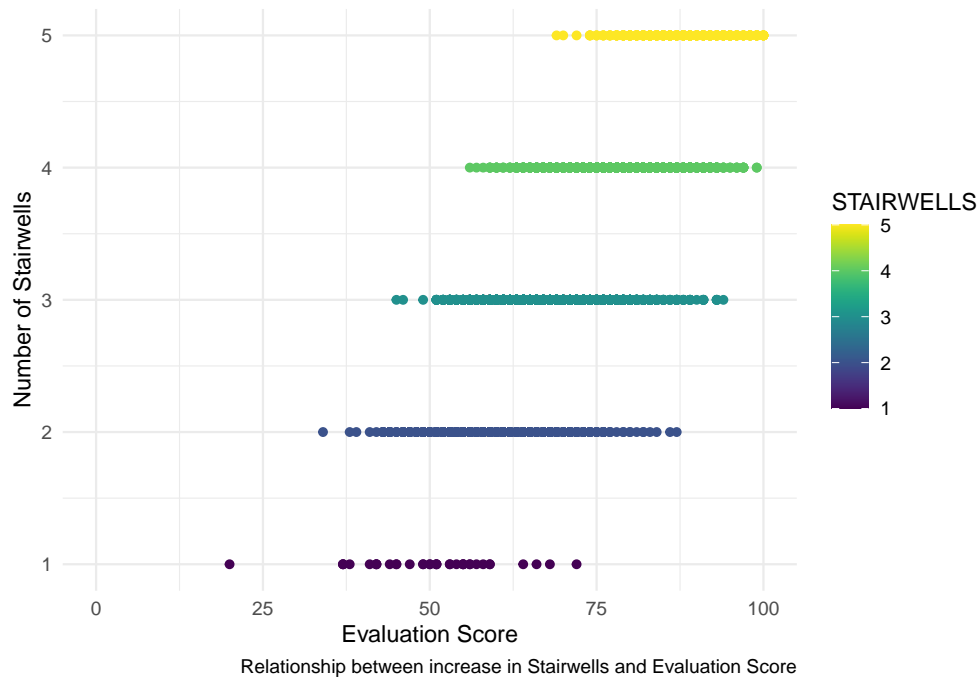


Figure 3: Relationship between number of stairwells and score

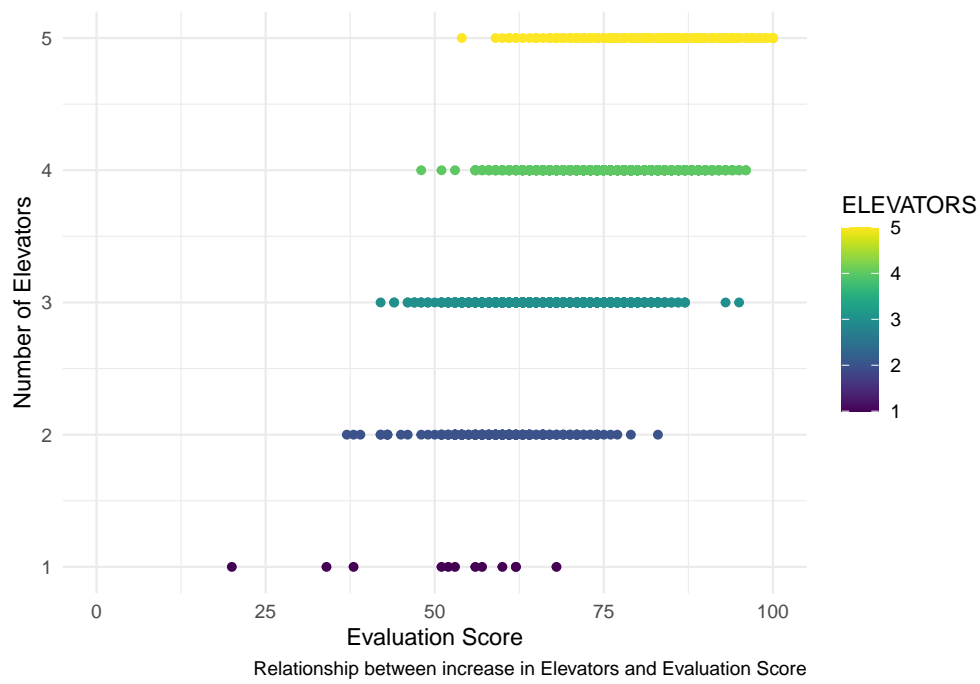


Figure 4: Relationship between number of elevators and score

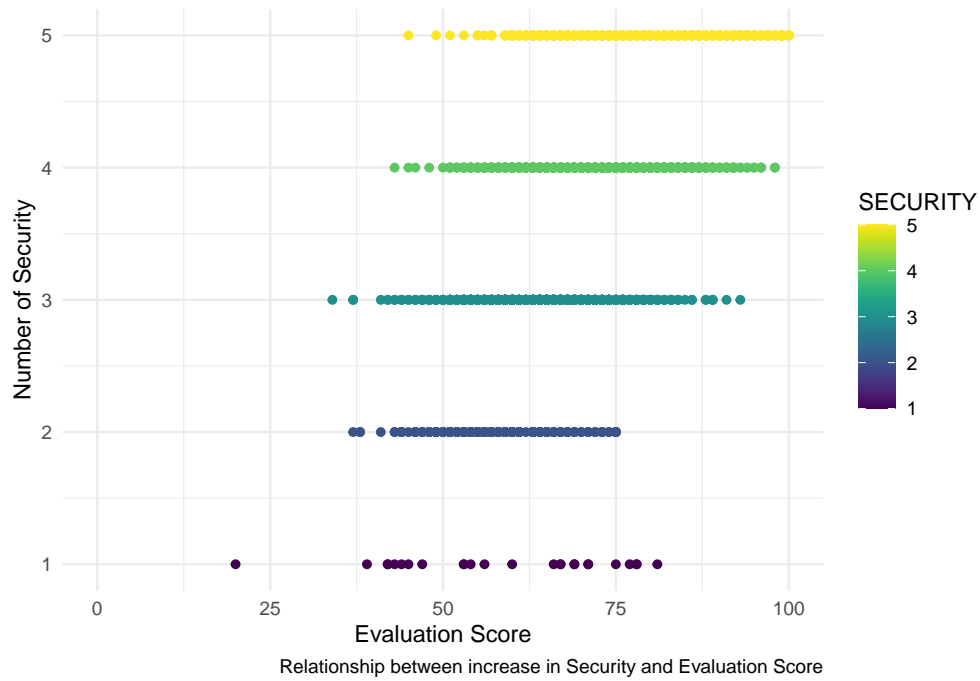


Figure 5: Relationship between number of security and score

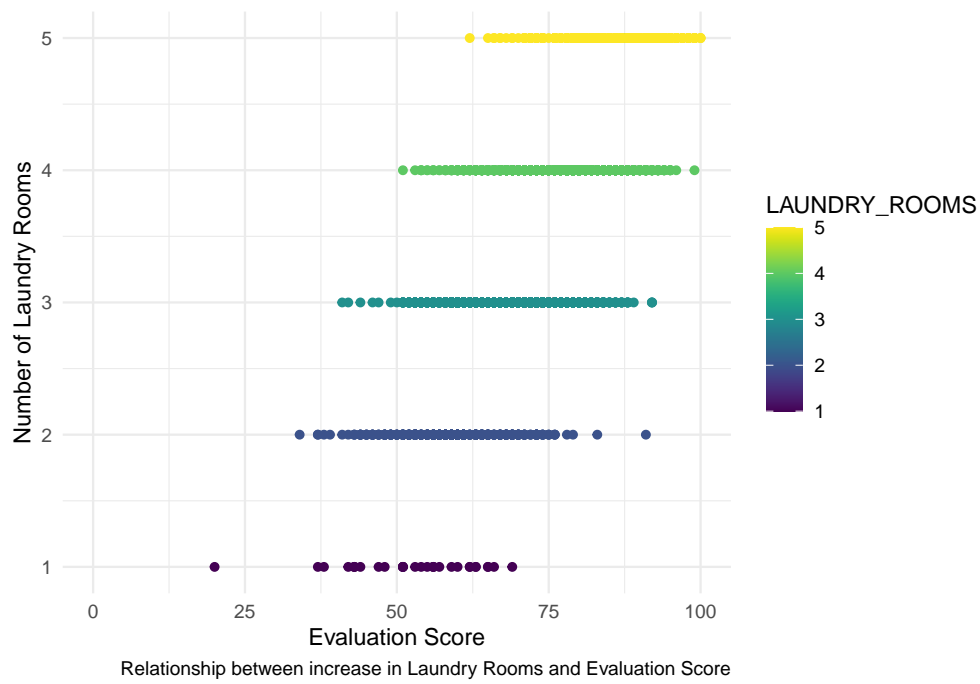


Figure 6: Relationship between number of laundry rooms and score

4 Discussion

4.1 Initial Graphs

The RentSafeTO bylaws say that a buildings next evaluation is determined based on their score. If the score is less than 50, then a complete buliding inspection and audit is conducted. This means that the building condition is not fit for living. The main aim of the program should be to see make sure each buiding provides a liveable space that is both safe for current residents and future ones. Figure 1 tells us that most of the residences fall in the 66-85 range, which means that their nexct evaluation comes 2 years later, This should be considered a good things as there a re very few apartments with scores lower than 50.

The table tells us that while some building did get a perfect score, some building also got zero points. While this is good to know, it is not helpful for our analysis. We do get to know that the average score is 72.4 which holds in line with our conclusion from the bargraph of categories.

Figure 2 shows us that while all wards are relatively close in scores, there are a few that on average better buildings than others. Don Valley North, Scarborough North, Scarborough Agincourt are the top three wards in terms of apartment quality. Davenport, Humber River-Black Creek and Parkdale- High Park are the wards with the three lowest wards. This gives us some insight as to how the residences are being maintained around Toronto, and can even help someone narrow down their search if they are looking for a place.

4.2 Scatterplots

Our dataset consisted on multiple columns. Most of them told us the number of facilities in each apartment buliding. One would assume these features help a bulidings score, and these scatterplots give us some insight as to if this is true or not. Since there are a lot of facilites to account for, I decided to focus on the ones I find most important according to me, These plots do show an indication that having more is better. An increase in the number of stairwells, security, laundry rooms and elevators tend to give a higher evaluation scor, as indicated by Figure 3.

While their are other factors included in the dataset, such as number of lobbies and garbage areas, these factors do not tend to play a crtical role in evaluations and these are also not things most people consider while looking at prospective residences.

4.3 Growth

An important aspect of introducing and keeping large amounts on data on a program such as RentSafeTO in a populous and fast growing city like Toronto is to observe growth and see if it has been helpful or not. I calculated the averege scores over all the buildings and grouped them by the year of evaluation. The first year the prgram was conducted (2017), the average score was only 65. But since these were strict laws and building owners followed them, we saw a large incerease in the average score over the next 2 years, going up all the way to 79 in 2019. A few points have dropped in the last 2 years, but I think this can be attributed to the COVID-19 pandemic.

4.4 Weaknesses and next steps

A weakness that is evident can be seen in Table 2 above, which is the missing values. I could have removed the row from the table but it should be noted that this dataset contained a lot of missing cells in multiple rows and columns. A lot of columns are also not that helpful when you look at the way they are presented. The OTHER_FACILITIES column gives us the number of extra facilities certain luxury apartments might have. however, since there is no description is provided, we have no idea of knowing what these features are.

Table 2: Yearly Score Changes

Year	Average Score
2017	65.12683
2018	72.90113
2019	79.26292
2020	77.46915
2021	76.43112
NA	68.00000

I believe a good step to make as this program continues is to maybe modify the category values that are currently set. As we observed, the average score was 72 and the baseline is at 50. If this baseline is increased, the average score will go up and the quality of buildings all around the city will increase. Adding some comments for each inspection will also help keep a track of any persisting problems that the building has not fixed over many evaluations.

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