

Licensed Child Care Spaces in Toronto's 25 Wards*

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Analysis of licensed child care facilities, child population, and average household income in Toronto's 25 wards. Investigation reveals a negative correlation between children per child care space and average household income by ward. This suggests increased competition for child care spaces in wards with lower income as well as decreased competition for child care spaces in wards with higher incomes. This finding demonstrates a lack of equity surrounding access to licensed childcare facilities in Toronto based on a ward's average household income.

Table of contents

1	Introduction	1
2	Data	2
2.1	Licensed Child Care Centres in Toronto	3
2.2	Toronto Ward Profiles Based on 2021 Canada Census Data	3
2.3	Investigation	4
	Appendix	7
	References	8

1 Introduction

Access to child care is vital to the social and economic health of a community such as the City of Toronto. Accessible child care has been shown to influence occupational and educational

*Code and data are available at: https://github.com/ThomasWilliamFox/toronto_child_care

opportunities for parents, especially those in low-income situations (Gunaseelan 2021). This leads to increased economic prosperity for parents and families which in turn, brings positive impacts to their physical and social well-being (Gunaseelan 2021). Child care access also has an impact on the health and development of children who attend these facilities (Rhijn et al. 2021). Vulnerable children greatly benefit from child care access as these centers help to facilitate early intervention methods (Underwood and Frankel 2012). Equitable access to child care is therefore an important facet of community health and development.

This paper explores data made available by Open Data Toronto (Gelfand 2022) related to licensed child care facilities and city ward profiles to explore the relationship between child care access and ward demographics. The data was analyzed and processed with the programming language R (R Core Team 2022). Various packages were also used in the processing, cleaning, and presentation of this information such as tidyverse (Wickham et al. 2019), here (Müller 2020), knitr (Xie 2023a), tinytex (Xie 2023b), dplyr (Wickham et al. 2023), janitor (Firke 2023), and plyr (Wickham 2011).

This analysis shows a negative correlation between the number of children in a ward per existing child care space and average household income (see 2.3). This suggests that lower income wards experience greater competition for child care access and higher income wards experience less competition. This finding demonstrates a trend of inequitable access to child care across the city of Toronto. As child care access plays a central role in the social and economic well-being of communities, and has an especially positive impact on vulnerable children and low-income families, these findings support measures and initiatives aimed at ensuring more equitable access to child care in the City of Toronto (see Toronto 2017).

The remainder of this paper is structured as follows(R Core Team (2022)).

- 1) broader context to motivate
- 2) some detail about what the paper is about;
- 3) a clear gap that needs to be filled;
- 4) what was done;
- 5) what was found;
- 6) why it is important;
- 7) the structure of the paper. A reader should be able to read only the introduction and know what was done, why, and what was found. Likely 3 or 4 paragraphs, or 10 per cent of total.

You can and should cross-reference sections and sub-sections.

The remainder of this paper is structured as follows(R Core Team (2022)).

2 Data

A sense of the dataset should be communicated to the reader.

The broader context of the dataset should be discussed.

All variables should be thoroughly examined and explained.

Explain if there were similar datasets that could have been used and why they were not.

If variables were constructed then this should be mentioned, and high-level cleaning aspects of note should be mentioned, but this section should focus on the destination, not the journey.

It is important to understand what the variables look like by including graphs, and possibly tables, of all observations, along with discussion of those graphs and the other features of these data.

Summary statistics should also be included, and well as any relationships between the variables. If this becomes too detailed, then appendices could be used.

2.1 Licensed Child Care Centres in Toronto

The first data set I explored is... (Table 1) from Gelfand (2022).

Table 1: Sampled of Cleaned Toronto Licensed Child Care Data

Facility ID	Ward Number	Total Spaces	Type
1	3	164	Non Profit Agency
2	8	83	Non Profit Agency
3	25	102	Non Profit Agency
4	10	65	Non Profit Agency
5	20	26	Non Profit Agency
6	24	62	Non Profit Agency

I then visualized the total child care spots per ward (Figure 1) from Gelfand (2022).

2.2 Toronto Ward Profiles Based on 2021 Canada Census Data

I then looked at the profiles of Toronto's 25 wards based on the 2021 Canada Census (Table 2) from Gelfand (2022).

Table 2: Sample of Cleaned 2021 Canada Census Data

Ward Number	Age 0-4	Age 5-9	Age 10-14	Average Household Income	Median Household Income
1	5755	6160	6585	95200	81000

Table 2: Sample of Cleaned 2021 Canada Census Data

Ward Number	Age 0-4	Age 5-9	Age 10-14	Average Household Income	Median Household Income
2	5105	5825	6370	146600	100000
3	6765	6180	5515	127200	90000
4	4770	5015	5230	127200	85000
5	6045	6060	6360	88700	72000
6	5265	5205	5085	107500	82000

I used this data to determine what number of the population is under the age of 15 in each ward (Figure 2).

I then looked at what the average income was per ward (Figure 3).

2.3 Investigation

I then made a graph that displayed the number of child care spaces in each ward in ascending order based on average household income (Figure 4)

I then constructed a scatter plot showing the number of children under the age of 14 per child care space in each ward arranged in ascending order by average household income (Figure 5).

Talk more about it.

And also planes. (You can change the height and width, but don't worry about doing that until you have finished every other aspect of the paper - Quarto will try to make it look nice and the defaults usually work well once you have enough text.)

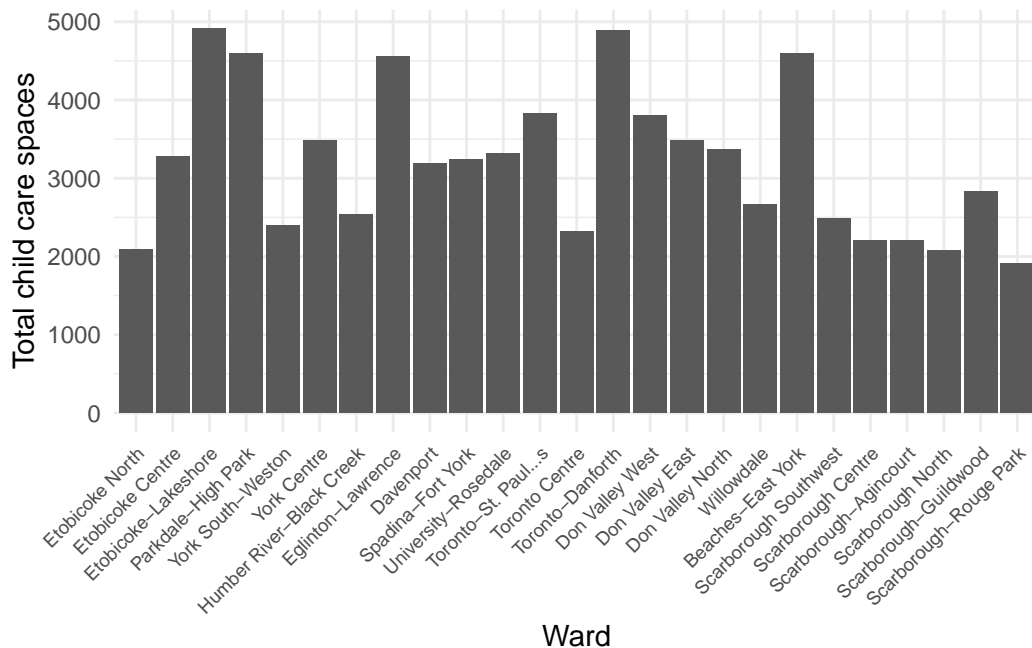


Figure 1: Total number of child-care spaces by ward

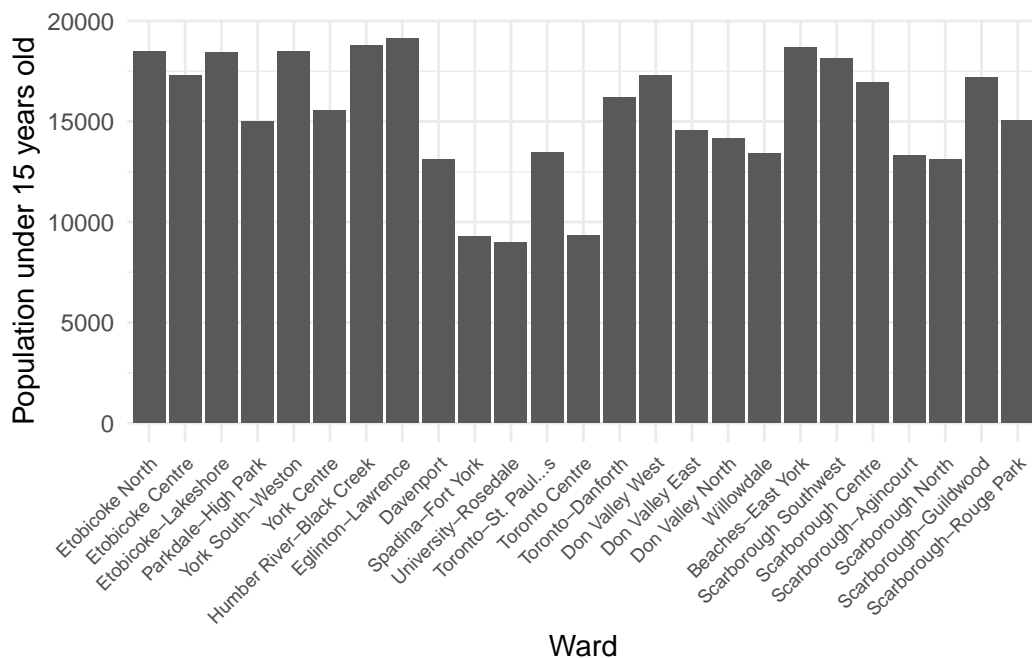


Figure 2: Population under 15 years of age by ward

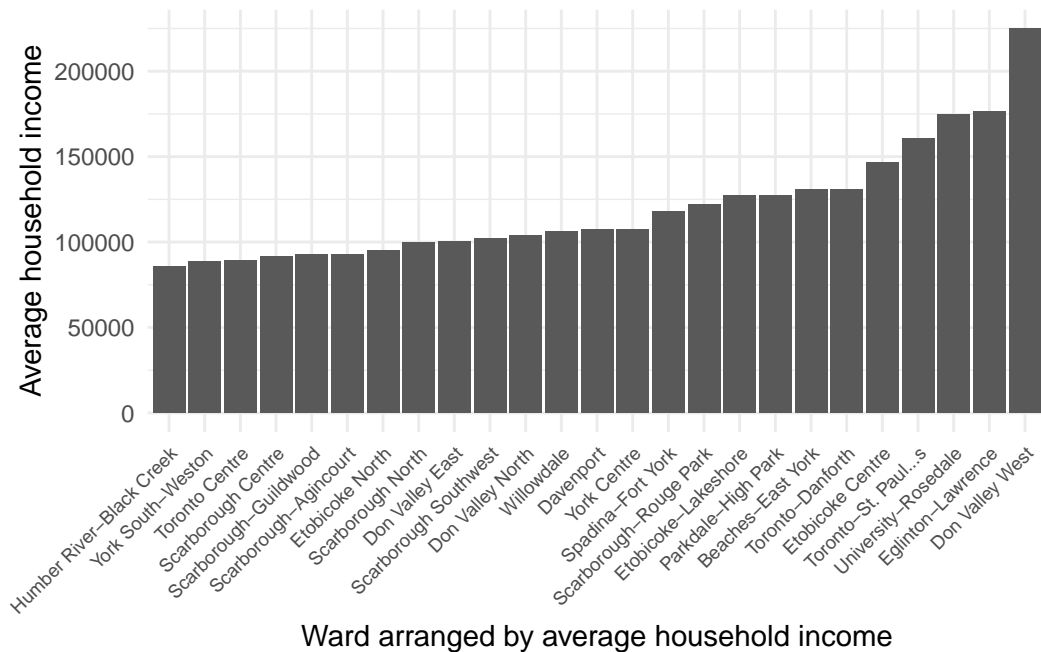


Figure 3: Average household income by ward

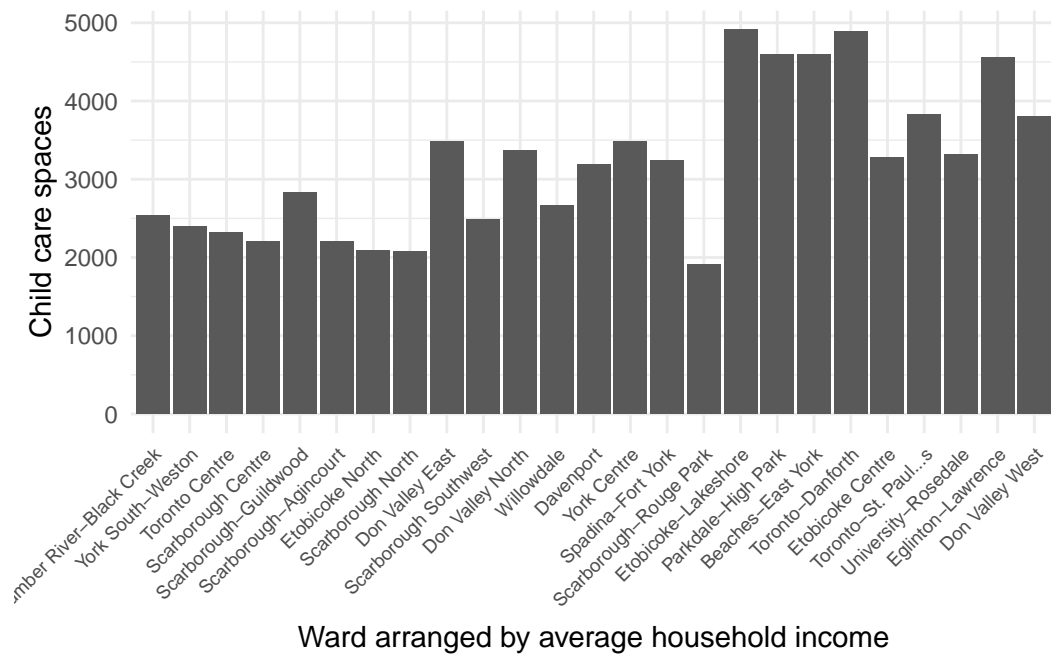


Figure 4: Number of child care spaces by ward (arranged by average income)

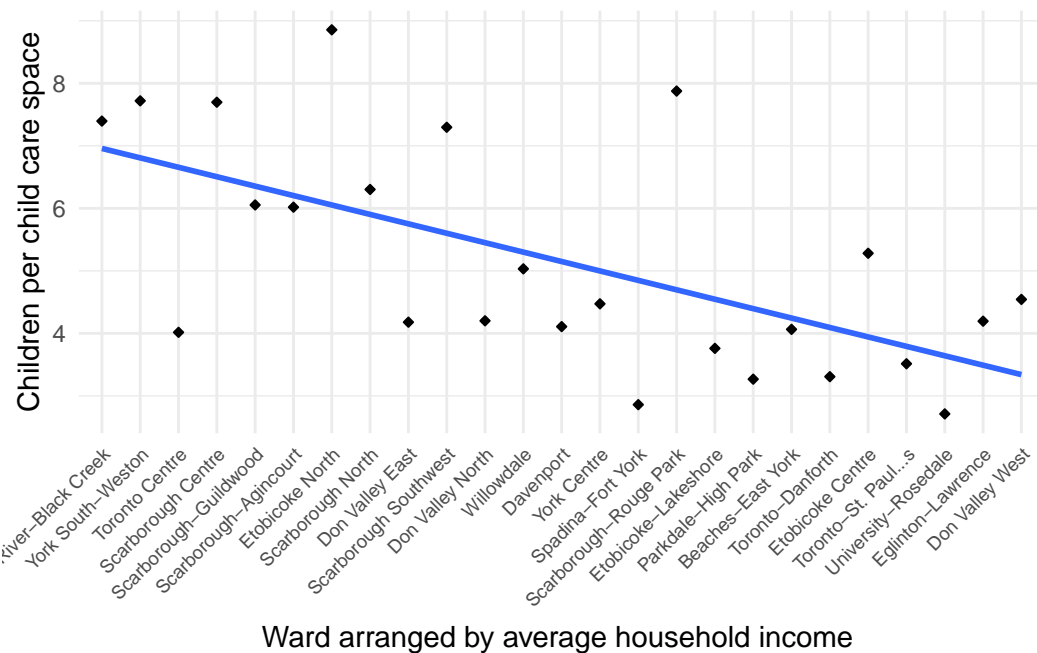


Figure 5: Number of children per child care space by ward

Appendix

Table 3: Sample of Merged Licensed Child Care Centres in Toronto and Ward Profiles (2021 Census Data) used to build graphs

Ward Number	Average Household Income	Child Care Spaces	Population Aged 0 - 14
Etobicoke North	95200	2089	18500
Etobicoke Centre	146600	3276	17300
Etobicoke-Lakeshore	127200	4910	18460
Parkdale-High Park	127200	4596	15015
York South-Weston	88700	2392	18465
York Centre	107500	3478	15555

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