Licensed Child Care Access in Toronto*

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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 number of children per child care space and average household income by ward. This suggests increased competition for child care spaces in wards with lower income and 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.

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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 opportunities for parents, especially those in low-income situations (Gunaseelan 2021). This

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

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), and janitor (Firke 2023).

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 demonstrates the data, data analysis, an investigation, and discussion surrounding the findings. Section 2 contains three sub-sections. Section 2.1 outlines the "Licensed Child Care Centres" data set (Toronto Children's Services 2024) provided by the opendatatoronto (Gelfand 2022). Section 2.2 explores the "Ward Profiles (25-Ward Model)" data set (Toronto City Planning 2024) also provided by the opendatatoronto (Gelfand 2022). Section 2.3 investigates aspects of both data sets and their relationship. This is followed by a discussion surrounding the findings.

2 Data

2.1 Licensed Child Care Centres in Toronto

The "Licensed Child Care Centres" data set is provided to Open Data Toronto (Gelfand (2022)) by the City's Children's Services division (Toronto Children's Services 2024). The data set contains 1,063 entries which correspond to each licensed child care facility in Toronto. The variables chosen to include in the cleaned data set are the facility ID number, ward number where the facility is located, total number of individual child care spaces at the facility, and the facility's operation type (Commercial, Non Profit or Public). Table 1 shows the first six entries in this data set.

Table 1: Sample 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

Figure 1 displays the total individual child care spaces found in each of Toronto's 25 wards. Among the wards with the least amount of child care spaces are Scarborough-Rouge Park with 1909 spaces, Scarborough North with 2078 spaces, and Etobicoke North with 2089. The wards with the greatest number of child care spaces are Beaches-East York with 4598, Toronto-Danforth with 4894, and Etobicoke-Lakeshore with 4910.

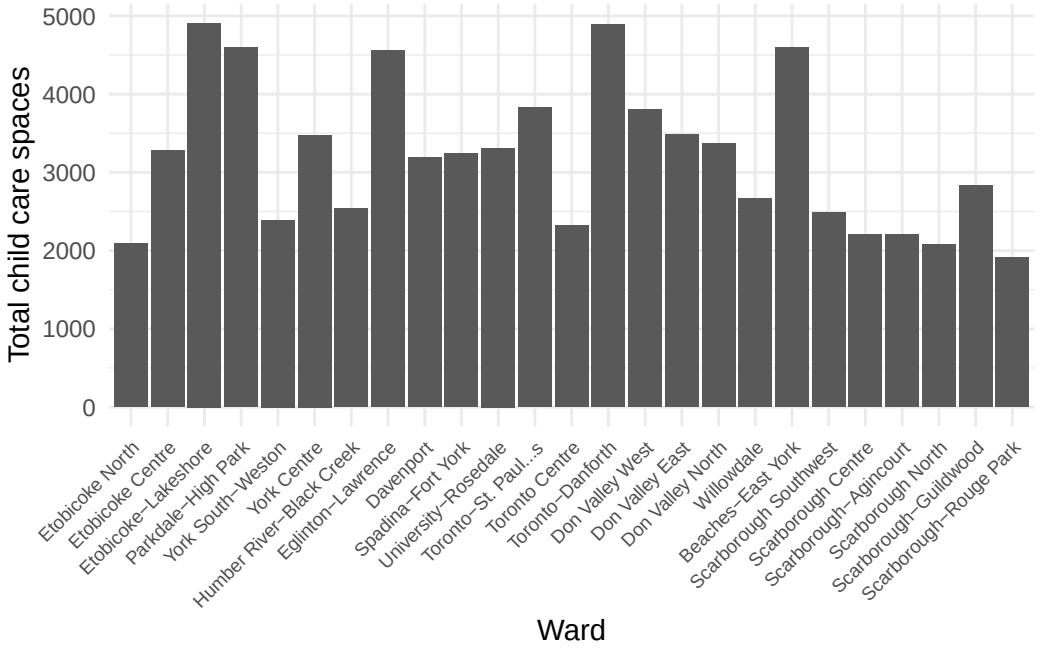

Figure 1: Total number of child-care spaces by ward

2.2 Toronto Ward Profiles Based on 2021 Canada Census Data

The "Ward Profiles (25-Ward Model)" data set is provided to Open Data Toronto (Gelfand (2022)) by Toronto City Planning (Toronto City Planning 2024). This resource contains three separate data sub-sets. Statistics Canada Census data related to Toronto's 25 wards from 2011, 2016, and 2021 is found in the first sub-set. Geographic locations of each ward can be found in the second sub-set, followed by a sub-set containing each ward number and its corresponding name. The data sets of interest in this paper are the "2023-WardProfiles-2011-2021-CensusData" which is used to determine demographic information related to each ward, and the "25-WardNames-Numbers" that is used to help with data visualization in this paper (Toronto City Planning 2024). Variables isolated from the 2021 Canada Census include ward number, average yearly household income, median yearly household income and population counts for age ranges: 0 - 4, 5 - 9, and 10 - 14. Table 2 shows the first six entries in the cleaned data set.

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
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

Figure 2 displays the total population of children between the ages of 0 and 14 in each ward. Age range was selected to most closely match child care age ranges found on the Government of Ontario's child care rules website (Ontario 2023). The wards with the least amount of children 14 and under are University-Rosedale with 8980, Spadina-Fort York with 9270, and Toronto Centre with 9310. The wards with the greatest number of children under 14 are Etobicoke-Lakeshore with 18460, York South-Weston with 18465 and Etobicoke North with 18500.

Figure 3 displays the average yearly household income of each ward in acending order. The wards with the lowest average income in Toronto are Humber River-Black Creek with $85700, York South-Weston with $88700 and Toronto Centre with $89400. Toronto's wards with the highest average income are University-Rosedale with $174800, Eglinton-Lawrence with $176400 and Don Valley West with $224800.

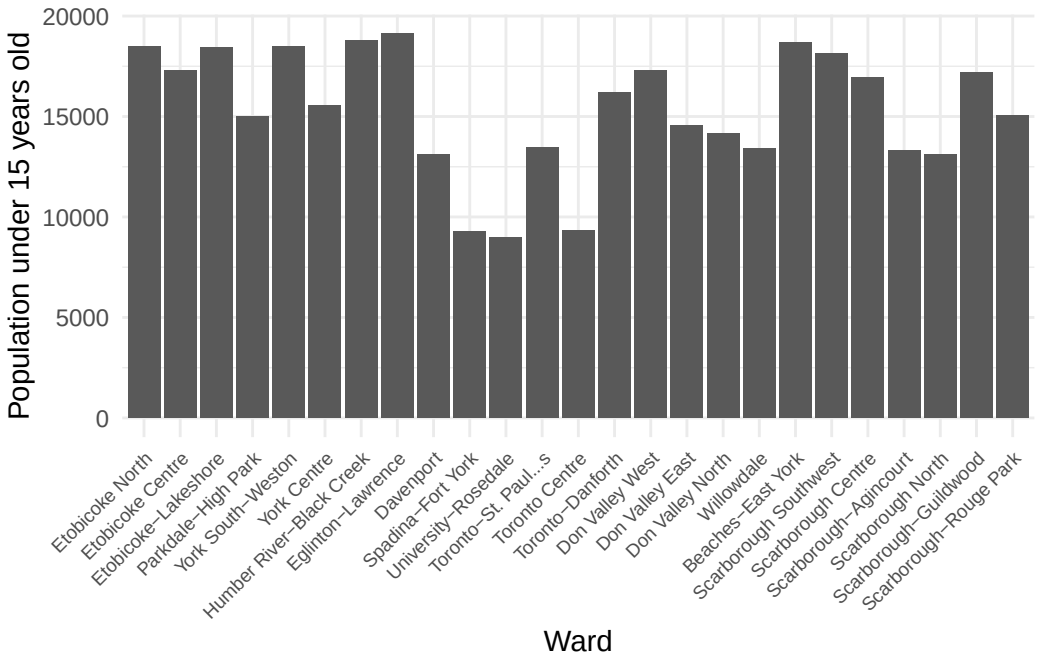

Figure 2: Population under 15 years of age by ward

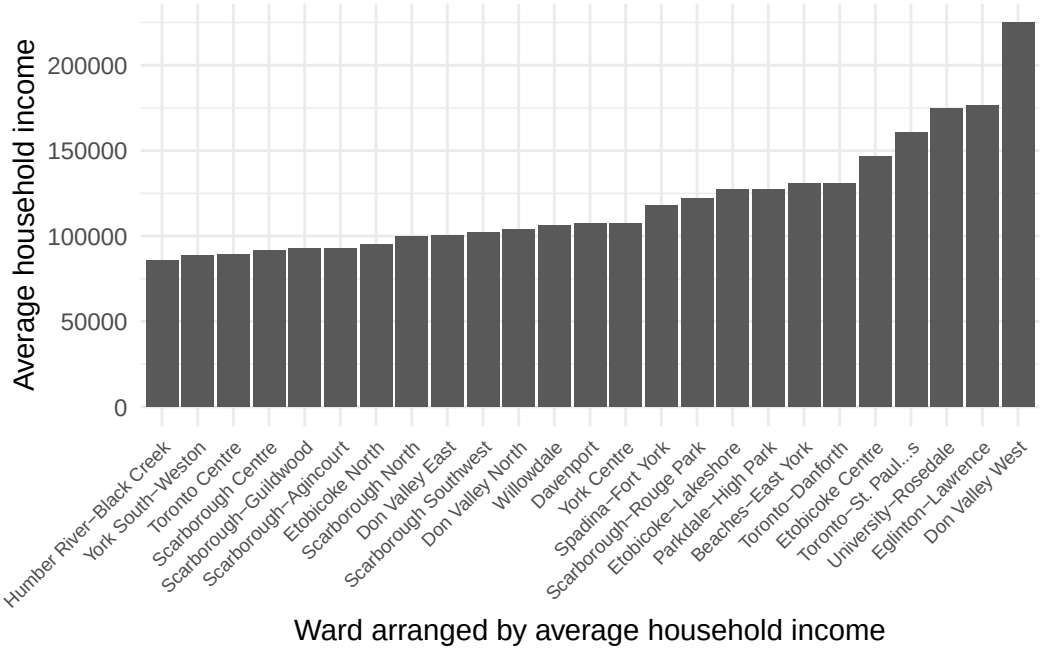

Figure 3: Average household income by ward

2.3 Investigation

To determine the relationship between average yearly income and the total number of child care spaces by ward, a merged and summarized data set was created with variables for ward name, average yearly household income, total childcare spaces, and total population aged 0 to 14 (Table 3). Figure 4 displays the total number of child care spaces for each ward arranged in ascending order based on average yearly household income. This graph suggests that most wards with the highest number of child care spaces are also towards the higher end of average household income. Conversely the wards with lower amounts of child care spaces seem to be gathered towards the lower end of average household income.

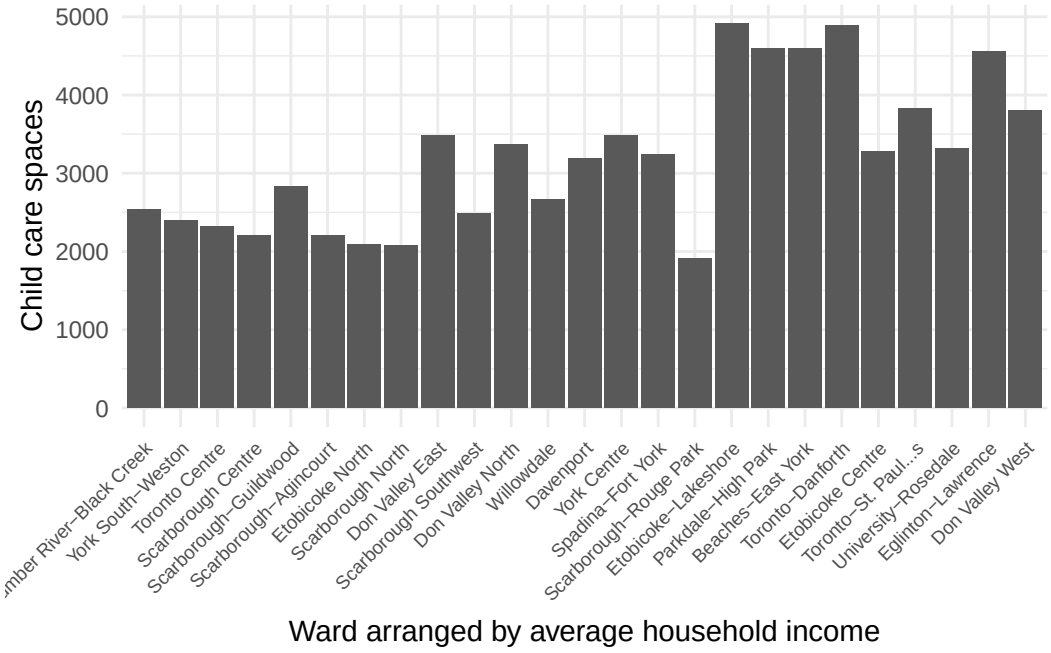

Figure 4: Number of child care spaces by ward (arranged by average income)

Figure 5 aims to more precisely assess the effect that average household income may have on child care access in Toronto. By determining the number of children in each ward in proportion to the number of child care spaces, a more accurate representation of child care access can be presented. The plot shows that although outliers exist in wards such as Toronto Centre, Etobicoke North, and Scarborough Rouge-Park, the general trend is a negative correlation between children per child care space and average household income by ward.

The wards with the lowest average household incomes which are Humber River-Black Creek and York South-Weston have 7.4 and 7.7 children per child care space respectively. In contrast the two wards with the highest income, Eglinton-Lawrence and Don Valley West have 4.2 and 4.5 children per child care space. The seven wards with the lowest average household income

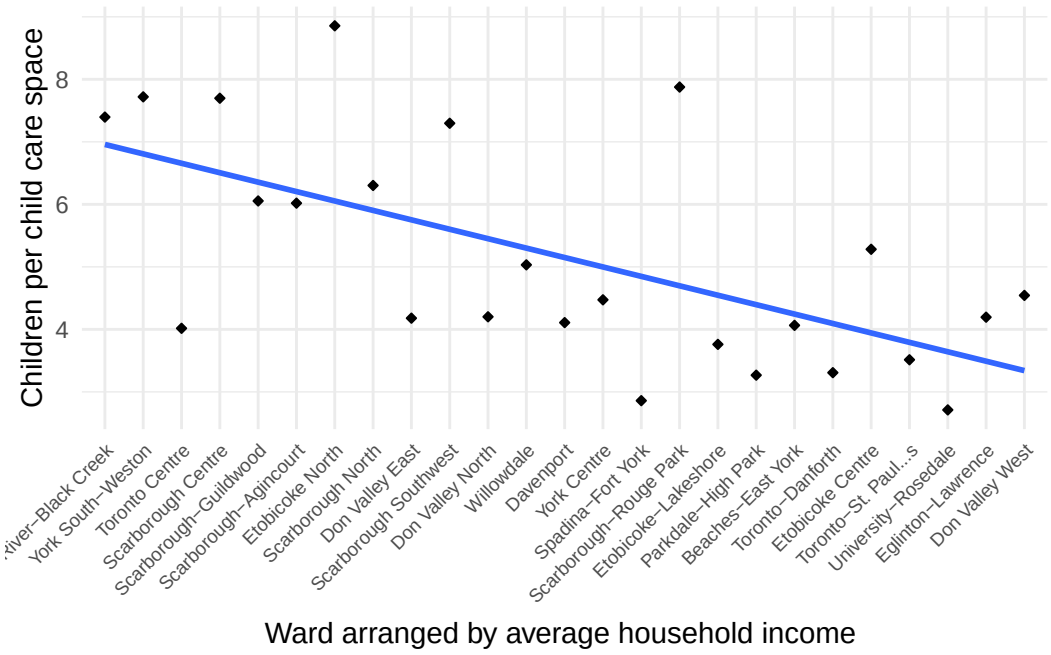

Figure 5: Number of children per child care space by ward

have an average of 6.8 children per child care space, while the seven wards with highest average household income have an average of 3.9. This suggests increased competition for child care spaces in wards with lower income and decreased competition for child care spaces in wards with higher incomes.

2.4 Discussion

Although these findings point to inequity in child care access based on average income per ward, many other factors must also be taken into consideration. The child care data provided by the Child Service's division only contains information about licensed child care centres (Toronto Children's Services 2024). The Government of Ontario specifies that unlicensed home child care providers can operate with with five or fewer children (Ontario 2023). This may account for many of the children who are unable to obtain a space in a licensed child care facility as may family members and private sitters, but this data is unavailable through Open Data Toronto. The average cost of child care at each facility is also missing from this data set which could provide insight into equitable access.

Another variable which may skew the data is the fact that each of Toronto's wards contain many neighborhoods with various social and economic considerations (Toronto City Planning 2024). To obtain a more accurate and holistic view of child care access in Toronto, an analysis of neighborhood population and income in relation to child care facilities may be beneficial if

this data becomes available. An important finding of this paper is that on average, there are 5.1 children in Toronto for every space at a licensed child care facility. Both inequitable access to and general lack of supply of licensed quality child care may be caused by the market-model child care system (Friendly 2019). Measures to increase both the number of child care spaces and equitable access are therefore important and essential public policy initiatives (Toronto 2017).

Appendix

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

Ward Name	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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