Demographic Shifts in Toronto's Homeless Population: Evaluating and Reassessing City Solutions*

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Homelessness in the City of Toronto has been a growing issue, with the city government facing difficulties in meeting the needs of different groups within the homeless population. In this paper, we analyze changes in the demographics of Toronto's homeless population over the past six years, using data from the city's shelter system. We found that the proportion of individuals experiencing chronic homelessness, refugees, and working-age adults has increased. These findings suggest that the city's current focus on building housing is not enough, and we propose improvements in public health services to better address the evolving crisis.

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*Code and data are available at: https://github.com/Junbo345/Homeless.

1 Introduction

Homelessness is defined as "the situation of an individual, family, or community without stable, safe, permanent, appropriate housing, or the immediate prospect, means, and ability of acquiring it" (Canadian Observatory on Homelessness 2012). In Canada, around 23,500 people experience various forms of homelessness every year (Gaetz, Gulliver, and Richter 2014), with more than 9,500 individuals currently living in shelters in Toronto as of September 12, 2024 (City of Toronto 2024b). To address this crisis, the Toronto city government has implemented several initiatives, including a supportive housing development plan, which aims to build more affordable housing for homeless populations (City of Toronto 2024a). A key part of this plan is the 2022-2024 two-year effort to construct 4,000 new affordable homes (City of Toronto 2024a).

While the city has made progress in expanding housing, we find that a housing-centric approach may not be sufficient to address the needs of the evolving homeless population. Our analysis find significant demographic changes in Toronto's homeless population over the past six years, including increases in the proportion of chronically homeless individuals, refugees, and working-age adults. These demographic shifts indicate that the traditional emphasis on housing development alone is no longer be an adequate solution.

In this paper, we explore these demographic changes using monthly data from Toronto's Shelter Management Information System (SMIS) from January 2018 to June 2024 (City of Toronto 2024c). We detail the data collection process, cleaning methods, and key findings in the **Data** section. In the final section, **Discussion**, we assess the implications of our results for policy and propose recommendations for more comprehensive strategies that extend beyond housing solutions to address the diverse needs of Toronto's homeless population.

2 Data

2.1 Raw data

The data for this analysis was sourced from opendatatoronto (Gelfand 2022), specifically utilizing the Shelter System Flow Data released by the Toronto government (City of Toronto 2024c). The City of Toronto employs the Shelter Management Information System (SMIS) to track individuals accessing overnight homelessness services, including shelters, respites, and hotel/motel programs. This dataset captures the number of unique individuals who have used the shelter system at least once in the past three months and are still experiencing homelessness, meaning they have not been discharged to permanent housing.

Updated monthly, the dataset is published on the 15th of each month, with revisions made to the previous month's data to enhance discharge accuracy. However, it currently excludes individuals sleeping outdoors or those utilizing services not funded by the City, omitting an estimated 18% of the homeless population. The dataset provides detailed demographic information such as age group, refugee status, gender, and chronic status, enabling us to analyze changes in the homeless population's composition over time.

While other datasets, such as daily shelter occupancy, are available, they lack the demographic information necessary for this study. Data loading, cleaning, and analysis were carried out in **R** (R Core Team 2023), with packages **tidyverse** (Wickham et al. 2019), **here** (Müller 2020), **styler** (Müller and Walthert 2024), and **knitr** (Xie 2014).

The Variables that is of our interest are:

1. date(mmm-yy): The time period the data was published (month/year, eg. Jan-18 means January of year 2018).

2. population_group: Each row represent different population groups, here we focus on all population, chronic, and refugee.

3. actively_homeless: This is the total number of people who have used the shelter system at least one time in the past 3 months. We will use this as an estimate of the total number of homeless population.

4. ageunder16, **age16-24**, **age25-34**, **age35-44**, **age45-54**, **age55-64**, **age65over**: These are the number of homeless individuals categorized by their age.

2.2 Cleaned Data

We dropped the only missing row corresponding to July 2024. We then selected our columns of interest, namely, the total number of homeless people every month (**actively_homeless**), as well as **refugee** and **chronic status** in the column population. In addition, we categorized age groups based on their suitability for work: transforming ages under 24 for the **early career stage**, ages between 25 and 54 for **working age**, and ages above 55 for **pre-retirement and retirement age**. The classification of ages 25-54 as working age is aligned with the Canadian government's survey, which defines individuals aged 25-54 as core-aged workers (Canada 2024). Finally, we replaced the monthly data with averaged quarterly data for better analysis and visualization over a prolonged period. A sample of cleaned data can be seen in Table 1, and the key features for each variable is in Table 2.

Table 1: cleaned dataset

Time (Quaters)	Subdivision	Total people	Early Career Stage	Working Age	Pre-retire and Retire
2018Q1	All Population	8232	2413	4421	1399
2018Q1	Chronic	2562	579	1234	749
2018Q1	Refugees	2575	1248	1238	89
2018Q2	All Population	9457	2959	5058	1440
2018Q2	Chronic	2692	629	1295	768

Table 2: summary statistics of cleaned data

Subdivision	Mean Total People	Mean Early Career Stage	Mean Working Age	Mean Pre-retire and Retire
All Population	9415.05	2373.26	5342.03	1699.77
Chronic	4130.86	850.64	2203.23	1076.99
Refugees	2983.29	1181.90	1666.22	135.18

2.3 Demographic trend with respect to time

2.3.1 Overall trend

First, we plot a bar graph to show the trend of the size of the entire homeless population of homeless people over the past time. In Figure 1, we observe a slight increase in the total number of homeless people from the first quarter of 2018 to the second quarter of 2024, while in between there is a decrease of the homeless population in late 2020 to early 2021, followed by a rapid increase.

2.3.2 Chronic trend

Figure 2 shows the trend of the proportion of chronic population among all homeless people over the quarters of each year. Here, according to (Echenberg and Munn-Rivard 2020), chronic homelessness refers to "People who meet one of the two following criteria, as per the federal definition of chronic homelessness. The person has recorded a minimum of 180 overnight stays in the past year (365 days), or the person has recurrent overnight stays over the past three years with a cumulative duration of at least 546 nights." We can see from the graph that the

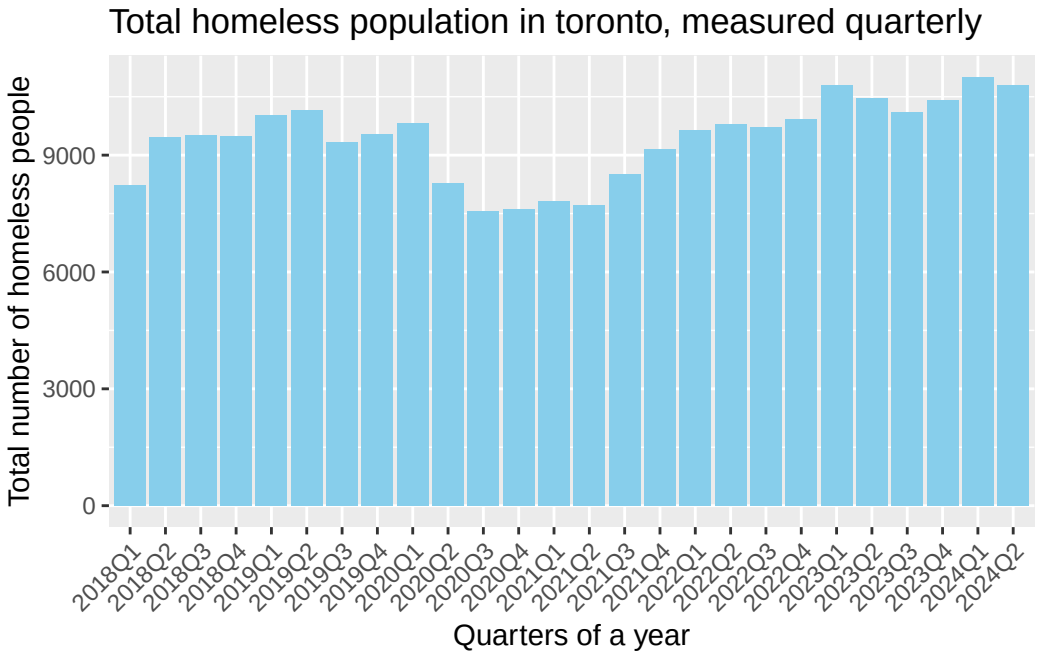

Figure 1

proportion of chronic homeless nealy doubled, from less than 35% in the first quarter of 2018 to more than 65% in the second quarter of 2024.

2.3.3 Age trend

Figure 3 displays the trend of the proportion of different working age statuses among the actively homeless population over the quarters of each year. Even though the trend is not dramatic, We can see from the graph that the proportion of the Early Career Stage population as well as pre-retire and retired has decreased (from 29% and 17% separately in the first quarter of 2018 to 24.5% and 14.5% in the second quarter in 2024). On the other hand, the working age proportion increased to 61% in 2024Q2 from 54% in 2018Q1. This indicates the growing population who are in the working age cannot afford their housing.

2.3.4 Refugee trend

Figure 4 shows the trend of the proportion of refugees among the actively homeless population over the quarters of each year. We observe a significant decrease in the proportion of individuals with refugee status from 35% in 2019 to less than 20% in 2021. However, starting in the year 2022, the proportion surged to nearly 60% in the second quarter of 2024.

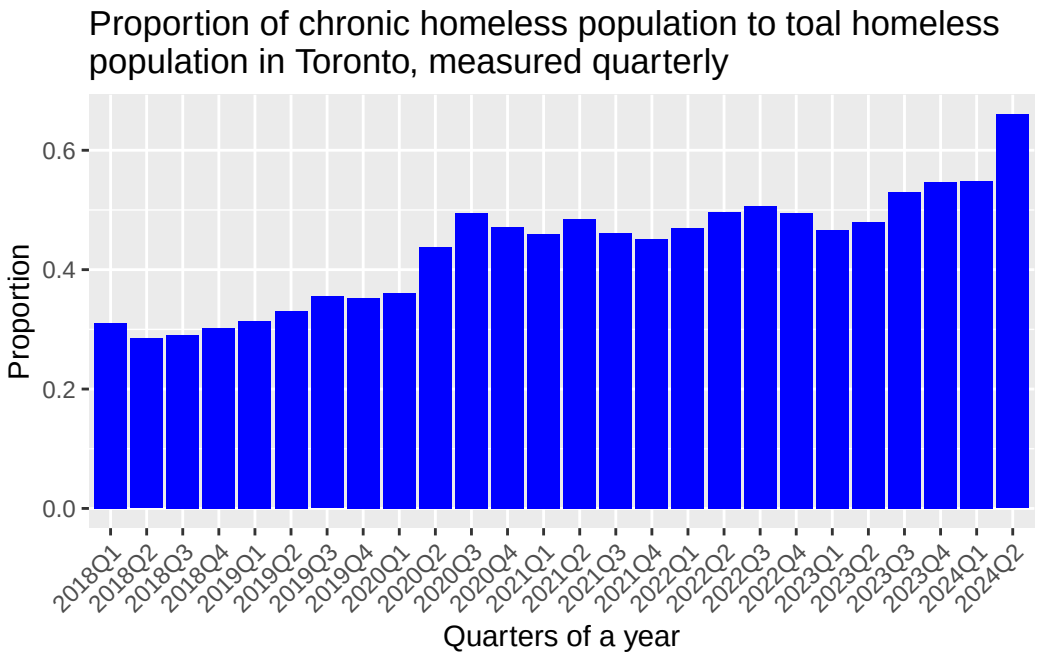

Figure 2

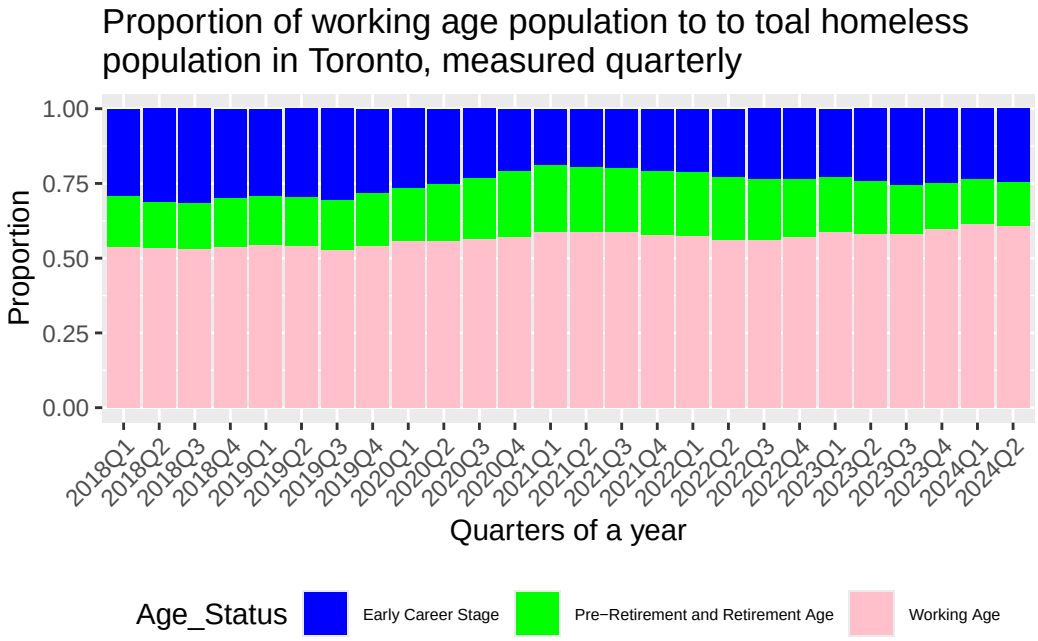

Figure 3

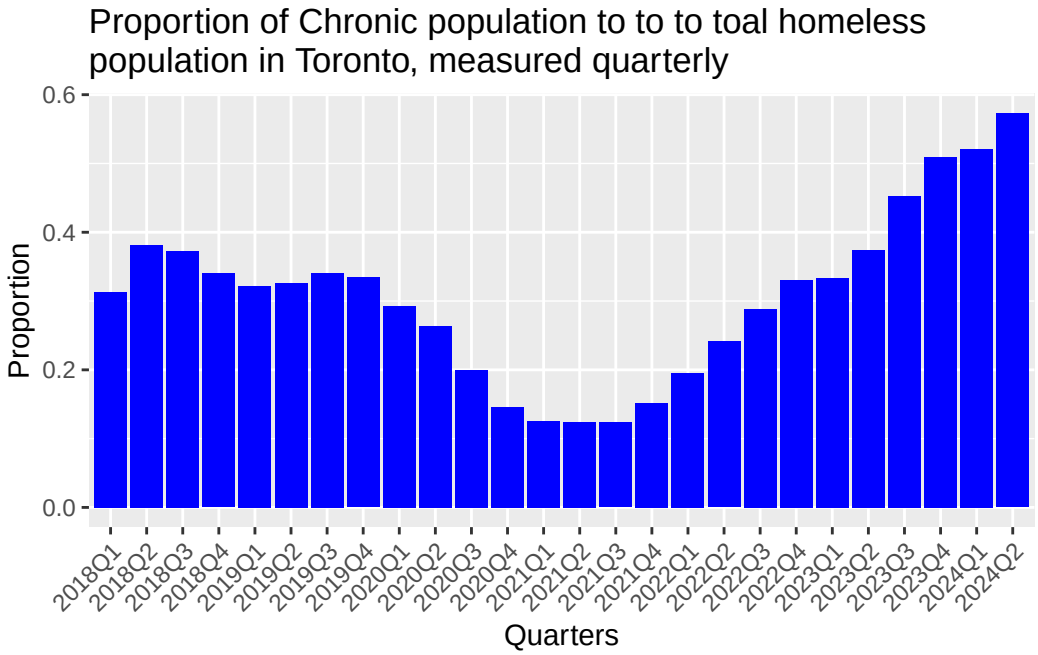

Figure 4

3 Discussion

Based on the analysis of the results section, we observe that, even though the overall homeless population has remained relatively stable over the past six years, its demographics have shifted. Specifically, the proportion of refugees, chronically homeless individuals as well as working-aged people among all homeless populations have increased. Starting at 2020, the City of Toronto has devoted its efforts to reducing the number of homeless people primarily through building more affordable houses (City of Toronto 2021). However, our study suggests that with these changes in demographics, the city government should expand its focus to address homelessness more effectively.

First, as the result section points out, the proportion of the chronically homeless population increased 30% in the past six years. Despite its nature of long-lasting homeless status, studies have also shown that chronic homelessness is closely associated with chronic illness or other mental issues (Echenberg and Munn-Rivard 2020). Research further indicates that the average income of people experiencing mental illness and different types of disorders is significantly lower than normal people's income (Sareen et al. 2011). This makes it particularly difficult for people who have already experienced health problems to escape homelessness. In addition, homelessness exacerbates health problems due to lack of adequate food, discrimination, barriers to health care, etc. (Sleet and Francescutti 2021). A combination of these would become a harmful cycle: illness leads to a decrease in income, which leads to becoming homeless, which

would further worsen individual illness.

To break the harmful cycle, the city government should give more attention to public health care systems, especially for low-income and homeless populations. In fact, merely building houses only increased the proportion of chronically homeless populations (Office of the Auditor General of Canada 2022). The city should, instead, shift to building supportive housing, where health services as well as social support are integrated with affordable housing. Mobile outreach teams and community-based mental health clinics can also ensure that homeless individuals receive the care they need.

Second, due to increased global conflict in Eastern Europe and the Middle East, the number of refugees entering Toronto has increased (Balintec 2023).On the other hand, the city government has not been prepared to support such a huge increase of refugees as the portion of refugees homeless people roared from less than 20% in the first three quarters of 2021 to nearly 60% in the second quarter of 2024. We observed an emergency for the government to increase its speed in helping these newly entered refugees adapt to the new environment and give them a livable income job to support their housing.

Finally, we observe an increase in the proportion of people of working age. This indicates the need for the government to create more jobs for the low-income and homeless population, particularly for those with mental health issues or physical disabilities who rely on employment to sustain themselves.

3.1 Weaknesses and next steps

Although our dataset is the most up-to-date and accurate information available on Opendata-toronto, it remains biased in estimating the true homeless population in Toronto. Individuals do not stay in shelters continuously and frequently cycle in and out of the system (City of Toronto 2024c). Additionally, as noted in the data section, an estimated 18% of the homeless population does not use the shelter system, making our data underrepresentative of this group. Accurately capturing the full demographic of the homeless population is challenging, even in Canada, but the shelter flow data provides a reasonable estimate for our research purposes (Dionne et al. 2023). To improve understanding and develop more effective strategies, future research should explore sampling methods that reach hard-to-contact groups, such as the unsheltered homeless. More inclusive sampling approaches would offer a clearer picture of homeless demographics and enable more targeted interventions to reduce homelessness.

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