



Why Are So Many People Who Experience Homelessness in the City of Thunder Bay from Out of Town?

A Report on a Preliminary Mixed Methods Study Using Machine Learning Models to Understand Migration and Homelessness

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THE DISTRICT OF THUNDER BAY
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Lakehead University and the District of Thunder Bay Social Services Administration Board would like to acknowledge the generous support for this research by the Government of Canada's Social Sciences and Humanities Research Council through the 2021 Partnership Engage Grant competition (# 892-2021-0014).

Finally, we attempted to approach this research carefully and in the spirit of being good treaty partners to Indigenous peoples. Thus, we would like to acknowledge the Anishinaabe peoples, Fort William First Nation, and the Robinson-Superior Treaty of 1850, all of which have made the community and City of Thunder Bay possible. More broadly, we acknowledge that, as residents of Northern Ontario, we are also tied to the lands and peoples of Treaty 3, 5, and 9. We also recognize the contributions made to our community by the Métis peoples.

Executive Summary

This document reports on a study conducted by a joint team comprised of members of Lakehead University (LU) and the District of Thunder Bay Social Services Administration Board (TBDSSAB).

The study's main objective was to understand an element of homelessness in the City of Thunder Bay – that a high proportion of people experiencing homelessness are from out of town or province. The study sought to answer seven basic questions about in-migration and homelessness: where people are migrating from, why they left their previous communities, why they chose to come to Thunder Bay, why they remain here despite experiencing homelessness, what factors predict if they stay, how long they typically stay, and what factors predict their length of stay.

To answer these questions, we used three major methods of research: the 2021 Point-in-Time Count, a shelter survey we administered in mainly two shelters (Shelter House and Salvation Army), and a series of one-on-one interviews with people who migrated to the city and experience homelessness. Overall, we received 98 usable responses to the Point-in-Time Count; 120 usable responses from the shelter survey; and 17 usable interviews. The results of these three data sets were generated using methods common in social science research and computer science, including the use of machine-learning models to understand the shelter survey data.

The results of the study, though preliminary, suggest some key findings which give texture to the initially blurry picture of migration and homelessness in the city. These are:

1. Social factors, such as family, friends, and a sense of community might be driving migration into the City of Thunder Bay and motivating people to remain here and in shelters.
2. Service factors, such as health care, housing, and social services like addictions and mental health support might be driving migration into the City of Thunder Bay and motivating people to remain here and in shelters.
3. Economic migration, mainly unemployment in home communities and a promise of employment in the City of Thunder Bay, might be driving migration into the city,

but also that people in this study were either unable to work, unable to find work, or unable to keep work once here.

4. Lack of money is a barrier to leaving the city for those who want to leave.
5. A majority of people who migrated to the city did so from a neighboring district, mainly Kenora, Cochrane, and Rainy River, each with a high proportion of rural towns and a Social Services Administration Board.
6. Being from or passing through Kenora, Cochrane, or Rainy River is a predictor of migration to Thunder Bay and stay in a shelter, including, though to a lesser extent, longer stays in shelter.
7. A high proportion of individuals from neighbouring districts are from First Nations communities in those districts, primarily on Treaty 9 and Treaty 3 territory.

This study suggests at least two things about moving forward. First, it provides us with the first comprehensive view of migration and homelessness in Northwestern Ontario. In fact, it corroborates the findings of studies done in Northeastern Ontario and other parts of the country where migration is an element of homelessness. Second, it provides TBDSSAB with an evidence-base to make decisions about policy and programming.

Introduction

In 2018, the District of Thunder Bay Social Services Administration Board (TBDSSAB) and the Lakehead Social Planning Council (LSPC) conducted a Point-in-Time count, a provincially-mandated study for measuring homelessness. The study's report found that 74% of people experiencing homelessness had migrated to the city from elsewhere and that approximately 20% of those were from out of province.⁴ In the fall of 2020, an interdisciplinary research team from Lakehead University began a collaboration with TBDSSAB to try and produce a more textured understanding of this aspect of homelessness – namely, why so many people who experienced homelessness in the city of Thunder Bay seemed to have had migrated from elsewhere.

For TBDSSAB, which coordinates and funds housing and homelessness programs in the District of Thunder Bay, a better understanding of this question would mean a better knowledge base for developing services and solutions to support those who migrate to the city but end up experiencing homelessness. A better understanding would also mean a stronger foundation for provincial and municipal advocacy for better support for homelessness in Northern Ontario. For Lakehead University, this collaboration was an opportunity for researchers and students to realize components of the university's strategic plan, which highlights, among other things, a commitment to engaging with and contributing to the broader community through research. This report is a summary of that research.

How to Read This Report

This report was designed with consideration for three audiences. First and foremost, researchers from Lakehead University wanted to provide a report that was useful to TBDSSAB in understanding migration and homelessness in Thunder Bay. As TBDSSAB's original query was the origin of the project, we developed the content and style of the report with policy and program development in mind. Second, we wanted to write a report that was also as readable as possible to informed but non-specialist readers

⁴ TBDSSAB, "District of Thunder Bay Point-In-Time Count of People Experiencing Homelessness," Last modified November 2018, <https://www.lspc.ca/wp-content/uploads/2018-Point-In-Time-Count-.pdf>

interested in homelessness; this includes but is not limited to people working in the homelessness sector, people with lived experience, as well as the general public. To achieve this aim, we have removed as much of the technical language as possible. However, we include occasional footnotes regarding some of those technical details where we feel it is important and, of course, we could not remove all of the technical elements of a study of this kind. Third and final, we wrote the report with the understanding that researchers, academics, and students interested in homelessness, and homelessness and migration specifically, might find our results of interest. In the remaining pages we present our study on understanding migration and homelessness in the City of Thunder Bay. The report includes what specific questions we wanted to answer about migration, what sources of data we used, how we made sense of that data, and what we found, followed by a discussion about what our findings mean for the problem in question.

For those readers who want a deeper and more technical understanding of any of the contents of this report, we recommend contacting the following corresponding authors. For questions about the overall study, this report, the shelter survey, or the qualitative data, please contact Dr. Ravi Gokani, rgokani@lakeheadu.ca. For questions regarding TBDSSAB, including the Point-in-Time Count please contact Ken Ranta, ken.ranta@tbdssab.ca. For questions regarding the machine-learning models, please contact Dr. Vijay Mago, vmago@lakeheadu.ca

Purpose and Method of Study

As mentioned, the primary purpose of this research was to understand why so many people experiencing homelessness in the City of Thunder Bay seem to have migrated to the city from out of town or out of province. To achieve this purpose, we developed seven research questions to understand migration and homelessness, listed below.

Research Questions

These questions were designed to track the path of migration from someone's home community to Thunder Bay and the various "push" factors (i.e., reasons for migrating away from their home community) and "pull" factors (i.e., reasons for migrating to another community) that determine why they ultimately came to the City of Thunder Bay. These research questions are:

1. From which home communities are people migrating?
2. Why do people leave their home communities in the first place?
3. Why do people choose to come to Thunder Bay?
4. Why do people choose to remain in Thunder Bay?
5. What factors predict if someone stays or leaves Thunder Bay?
6. If a person does stay, how long are they likely to stay?
7. What factors predict how long someone stays?

The Data We Used to Answer Those Questions

In order to answer these questions, we used four different types of data which comprised three different data sets. Those four data types are (a) the 2021 Point-in-Time (PiT) count; (b) a survey we administered in homeless shelters (the "shelter survey"); (c) the Homeless Individuals and Families Information System (HIFIS); and (d) one-on-one interviews with people experiencing homelessness who migrated to the City of Thunder Bay. Below is a description of each type of data.

2021 Point-in-Time Count. The Point in Time count is a provincially mandated count and survey of individuals experiencing homelessness over a 24-hour period. The 2021 PiT count began at 6:00 pm on October 2nd and continued for 24 hours. While the PiT count was conducted throughout the District of Thunder Bay, this research focuses

only on data from the City of Thunder Bay. The survey was available for completion in the City of Thunder Bay at the Canadian Lakehead Exhibition (CLE) which was the only public drop in site due to COVID-19. Additionally, clients staying at Shelter House Thunder Bay, the Salvation Army Journey to Life Centre, The Lodge on Dawson, Crossroads Centre, Beendigen, the John Howard Society of Thunder Bay and District, and Grace Place were provided the opportunity to participate in the survey. For more information on the 2021 PiT count please visit [this website](#).⁵

The PiT contains generic questions regardless of the region, but also permits regions to add additional questions to capture a local picture of homelessness. For this study specifically, we developed 9 short-answer questions that pertained exclusively to understanding migration into the City of Thunder Bay. These 9 questions, as well as the relevant research question in parentheses, are:

1. What community are you originally from?⁶ (RQ1)
2. Why did you leave? (RQ2)
3. Did you have a home before coming to the City of Thunder Bay? (RQ2)
4. What brought you to the City of Thunder Bay? (RQ3)
5. Is the City of Thunder Bay your community of choice? (RQ4)
6. If yes, why? (RQ4)
7. If no, do you want to return to your home community, and why? (RQ4)
8. If you were to return to your home community, would you have permanent housing available? (RQ4)
9. If you were to return to your home community, would you have safe housing available? (RQ4)

⁵ TBDSSAB, “2021 Point in Time Count of People Experiencing Homelessness in the District of Thunder Bay,” Last modified January 13, 2022, <https://www.tbdssab.ca/wp-content/uploads/2022/01/2021-01-TBDSSAB-Point-in-Time-Count-Report-Final.pdf>

⁶ This question was asked in the 2021 Point-in-Time and responses were used to filter out those who were from Thunder Bay so that we could focus on the sub-sample that had migrated. In other words, anyone who was originally from Thunder Bay was excluded from the rest of the analysis for this report.

Interviews. While conducting the PiT count on October 02, 2021, volunteers asked people experiencing homelessness if they would like to participate in a one-on-one interview with a researcher. We received a total of 84 entries. After sorting through the entries and removing those without a phone number or email, we contacted the remaining 42 people. In addition to these 42, we recruited at Shelter House and Salvation Army by visiting the shelters on planned dates. Ultimately, we conducted follow up interviews with 17 individuals. On average interviews were about 15 minutes. Like the PiT count questions, we wanted to interview people to help us answer research questions 1 to 4.

Shelter Survey. We created a shelter survey to help us answer questions 5, 6, and 7. The shelter survey contained 28 questions that were designed to measure the various “factors” that might cause someone who migrated to stay in a shelter and stay for a short or long while. The shelter survey was administered once a week for 24 weeks from October 29, 2021, to April 09, 2022, and was administered mainly at Shelter House or Salvation Army; on two occasions we administered the survey at an overflow shelter for women that was run by the Urban Abbey. Shelter surveys administered only to people who had migrated to the city were included, excluding members of the population who were local. We also only surveyed individuals once, meaning each week we asked only those individuals who had *not* previously responded to the survey.

Homeless Individuals and Families Information System (HIFIS). HIFIS (pronounced “hi-fuss”) is a federal data management system designed to gather information about homelessness in Canada. HIFIS, however, is housed at the community level. During this project, the HIFIS database was housed with TBDSSAB, but the system’s data is entered at the shelters – Shelter House and Salvation Army. We used two variables from HIFIS in this study – the dates people checked into a shelter and the dates people checked out.

Overall, we had three independent data sets – one from the 2021 Point-in-Time count, a second composed of the shelter survey and HIFIS, and a third composed of one-on-one interviews with people experiencing homelessness in the city but who had migrated from somewhere else.

How We Made Sense of the Data

We analyzed these three data sets in three different ways. First, the PiT data were analyzed using statistics common to the social sciences. This includes descriptive statistics, which provides us with an understanding of basic quantity (e.g., how many people gave a particular answer to a particular question) as well as some parametric tests, which tell us how to make sense of the differences between two groups. Second, the data set composed of the shelter survey and the two HIFIS variables was analyzed using Python-based machine learning models. These are mathematical models that are designed to classify if a particular data point belongs to one category or another. In this case, one example is trying to determine if someone who migrated to Thunder Bay belonged to the category “stay,” as in staying in a shelter, or “leave,” as in leaving a shelter, based on the various “factors” we noted above that might cause them to stay or leave. Third, the data set composed of the text from one-on-one interviews were analyzed using a program called NVivo and a method common in the social sciences called Thematic Analysis.⁷

Although qualitative (text-based) and quantitative (numbers-based) data differ in several ways, we combined them – a common practice in mixed methods research in the social sciences. There were two ways we combined qualitative and quantitative data. The first way pertained to the PiT data; responses to the short answer questions, which were qualitative in nature, were categorized manually as belonging in one category or another and then counted or quantified. For instance, if someone gave “brother lives in Thunder Bay” as a reason they came to Thunder Bay, we might categorize this qualitative response as “family or friends” and give a quantitative value of 1 to it – one person gave family or friends as a reason to migrate to the city as a result of this response. If then another person gave a different response but with an affinity to the first, like “parents live in Thunder Bay,” we would also categorize this qualitative response as “family or friends” and add another 1 to the category, which would mean that “family and friends” as a reason

⁷ Virginia Braun and Victoria Clarke, “Using Thematic Analysis in Psychology,” *Qualitative Research in Psychology* 3, no. 2 (2006): 77-101.

to migrate would have a value of 2 – a total of two people gave family and friends as a reason to migrate to the city.

The second way we combined the qualitative and quantitative data was more formal and pertained to the way we combined the qualitative interviews with the quantitative data, including the data from the PiT that we just mentioned. In particular, we relied on Creswell and Plano-Clark's (2011) suggestion for mixed methods data when quantitative data are more numerous, as is the case with this research; that suggestion is to analyze the quantitative data first and use it as the more dominant data and thus as a guide in presenting the qualitative data.⁸ In this report, therefore, the qualitative data from the interviews were used to support the quantitative data. This will become apparent as one reads the findings.

⁸ John W. Creswell and Vicki L. Plano-Clark, *Designing and Conducting Mixed Methods Research* (Thousand Oaks: Sage, 2017).

Findings

So, what did we find? Below we report on each of the 7 research questions we sought to answer. Questions 1 to 4 were answered primarily using data from the 2021 Point-in-Time count while Questions 5 to 7 were answered primarily using data from the shelter survey and HIFIS. For questions 1 to 4, we provide qualitative data to help understand the quantitative data.

Question 1: From Which Home Communities Are People Migrating?

In total, 98 people⁹ reported migrating from one of 63 communities in Canada. Figure 1 below gives a visual representation of what those communities are.¹⁰ The visual shows that nobody reported being from a province east of Ontario or any of the territories. But 11 people (11.2%) reported being from one of each of the Western provinces; this included 4 people from British Columbia, 4 people from Manitoba, 2 people from Alberta, and 1 from Saskatchewan. Among these Western provinces, there were a total of 9 home communities and the communities from which the most people migrated to Thunder Bay were Calgary and Winnipeg, both from which 2 people migrated. We should note that this provincial number from the 2021 PiT count is lower than the 2018 PiT count, which found that 20% of people were from out of province. Overall, doing a PiT count during COVID-19 might explain this difference.

With only 11 people from out of province, that leaves the majority of 87 people (89%), who reported migrating from a community in Ontario. Figure 2 below is another heat map showing the 54 communities in Ontario from which those 87 individuals migrated. We see that while people experiencing homelessness migrated to Thunder Bay from all over Ontario, the majority are from Northern Ontario and from communities north of Thunder Bay.

⁹ 101 people responded to this question. One person declined to answer it and two people were from outside of Canada, having migrated from Slovakia and the United States of America. We did not include these individuals in the analysis.

¹⁰ To read Figure 1, which is a heat map, note that the fewest people are represented by the light blue areas; as the number of people reporting a place increase, the colours change to magenta, red, and then yellow, which represents the highest concentration of the reported home communities.

Figure 1. 2021 Point-in-Time Count Reported Home Communities: Canada

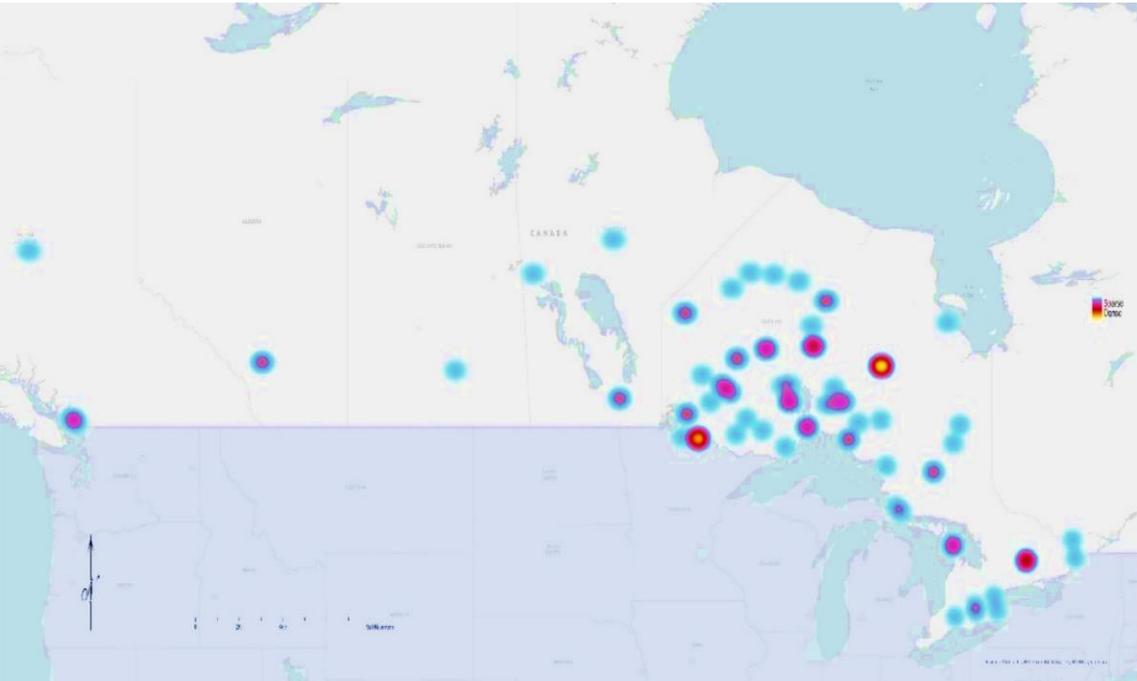


Figure 2. 2021 Point-in-Time Count Reported Home Communities: Ontario

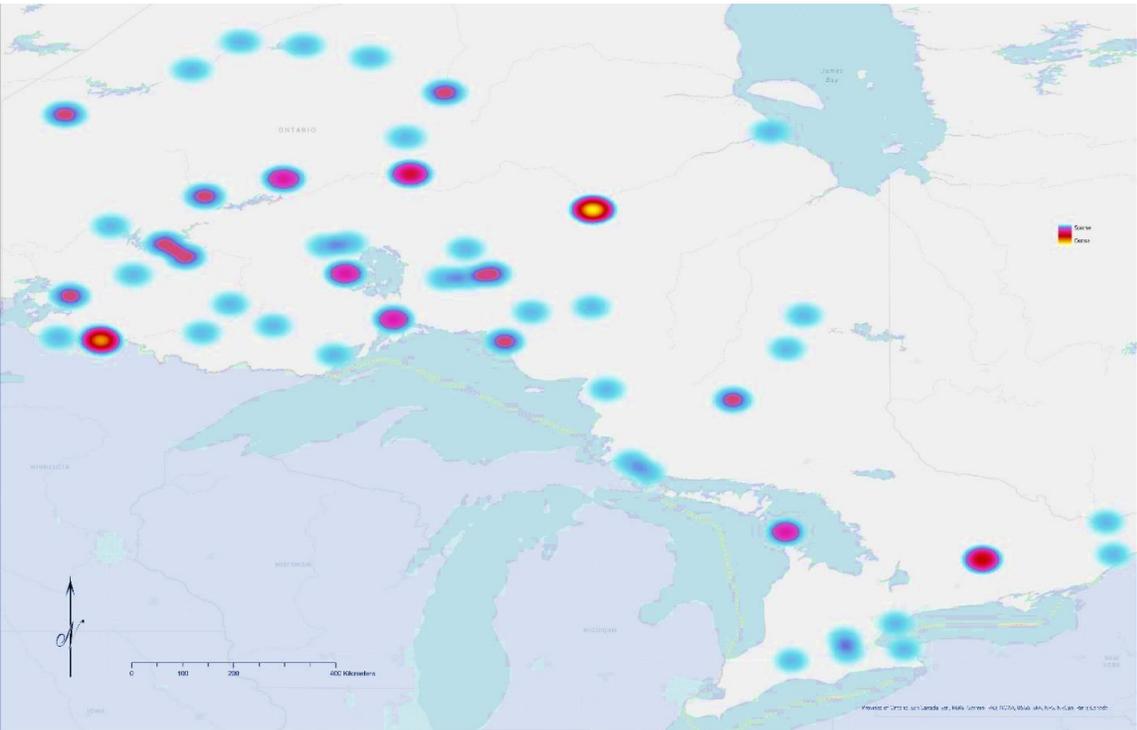


Table 1 below presents the top home communities (in the whole sample) by frequency of individuals – this includes all communities from which more than 1 person migrated (2 or more). We see that there are 19 communities from which 2 or more people migrated, and of these, 18 are in Northern Ontario. Furthermore, of these 18 communities in Northern Ontario, 13 are First Nations communities, which means that 68.4% of the home communities from which more than 1 person migrated to Thunder Bay are First Nations communities in Ontario.

Table 1. Home Communities by Frequency, % of Persons, and First Nation

Home Community	Province	#	%	First Nation
Eabametoong/Fort Hope	Ontario	7	6.9%	Y
Mishkeegogamang/Pickle Lake	Ontario	7	6.9%	Y
Fort Frances	Ontario	5	5.0%	N
Gull Bay	Ontario	3	3.0%	Y
North Caribou Lake	Ontario	3	3.0%	Y
Rocky Bay	Ontario	3	3.0%	Y
Constance Lake	Ontario	2	2.0%	Y
Calgary	Alberta	2	2.0%	N
Couchiching First Nation	Ontario	2	2.0%	Y
Deer Lake First Nation	Ontario	2	2.0%	Y
Lac Seul	Ontario	2	2.0%	Y
Nipigon	Ontario	2	2.0%	N
Pic River	Ontario	2	2.0%	Y
Sioux Lookout	Ontario	2	2.0%	N
Slate Falls First Nation	Ontario	2	2.0%	Y
Sudbury	Ontario	2	2.0%	N
Webequie	Ontario	2	2.0%	Y
Whitefish Bay	Ontario	2	2.0%	Y
Winnipeg	Manitoba	2	2.0%	N

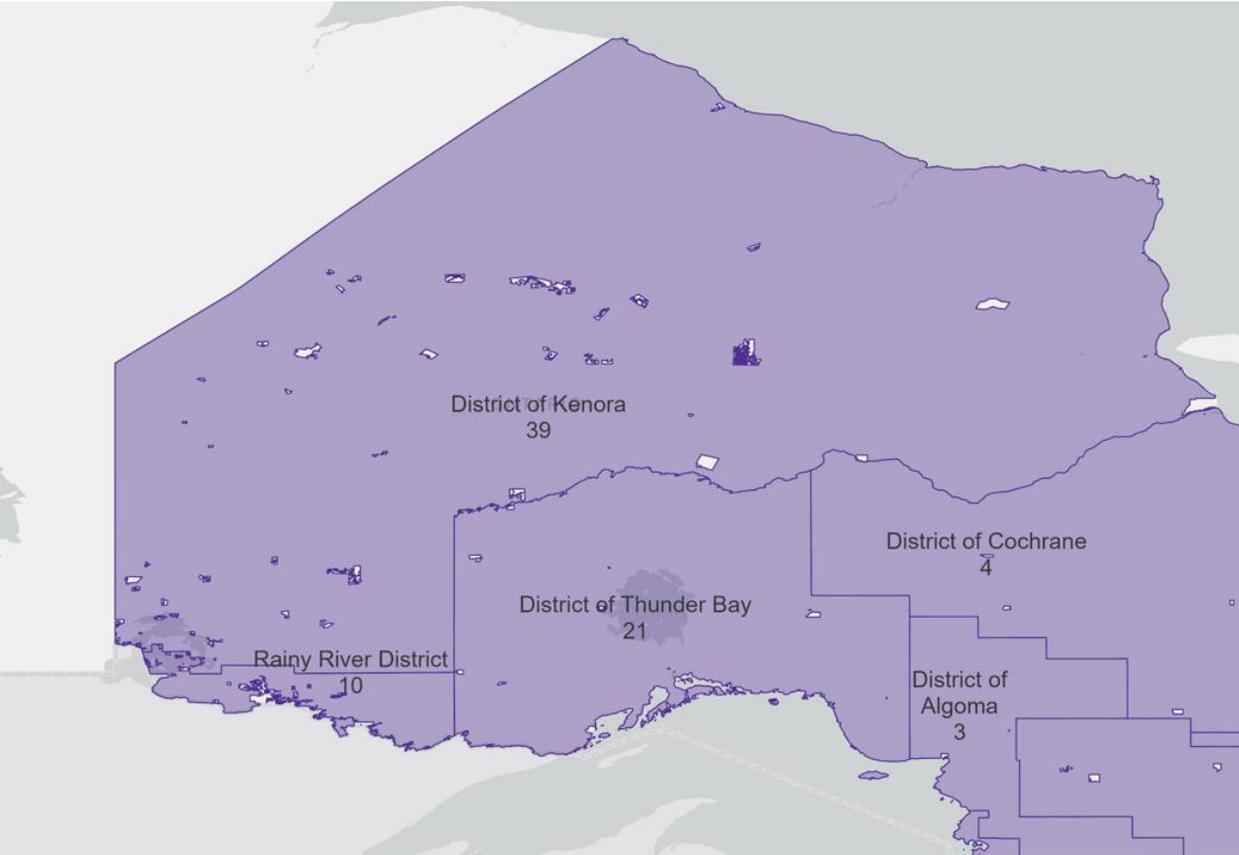
If we look only at the communities in Northern Ontario, then we see some interesting things. Table 2 below shows the breakdown of the 81 people who migrated from somewhere in Northern Ontario. We can see that 39 people or 48% of people migrating from somewhere in Northern Ontario, are from the District of Kenora. If we include the two other districts which border the District of Thunder Bay – Rainy River and Cochrane – then 53 of 81, or nearly 65% of people migrating to Thunder Bay are from a neighboring district. Figure 3 shows the number of people from each of the neighboring districts and their location.

If we consider the intersection of geography and First Nations communities, then of the 56 individuals who migrated from a First Nation community, 36 people or 64% are from a First Nation community on Treaty 9 territory. In addition, 10 people migrated from a First Nation community on Robinson Superior Treaty territory, 7 from Treaty 3 territory, and 3 from Treaty 5 territory.

Table 2. Number and % of People Migrating to the City of Thunder Bay by Regional District and Service Administration Board

District	#	%	Service Administration Board
Kenora	39	48.15	Kenora District Services Board
Thunder Bay	21	25.93	District of Thunder Bay Social Services Administration Board
Rainy River	10	12.35	Rainy River District Services Board
Cochrane	4	4.94	Cochrane District Social Services Administration Board
Algoma	3	3.70	Algoma District Services Administration Board
Sudbury	2	2.47	Manitoulin-Sudbury District Services Board
Nipissing	1	1.23	District of Nipissing Social Services Administration Board
Parry Sound	1	1.23	District of Parry Sound Social Services Administration Board

Figure 3. Number of Persons Migrating to the City of Thunder Bay by Northern Ontario Regional District



Question 2: Why Do People Leave Their Home Communities?

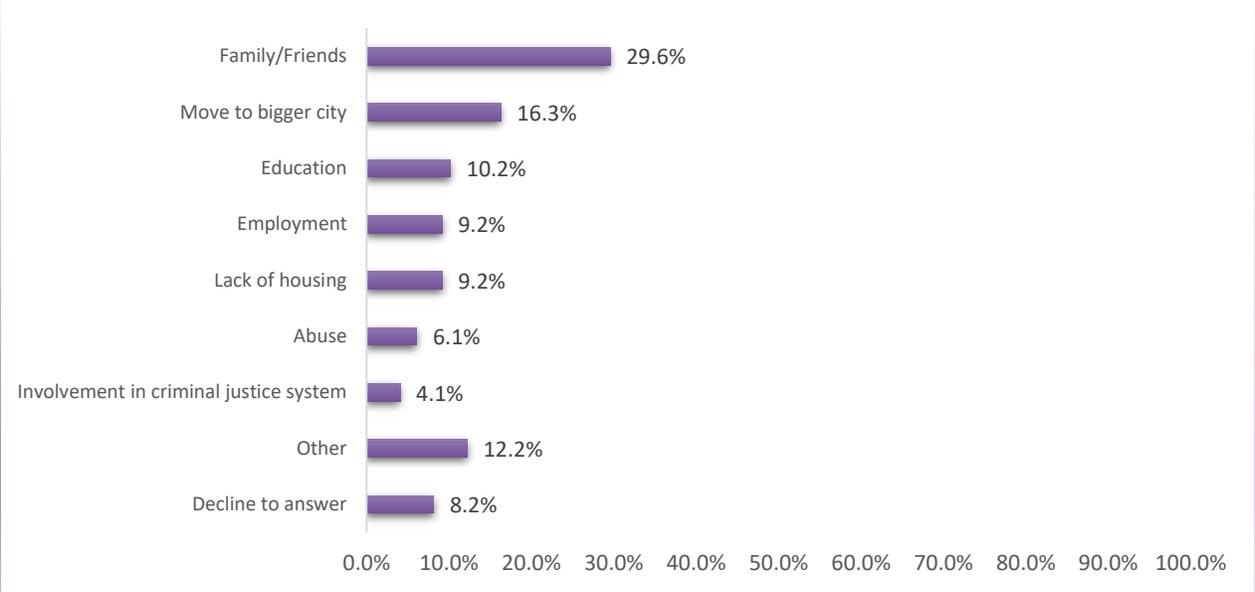
Given that a large portion of the people who migrated to Thunder Bay migrated from a First Nation community in Ontario, we present answers to Question 2 in two parts. The first part concerns the overall sample, while the second part focuses on the sub-sample of people who migrated from a First Nation community in Ontario.

Overall Sample

To help answer this question we used an open-ended question: “Why did you leave your home community?”. The two most frequent types of responses¹¹ were categorized as either “family/friends,” with 29 responses (29.6%), or “education,” with 10 responses

¹¹ The raw qualitative responses here were reviewed and categorized under 9 categories, presented in the table.

Figure 4. “Why Did You Leave Your Home Community?” Frequency of Response for Canadian Sample



(10.2%). Figure 4 gives a complete picture of the various types of responses people gave for leaving their home communities.¹²¹³

As a follow up question, and to better understand if housing was a reason people left their home communities, we asked, “Did you have a home before coming to the City of Thunder Bay?” To this question, 69 people (70.7%) reported that they had a home before they came to Thunder Bay, while 20 people (20.4%) indicated that they did not. This means, that roughly 1 in 5 individuals who were surveyed in the PiT count also experienced homelessness in their previous communities.

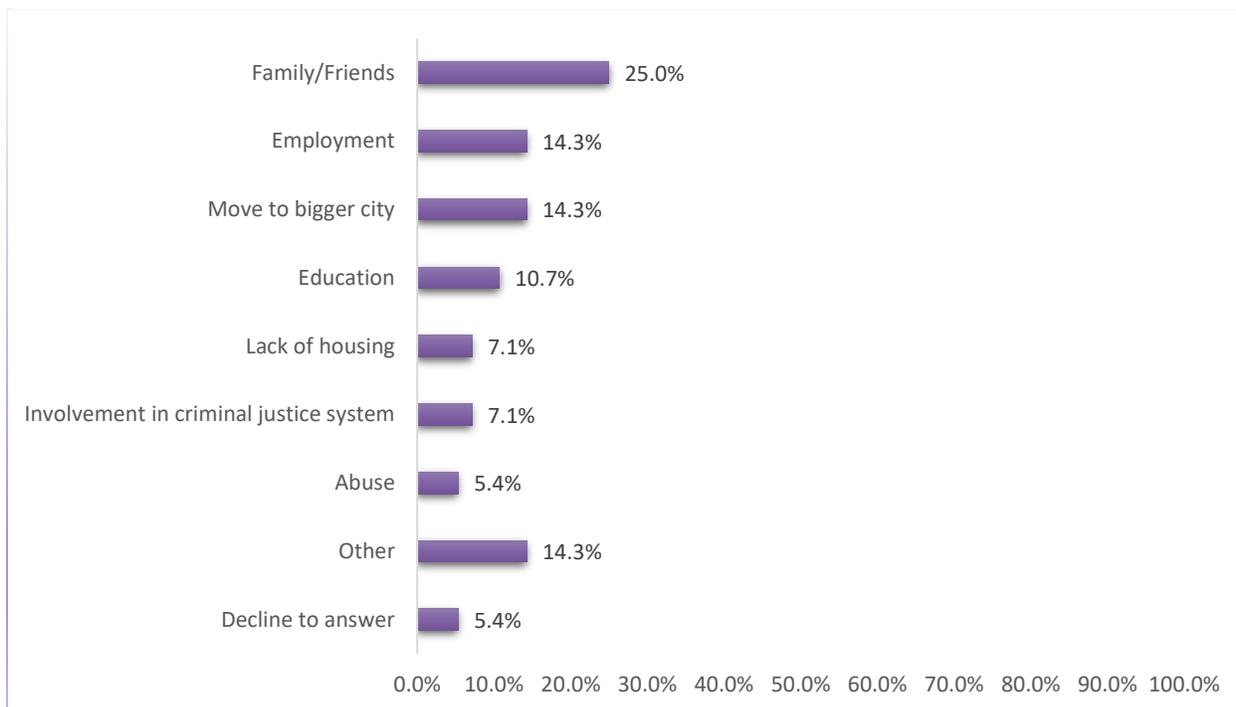
Sub-Sample: Individuals from First Nations Communities in Ontario

When looking at the 56 people who migrated from a First Nation community in Ontario, the reasons for leaving their home community differ slightly. Responses that fit

¹² Please note that percentages do not add up to 100% because people could choose more than one response.

¹³ Some individual answers to this question noted that one respondent left their home community to “have a baby” whereas another moved to Thunder Bay to provide “care for mother who was hospitalized.”

Figure 5. “Why Did You Leave Your Home Community?” Frequency of Response Among People from a First Nation Community in Ontario



under “family/friends” were cited 5% less while employment was cited 4% more, compared to the overall sample. The reported reasons for leaving a First Nation community are outlined in Figure 5 above.

When we look at responses to the follow-up question regarding housing among the individuals from First Nations communities, 40 people (71.4%) reported having a home before coming to the City of Thunder Bay, 12 (21.4%) did not have a home before moving, and 4 (7.1%) were unsure if they had a home. The proportion of people who experienced homelessness prior to coming to Thunder Bay is, therefore, roughly the same as the overall sample.

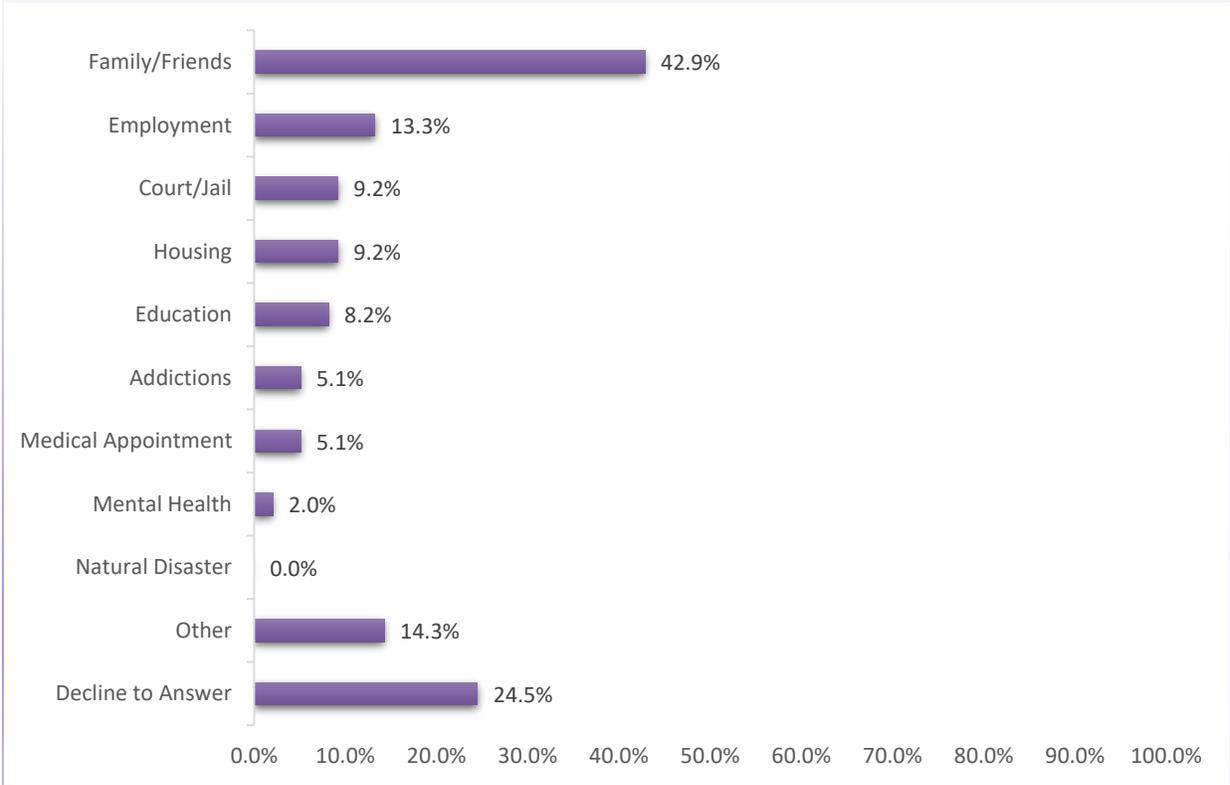
During interviews, we found only a handful of clues about why people left their home or previous communities, but the most salient observation from the interviews is that most people reported having unstable or unsafe housing of some kind in their previous or home communities. For instance, one individual said about their home community: “It’s too much [sic] people like involved in like solvent abuse. Like sniffing gas, and yeah... that’s something I’ve never been into, but yeah, like a lot of violence.” This

individual also reported having an unstable and unsafe housing situation with family. In addition, several of the participants in the interviews indicated a long history or pathway of migration with stops in multiple cities and towns before arriving in Thunder Bay.

Question 3: Why Do People Choose to Come to Thunder Bay?

While the previous question tries to understand why people *left* their home community, the third one tries to understand why people chose Thunder Bay in particular. Naturally, the answers to the two questions often overlapped – e.g., if someone came to Thunder Bay to stay with family, they might also indicate they left their home community to stay with family. But we discuss some key differences between why people left their home communities and why they came to Thunder Bay specifically.

Figure 6. “What Brought You to the City of Thunder Bay?” Frequency of Response by Category



Overall Sample

To start with the Point-in-Time, we asked the following question: “What brought you to the City of Thunder Bay?”. Here 42 people (42.9%) reported family or friends as the main reason they chose to come to Thunder Bay, 13 (13.3%) indicated employment opportunities in Thunder Bay, and 9 (9.2%) cited the search for housing. Figure 6 above presents all the reasons given for choosing Thunder Bay. The “Other” category included leaving domestic abuse/family conflict, relocation, and shelter services.

Sub-Sample: Individuals from First Nations Communities in Ontario

With regard to people from First Nations communities in Ontario, responses that were categorized as “family/friends” were reported by 13 people (22.8%), which is lower than the larger sample of people who migrated from across Ontario, while the proportion of people who cited employment (10 people, 17.5%), education (7 people, 12.3%), or court/jail (7 people, 12.3%) as a reason for coming to the City of Thunder Bay was higher.¹⁴ In addition, nobody in this sub-sample indicated that mental health or medical appointments were a reason to migrate to the city, which differs from the overall sample wherein medical appointments were given by 5% of the sample while mental health was given by 2% of the sample. All the reasons for migrating to the city among people from First Nations communities in Ontario are outlined in Figure 7 below.

The interviews we conducted supported the top responses on the survey. The three major themes in response to this question were social migration, service migration, and economic migration. Social migration consisted of people migrating to the city for

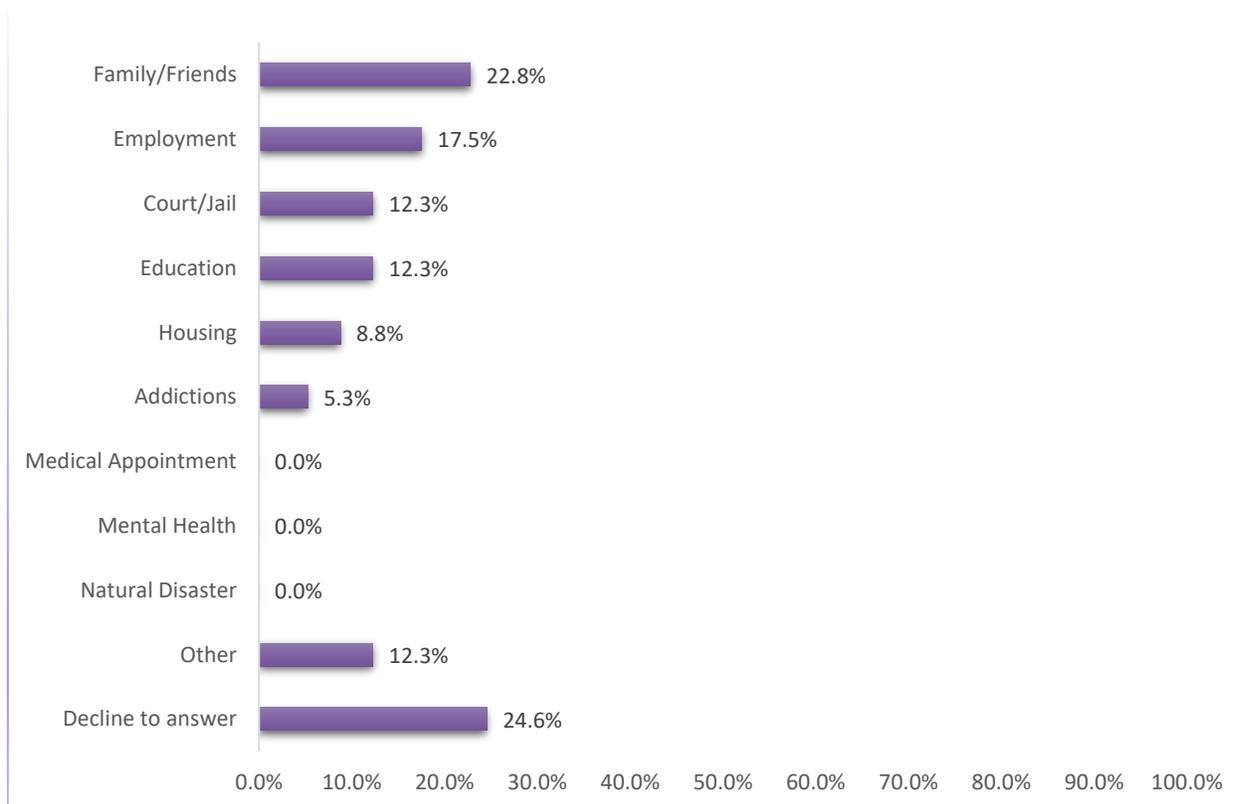
¹⁴ As a follow up, we conducted some statistical tests. As a reason for migrating to the City of Thunder Bay, when comparing people migrating from a First Nations community compared to a non-First Nations community, we found differences in employment ($X^2(1, N = 87) = 3.87, p = .049$) and education ($X^2(1, N = 87) = 4.21, p = .040$). In other words, someone from a First Nation community is more likely to migrate for employment or education than a person who is not from a First Nation community. Because frequency counts were generally very low, we do not include this in the main report but rather here as a footnote. Furthermore, we caution against extrapolating to other reasons given in the table simply by looking at the nominal data. The data set was not large enough to draw conclusions based on statistical tests that require a higher number of data points.

family, friends, or romantic partners. Here is an example of someone who migrated to be closer to siblings:

“Well, I just came back here because this is where my brothers and sisters [are]. [M]y parents died separately when I was in grade seven and eight, a year apart and then we went and lived with my aunt and uncle in O’Connor which is just behind Kakabeka. Other than that, I just came back here because this is where my little brother and sisters were and I kind of took care of them growing up.”

Migrating for services, or “service migration,” was just as common a reason for migrating to Thunder Bay. For instance, one person stated they came to Thunder Bay because there are “more services for me here. Like P.A.C.E., and health care, and, hopefully, I’m working on getting housing right now, so. They don’t have that kind of stuff in Nipigon.” Another individual said the shelters were the service they sought: “Thunder Bay was the closest place. I’ve been here before. I knew there were shelters here where I could stay

Figure 7. “What Brought You to the City of Thunder Bay?” Frequency of Response by People from First Nations Communities in Ontario



at.” Finally, “economic migration” was mentioned and we included employment and education in this category. Two individuals noted that they came looking for work while one individual stated they were working remotely from Thunder Bay after his company asked if he would work from the city. A fourth individual came to attend Lakehead University, stating he attended “for like a couple of weeks. We had to do summer school, and I didn't even make it to when classes started.” He noted that a long-time addiction and difficulty finding affordable housing ultimately led to his withdrawal from the program.

Question 4: Why Do People Choose to Remain in Thunder Bay?

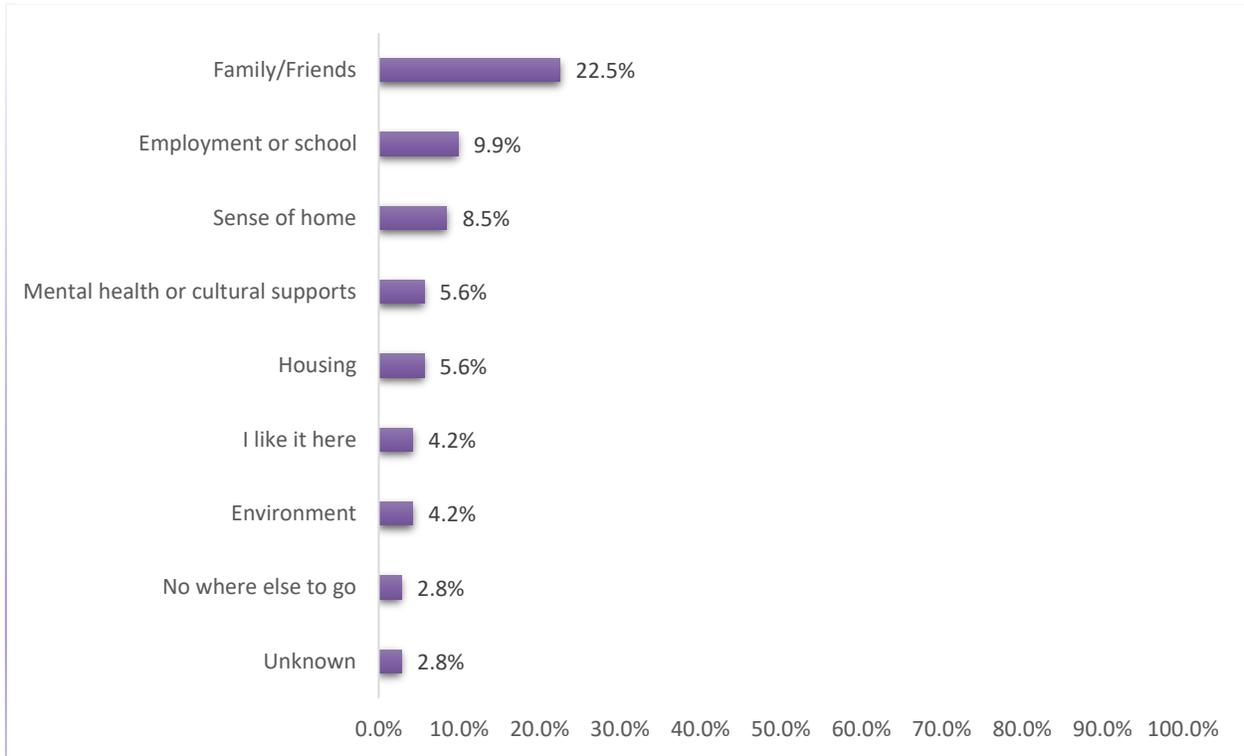
To understand the fourth question, first we asked: “Is the City of Thunder Bay your community of choice?” and then one of two follow up questions. If participants said that Thunder Bay was their community of choice we asked, “If yes, why?”. If they indicated that it was not their community of choice we asked, “If no, do you want to return to your home community, and why?”

Overall Sample

In total, 71 people (72.4%) indicated that the City of Thunder Bay was their community of choice. Social connection with family and friends was the most frequently cited reason why, with 16 people or 22.5% indicating so. This was followed by education or school (7 people or 9.9%) and “sense of home” (6 people or 8.5%) as reasons why people remained in Thunder Bay. Other reasons are outlined in Figure 8 below. On the other hand, 26 people (26.5%) indicated Thunder Bay was not their community of choice. Among these 26, 11 people (42.3%) wanted to return to their home community. Of these 11 people who wanted to return to their home communities, 4 people (36.4%) indicated employment/income and 3 (27.3%) indicated legal issues as barriers to returning to their home communities. Other items reported as barriers to returning to their homes include lack of housing in the community, family, and medical reasons (each with 1 respondent).

Again, to better understand housing, we asked the following two questions: “If you were to return to your home community, would you have permanent housing available?” and “If you were to return to your home community, would you have safe housing available?” In total, 50 people (51%) reported they would *not* have access to permanent housing if they returned to their home communities, and 38 people (38.8%) would *not*

Figure 8. Reasons Why Thunder Bay was the Community of Choice Among Those Who Migrated to Thunder Bay by Percentage

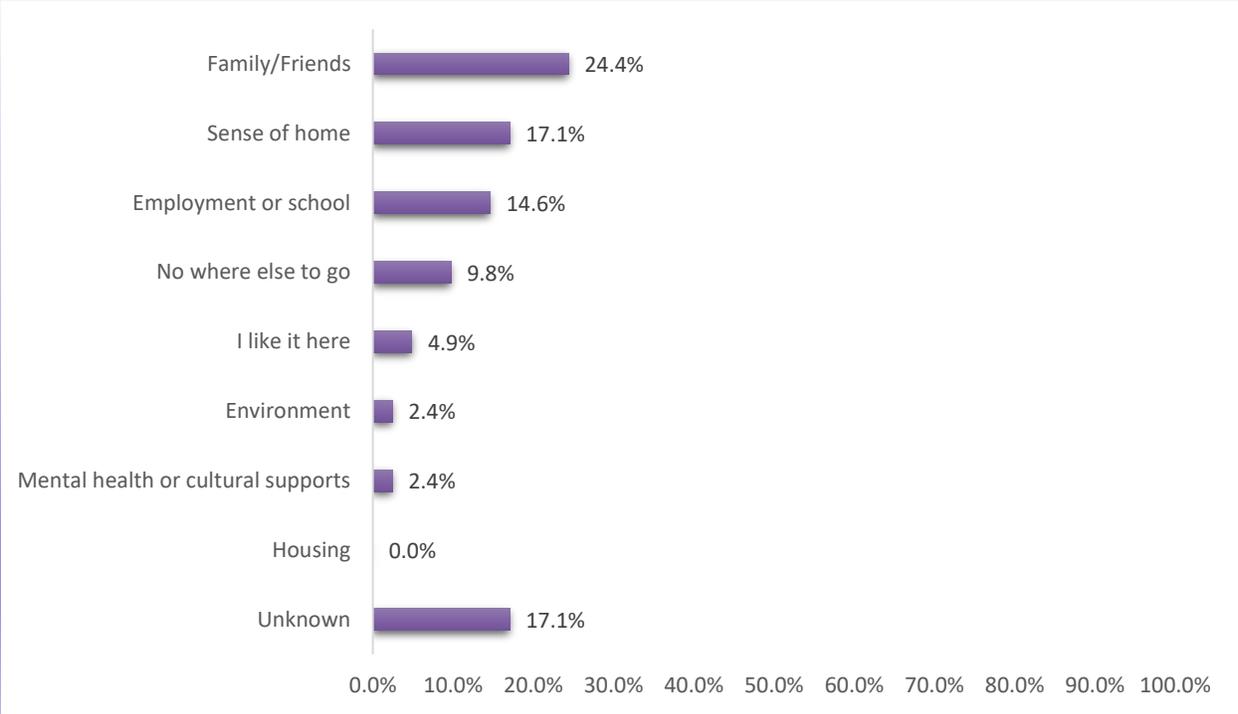


have access to safe housing in their home community if they returned. When we combine the two – safe and permanent housing – we observe that only 21 respondents (20.8%) would have access to both safe and permanent housing if they returned to their home community.

Sub-Sample: Individuals from First Nations Communities in Ontario

When looking at the sample of people from First Nations communities in Ontario, family/friends was the most reported (10 people or 24.4%) reason why Thunder Bay was the community of choice. Interestingly, sense of home was the second most cited reason with 7 people (17.1%), with employment or school as third with 6 people (14.6%). Reasons for Thunder Bay as the community of choice for people who migrated from an Ontario First Nation community are outlined in Figure 9 below. A total of 11 (19.3%) people from an Ontario First Nations community indicated that Thunder Bay was not their community of choice. Among these 11 people, 8 (72.7%) wanted to return to their home

Figure 9. Reasons Why Thunder Bay was the Community of Choice Among Individuals Who Migrated from an Ontario First Nations Community by Percentage



community. For these 8 people, 3 people (37.5%) indicated legal issues and 3 (37.5%) indicated employment/money as barriers to returning to their home communities, and 2 (25%) did not provide a reason.

With respect to housing, for respondents from an Ontario First Nations community, 26 (45.6%) would *not* have access to permanent housing and 18 (31.6%) would *not* have access to safe housing; a total of 14 people (24.6%) reported having access to both safe and permanent housing if they returned to their community.

Once again, the qualitative data from the interviews confirmed some of the quantitative data from the PiT. For instance, social reasons to stay or remain in city were frequently mentioned; this included “to stay close to” family or having a partner but also a sense of community. Here is an example of an individual who, as stated above, had a long and varied migration pathway to the city and highlights the “magical” nature of the community in Thunder Bay as a reason to remain here.

“Like, from moving so much, like I haven’t really had long term friends for a long time. I had like a handful of guys that have been friends with for, like 20 years. So, like, having this kind of community is really cool. And there’s a lot of things about Thunder Bay that are different from other places. It almost seems like it’s kind of magical.”

Services were also given as a reason to remain in Thunder Bay, but here we have some qualitative data that adds to the quantitative data as a number of people mentioned economic barriers to leaving the city. Here is an individual explaining how a medical appointment and a missed flight led to them staying in Thunder Bay:

“I was medivac-ed from Kenora, from the hospital here, and I’ve been stuck in this damn town ever since. I had a, they told me I was having a stroke. So, they put me on a plane. Next, they brought me to Thunder Bay, and I’ve been here ever since.”

Interestingly, this individual was from Kenora, but given the provincial boundaries was flown to Thunder Bay General Hospital instead of a closer one in Winnipeg. Here is another example of someone who originally came for healthcare and now cannot afford to leave. They indicate that another medical appointment will be missed so that they can return home.

“I came out here for a CT scan, but I kind of missed my flight. So that's why I'm here. They were gonna do an MRI, but the MRI is on the 17th. I don't think I'm gonna go 'cause I wanna go home. I'm waiting for my cheque on the 15th to partially pay for my way. That's my whole story.”

Finally, here is one more example of an economic barrier related to transportation. One individual from Southern Ontario stated that: “Well, I have, I have um. Honestly, once I moved to Thunder Bay, Greyhound went [out of] business and, like, the only way to leave was on the airplane, and I can't afford that.”

Question 5: What Factors Predict if Someone Will Stay or Leave a Shelter?

To answer the fifth question, we departed from the Point-in-Time data and the interviews and used the data from the shelter survey and HIFIS variables. The HIFIS variables of check-in and check-out dates allowed us to categorize individuals as having “stayed” ($n = 88$) or “left” ($n = 22$) a shelter, the latter of which refers to those not registered

in HIFIS at a shelter in Thunder Bay for eight or more weeks at the time we retrieved the data. Table 5 below shows the key factors in predicting whether a person experiencing homelessness in Thunder Bay is going to stay or leave the shelter. It is important to note that the table shows raw scores – higher scores indicate that the person is more likely to stay in a shelter for that particular “factor” or reason; to further facilitate comprehension, we used the statistical probability to categorize a predictor’s raw score as “strong,” “moderate,” or “weak.”

Table 3. Factors that Predict if Someone Will Stay or Leave a Shelter in Thunder Bay by Score and Predictive Strength

Factors¹⁵	Score	Strength
The person received mental health support recently	20.57 ¹⁶	Strong
Family or friends was a reason to migrate to Thunder Bay	17.86	Strong
Education was a reason to migrate to Thunder Bay	16.20	Strong
The person recently received support for drug/alcohol use	14.29	Strong
Mental health support was a reason to migrate to Thunder Bay	13.50	Strong
A medical appointment was a reason to migrate to Thunder Bay	13.00	Strong
The person’s highest level of education is high school	12.07	Strong
The person found employment upon arrival in Thunder Bay	10.26 ¹⁷	Moderate
Employment was a reason to migrate to Thunder Bay	9.85	Moderate
Support for drug and/or alcohol was a reason to come to Thunder Bay	9.00	Moderate
The person is 39 years of age or older	7.78	Moderate
The person was hospitalized in Thunder Bay	6.37	Weak

¹⁵ All values were statistically significant.

¹⁶ All strong predictors were statistically significant at $p < .001$.

¹⁷ All moderate predictors were statistically significant at $p < .01$.

From Table 3, we make six interpretations. First, out of the 7 strong predictors, three of them are related to service – i.e., people migrated to the city for education, mental health support, or a medical appointment. Second, people are more likely to stay if they recently received support for mental health or addictions. Third, people are more likely to stay if they migrated for mental health support and have recently received those supports. Fourth, people are more likely to stay if they migrated for addictions support and recently received support for it. Fifth, people are more likely to stay if they come for mental health support or a medical appointment. Sixth, people are more likely to stay if they migrate for education and employment.

In the Point-in-Time count data set we noticed that the majority of people migrating to the City of Thunder Bay came from one of the three neighbouring districts – Kenora, Cochrane, or Rainy River. As a result, we decided to run the machine learning models again but this time with the person's home and previous districts included as factors in determining if a person stays or leaves a shelter. Home district refers to the district the person is originally from while previous district refers to the district they lived in directly prior to coming to the District of Thunder Bay. In some cases, these differ while in others, they are the same. We collected information on home and previous districts as screening questions and did not originally intend for them to be factors in predicting whether people stay or leave a shelter – hence why they were not included in the original models. But from Table 4 below, we can see that once we did include districts, both home and previous districts emerge as the two strongest predictors of whether or not someone who migrated to the city will stay or leave a shelter.

One district seems to influence the models more than the other – Kenora. Of the 88 individuals who stayed in the shelter and thus did not leave, 32 were from Kenora; this is compared to the 1 in 22 who left. This means that of the 33 individuals who migrated from the District of Kenora, 32 ended up staying in a shelter in Thunder Bay and only 1 left. Moreover, if we look at the Districts of Cochrane and Rainy River together with Kenora, this accounts for 50% of people who stayed in a shelter in Thunder Bay. Put differently, of the 48 people from a neighbouring district, 45 stayed in a shelter in Thunder Bay and only 3 left. Therefore, we have confirmation from a second sample, the Point-in-Time count being the first sample, that a meaningful portion of individuals migrating to the

City of Thunder Bay and staying in a shelter are migrating from the District of Kenora, and that half are from one of three neighbouring Districts. Those most likely to leave the shelters were from Southern Ontario.

Table 4. Factors that Predict if Someone Will Stay or Leave a Shelter by Score and Predictive Strength with Regional District Included

Factor	Score	Strength
The person's home district is Kenora, Cochrane, or Rainy River	48.01 ¹⁸	Strong
The person's previous district is Kenora, Cochrane, or Rainy River	26.84	Strong
The person's highest level of education is high school	22.26	Strong
The person received support for drug and/or alcohol use recently	20.57	Strong
The person found employment upon arrival in Thunder Bay	19.70	Strong
Family or friends was a reason to migrate to Thunder Bay	17.85	Strong
Education was a reason to migrate to Thunder Bay	16.20	Strong
Support for drug and/or alcohol was a reason to come to Thunder Bay	14.29	Strong
Mental health support was a reason to migrate to Thunder Bay	13.50	Strong
A medical appointment was a reason to come to Thunder Bay	13.00	Strong
The person tended to be older	12.60	Strong
The person migrated for employment	9.85	Moderate
The person migrated for housing	9.00	Moderate
The person migrated for support for drug and alcohol	9.00	Moderate
The person has a status card	6.00	Weak
The person has been hospitalized in the City of Thunder Bay	5.72	Weak

¹⁸ All values were statistically significant at $p < .001$.

Question 6: If People Stay, How Long Do They Stay?

To answer the sixth question, we again used data from the shelter survey and HIFIS and developed machine learning models to analyze the data. The target variable used for this prediction was the individual's duration of stay at shelters, which was generated by calculating the total number of days a person was present at any of the shelters. Figure 10 below shows the distribution of all individuals in our sample by the length of stay. Though not observable from the figure, more than half of our sample stayed for less than 34 days; about 25% stayed for 13 days; and another 75% stayed for 81 days. The average number of days stayed was 52 while the longest stay duration was 245.

Question 7: What Factors Predict the Length of Duration a Person Stays?

Finally, as with questions 5 and 6, we used the shelter survey and HIFIS data sets along with machine learning models to answer question 7. We tested all of the factors and three of them emerged as predictors and are presented in Table 5. Overall, the models for this question were weaker if statistically significant.

Figure 10. A Scatterplot of the Number of People Experiencing Homelessness by Number of Days Stayed at a Shelter

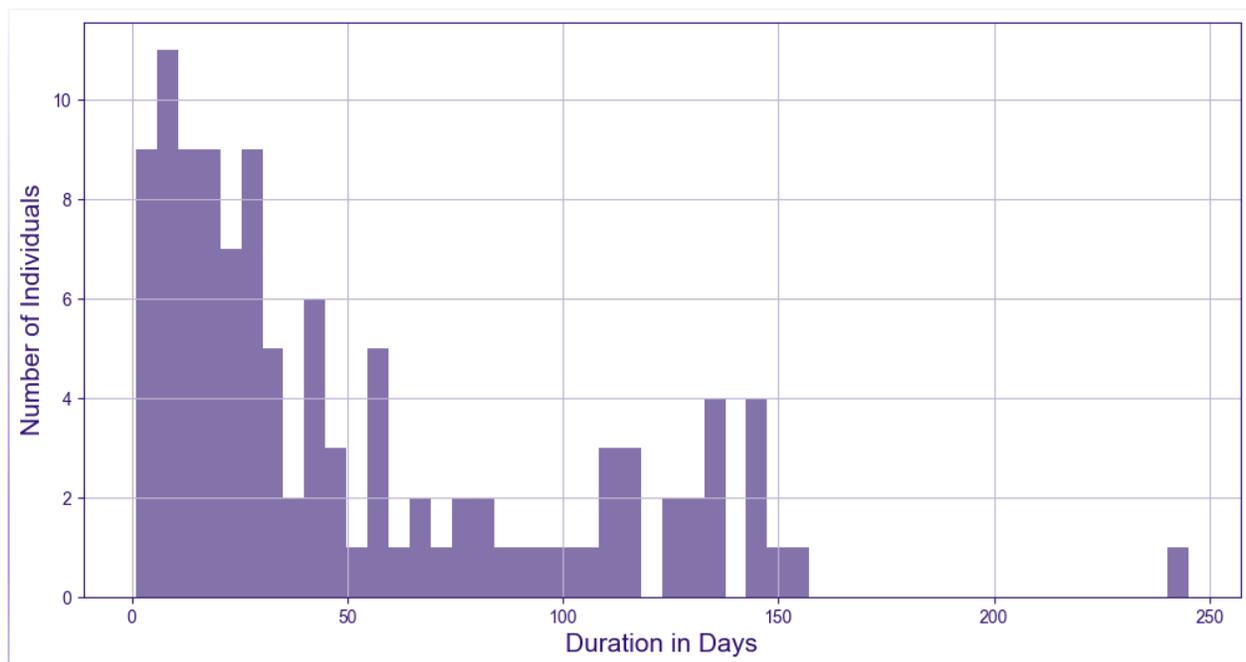


Table 5. Factors that Predict a Long Stay Duration in a Shelter by Score and Predictive Strength

Factor	Score	Strength
Does not have band membership	5.53 ¹⁹	Weak
Does not have a status card	4.84	Weak
Did not recently have support for drug and/or alcohol abuse	4.17	Weak

According to the values above, individuals without band membership and status cards are more likely to stay in a shelter longer. By contrast, the majority with band memberships and status cards stayed for shorter periods. We should note that among those individuals who did not have a status card or band membership, some were Indigenous while a majority were not. Moreover, Indigenous individuals who are more likely to stay for shorter periods and non-Indigenous people tend to stay for longer periods. Finally, those who have not received any recent drug and/or alcohol support are more likely to stay for longer durations.

As with question 5, we decided to run the models again with district to see if the person’s home district or previous district predicted stay duration in addition to whether or not they would simply stay. Table 6 below presents the results. Again, we can see that home district becomes the strongest predictor of stay duration once included and previous district emerges as a predictor, too. As with the question of whether an individual who migrated to Thunder Bay would stay in a shelter, the District of Kenora emerged again as a predictor of stay duration. This means people migrating from Kenora were more likely to stay for longer periods of time. People most likely to stay for shorter periods of time were those from Southern Ontario.

¹⁹ All factors significant at $p < .05$.

Table 6. Factors that Predict a Long Stay Duration in a Shelter by Score and Predictive Strength with Regional District Included as a Predictor

Factor	Strength	Strength
The person’s home district is Kenora, Cochrane, or Rainy River	6.13 ²⁰	Weak
The person does not have band membership	5.53	Weak
The person does not have a status card	4.84	Weak
The person’s previous district is Kenora, Cochrane, or Rainy River	4.53	Weak
The person did not recently receive support for drug and/or alcohol abuse	4.17	Weak

²⁰ All values are significant at $p < .05$.

Discussion and Implications

We want to use this concluding section to carve out what we think to be the key findings, briefly discuss their implications, and talk about the limitations of the study and any potential work that could be done by others to help further our understanding of migration and homelessness in Thunder Bay.

Key Findings

Below are the findings that we think deserve the most attention from both a policy and research perspective.

1. All three data sets suggest that social factors, such as family, friends, and a sense of community might be driving migration into the City of Thunder Bay and motivating people to remain here and in shelters.
2. All three data sets suggest that service factors, such as health care, housing, and social services like addictions and mental health support might be driving migration into the City of Thunder Bay and also motivating people to remain here and in shelters.
3. All three data sets suggest that economic migration, mainly unemployment in home communities and a promise of employment in the City of Thunder Bay, might be driving migration into the city, but also that people in this study were either unable to work, unable to find work, or unable to keep work.
4. The Point-in-Time data and qualitative data suggest that lack of money is a barrier to leaving the city for those who want to leave.
5. The Point-in-Time and shelter survey data show that a majority of people migrated from a neighboring district, mainly Kenora, Cochrane, and Rainy River, each with a high proportion of rural towns and a Social Services Administration Board.
6. The shelter survey and subsequent machine learning models suggest being from or passing through Kenora, Cochrane, or Rainy River is a predictor of migration to Thunder Bay and stay in a shelter, including, though to a lesser extent, longer stays in shelter.
7. A high proportion of individuals from neighbouring districts are from First Nations communities in those districts, primarily on Treaty 9 and Treaty 3 territory.

Implications

So, what are the implications of this research? Below we talk about two sets of implications – one for policy and programming in the City of Thunder Bay and potentially in Northwestern Ontario and the other for existing and future research in this area.

For Homelessness Policy and Programming in the District of Thunder Bay.

With the understanding of the responses to the questions asked in this research, TBDSSAB is in a better position to provide program direction to pre-emptively address migratory homelessness issues and lessen emergency shelter usage. There is potential for collaborative programming with neighbouring districts and First Nations communities, as well as partnerships with provincial and federal governments. Further, where the data address policy and legislative opportunities for change, advocacy to federal and provincial government may be appropriate.

For Research on Migration and Homelessness. What implications do our findings have for the broader issue of migration and homelessness, which is otherwise a poorly understood phenomenon? First, our study helps build on knowledge about homelessness and migration in Northern Ontario. A pair of studies done a few years ago, including one by a member of this research team, suggested a number of relevant elements of migration: a rural-to-urban pathway of migration in Northern Ontario; a jurisdictional pathway of migration from federally to provincially or municipally funded services; and migration from Indigenous First Nations communities to cities for medical appointments not available in First Nations communities.²¹ The study by Schiff et al. (2016) also found that the prohibitively high cost of flights back to First Nations communities accessible only by air or winter ice-roads was a factor in preventing people from leaving the city to which they came for medical help.²² Our study confirms all of the

²¹ Carol Kauppi, Henri Pallard, and Emily Faries, “Poverty, Homelessness, and Migration in Northeastern Ontario, Canada” *International Journal of Sustainable Development* 8, No. 4 (2015): 11-22; Rebecca Schiff, Alina Turner, and Jeanette Waegemakers Schiff, “Rural Homeless in Indigenous Canada” *Indigenous Homelessness: Perspectives from Canada, Australia, and New Zealand* Winnipeg, eds. Julia Christensen and Evelyn Peters (Winnipeg: University of Manitoba Press, 2016), 185-209.

²² Schiff, Turner, and Waegemakers Schiff, “Rural Homeless in Indigenous Canada,” 185-209.

above – people seem to be migrating from more rural areas to the urban hub of Thunder Bay; a number of these areas are First Nations communities; the cost of travelling home is a barrier; and there is a pattern of jurisdictional migration – people are migrating from federal, provincial, or even municipal jurisdictions other than Thunder Bay into the city. These two studies looked at Sudbury and Kenora and therefore this study is the first to provide a comprehensive view of migration and homelessness in Northwestern Ontario.

Second, our findings confirm that, in addition to the overrepresentation of Indigenous peoples among the population of people experiencing homelessness,²³ there is an overrepresentation among those migrating to the city. The specific forces that shape Indigenous migration from the reserve to the city have both interested and challenged academics for several decades.²⁴ In 1981, Clatworthy and Gunn noted that it was already “widely recognized that native people represent a significant and expanding segment of western Canada’s urban poor.”²⁵ In fact, the question of “push” and “pull” factors that encourage Indigenous migration to or from a reserve community was an important one for the Royal Commission on Aboriginal Peoples in 1996.²⁶ A decade later, in 2006, Martin Cooke and Danièle Bélanger published an article seeking to consolidate a structural analysis of Indigenous migration and offer a “systems perspective” on the issue; however, the authors noted that the varying reasons for migration, as well as the unique experiences of those who migrate, make a rigid framework or model elusive or at least

²³ TBDSSAB, *Thunder Bay Point-in-Time Count*, last modified April 2016, <https://tbifc.ca/wp-content/uploads/2016/10/PIT-Data-Final.pdf>; TBDSSAB, *Thunder Bay Point-in-Time Count*, last modified November 2018, <https://www.lspc.ca/wp-content/uploads/2018-Point-In-Time-Count-.pdf>; Alicia Kalmanovitch, Nick Falvo, Britney Ardelli, Laurel Collier, Megan Hodgins, Megan Donnelly, and Joel Sinclair, *Spring 2018 Point-in-Time Count Report*, <http://www.calgaryhomeless.com/wp-content/uploads/2021/02/2018-Calgary-Point-in-Time-Homeless-Count-Full-Report.pdf>

²⁴ Trevor Denton, “Migration from a Canadian Indian Reserve.” *Journal of Canadian Studies* 7, no. 2 (1972): 54–62.

²⁵ Stewart Clatworthy and Johnathan Gunn, *Economic Circumstances of Native People in Selected Metropolitan Centres in Western Canada* (Winnipeg: Institute of Urban Studies, 1981), 1.

²⁶ Stewart Clatworthy, *The Migration and Mobility Patterns of Canada’s Aboriginal Population*. Prepared for the Royal Commission on Aboriginal Peoples (Ottawa: Canada Mortgage and Housing Corporation and the Royal Commission on Aboriginal Peoples, 1996).

lacking in utility.²⁷ More recently, in a 2009 study, two scholars stressed the role of acute poverty as a factor shaping migration.²⁸ Overall, migration and homelessness is complicated and enduring.

Moving forward, several scholars in numerous studies might seek to understand and even isolate specific motivations or reasons for Indigenous migration²⁹. More recently, the Calgary Homeless Foundation released a report in 2020 titled *Understanding the Flow of Urban Indigenous Homelessness: Examining the Movement Between Treaty 7 First Nations and Calgary's Homeless-Serving System of Care*.³⁰ This report noted that

“There appear to be two forms of migration to the city: the first is by choice, the second is forced. The first is one related to searching for opportunity, and many do make a successful transition via education and securing employment. For others, it is more of a forced migration, especially for newly separated singles, youth and individuals struggling with substance abuse and frustration with lack of employment opportunities on reserve. Overcrowded homes, poor condition and the lack of supply were also identified as factors in families leaving the reserve.”³¹

Though this body of literature did not address Northern Ontario, it rings true with the findings of our study.

²⁷ Martin Cooke and Danielle Belanger, “Migration Theories and First Nations Mobility: Towards a Systems Perspective,” *The Canadian Review of Sociology and Anthropology* 43, no. 2 (May 1, 2006): 141–164.

²⁸ Evelyn J. Peters and Vince Robillard, “‘Everything You Want Is There’: The Place of the Reserve in First Nations’ Homeless Mobility” *Urban Geography*, 30, no. 6 (2009), 652–658.

²⁹ Jaylene Taylor Anderson and Damian Collins, “Prevalence and Causes of Urban Homelessness Among Indigenous Peoples: A Three-Country Scoping Review,” *Housing Studies* 29, no. 7 (June, 2014): 959–976.; Martin Cooke and Erin O’Sullivan, “The Impact of Migration on the First Nations Community Well-Being Index,” *Social Indicators Research* 122, no. 2 (2015): 371–89; Marilyn Amorevieta-Gentil, Robert Bourbeau, and Norbert Robitaille, “Migration Among the First Nations: Reflections of Inequalities,” *Population Change and Lifecourse Strategic Knowledge Cluster Discussion Paper Series*, 3, No. 1 (2015).

³⁰ Gabriele Lindstrom, Steve Pomeroy, Nick Falvo, and Jodi Bruhn, *Understanding the Flow of Urban Indigenous Homelessness: Examining the Movement Between Treaty 7 First Nations and Calgary's Homeless-Serving System of Care*, May, 2020, http://www.calgaryhomeless.com/wp-content/uploads/2021/08/Understanding-Flow_Final_print_2020_07_21.pdf

³¹ Lindstrom, Pomeroy, Falvo, and Bruhn, *Understanding the Flow of Urban Indigenous Homelessness*.

Third and final, methodologically, our work here responds to calls and builds on studies using quantitative data to understand migration and homelessness. This includes the call for “multivariate models” of Indigenous migration by Cooke and Bélanger (2006).³² To our knowledge, this is the first time machine learning has been used to understand homelessness in Northern Ontario and might be the first time it’s been used to understand migration and homelessness in Canada or elsewhere.

But this work also builds on several previous studies that have used machine learning techniques to guide our understanding of homelessness generally. For instance, studies using machine learning models have helped: predict the possibility of an individual becoming homeless; determine the duration of homeless stay in a shelter³³; determine the likelihood of a person experiencing homelessness after gaining housing³⁴; and predict access to housing and shelter³⁵. Other studies have also determined causal factors of homelessness, again generally and not in relation to migration; these include education, physical disability, family issues, domestic violence, financial strain, substance use, mental illness, and contact with criminal justice systems³⁶. We have used most of these

³² Martin Cooke and Danielle Belanger. “Migration Theories and First Nations Mobility: Towards a Systems Perspective,” *The Canadian Review of Sociology and Anthropology* 43, no. 2 (May 1, 2006): 141–164.

³³ Boyeong Hong et. al, “Applications of Machine Learning Methods to Predict Readmission and Length-of-Stay for Homeless Families: The Case of Win Shelters in New York City,” *Journal of Technology in Human Services* 36, no. 1 (2018): 89-104.

³⁴ Hong et al., “Applications of Machine Learning”, 80-104; Yuan Gao, Sammy Das, and Patrick J. Fowler, “Homelessness Service provision: A Data Science Perspective,” *AAAI Workshop on AI and Operations Research for Social Good*, WS-17-01 (2016): 20–24.

³⁵ Robert Suchting et. al., "Predicting Daily Sheltering Arrangements Among Youth Experiencing Homelessness Using Diary Measurements Collected By Ecological Momentary Assessment" *International Journal of Environmental Research and Public Health* 17, no. 18 (2020): 6873; Halil Toros and Daniel Flaming. “Prioritizing Which Homeless People Get Housing Using Predictive Algorithms,” *SSRN Electronic Journal*, April 2017, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2960410.

³⁶ Jeffrey Olivet, Catriona Wilkey, Molly Richard, Marc Dones, Julia Tripp, Maya Beit-Arie, Svetlana Yampolskaya, and Regina Cannon, “Racial Inequity and Homelessness: Findings from the SPARC Study,” *The ANNALS of the American Academy of Political and Social Science* 693, no. 1 (2021): 82-100;

as independent factors in understanding migration. Finally, in terms of breadth of models, most studies have used largely two types of machine learning³⁷, but we had the opportunity to use eight in determining the conclusions in this report.

Limitations and Future Research

We outline two limitations here. First, COVID-19 negatively impacted all three of our data collection efforts. The Point-in-Time count numbers are lower in 2021 compared to the previous two years and this was a direct effect of the impact of COVID-19. Regarding the shelter survey and interviews, outbreaks at the shelters negatively impacted our data collection efforts. Many of the interviews were conducted in the shelters and the shelter survey was always conducted at the shelters. But in both cases, we were not permitted to conduct our research at any of the shelters during an outbreak or if a researcher had been in contact with a positive case. Particularly for the shelter survey, the outbreaks or just COVID-19's generalized impact could have depressed the number of people we could survey; if so, this would have an impact on the accuracy and strength of our machine learning models because machine learning models perform better with larger datasets. Although it might also be virtually impossible to get a sufficiently large data set in such a small city, particularly when limiting our focus to people who migrate

Victor B. A. Moxley, Taylor H. Hoj, and M. Lelinneth B. Novilla, "Predicting Homelessness Among Individuals Diagnosed with Substance Use Disorders Using Local Treatment Records," *Addictive Behaviors* 102 (March 2020): 106160; Eric B. Elbogen, Megan Lanier, Henry R. Wagner, and Jack Tsai, "Financial Strain, Mental Illness, and Homelessness," *Medical Care* 59, no. 4 (2021): 132-138; Jordan P. Davis, Graham Diguiseppi, Jessenia De Leon, John Prindle, Angeles Sedano, Dean Rivera, Benjamin Henwood, and Eric Rice, "Understanding Pathways Between PTSD and Substance Use Among Adolescents," *Psychology of Addictive Behaviors* 33, no. 5 (2019): 467; Hajing Hao, Monica Garfield, and Sandeep Puro, "The Determinants of Length of Homeless Shelter Stays: Evidence-Based Regression Analyses," *International Journal of Public Health* 66, no. 1 (2022): 1604273; Zachary Giano, Amanda Williams, Carli Hankey, Renae Merrill, Rodica Lisnic, and Angel Herring, "Forty Years of Research on Predictors of Homelessness," *Community Mental Health Journal* 56, no. 4 (2020): 692-709.

³⁷ Halil Toros, Daniel Flaming, and Patrick Burns, "Early Intervention to Prevent Persistent Homelessness," *SSRN Electronic Journal*, 2019, <https://economicrt.org/wp-content/uploads/2019/03/Early-Intervention-to-Prevent-Persistent-Homelessness.pdf>

from out of town or province. Machine learning models, while carrying strengths over traditional inferential statistics, also have some weaknesses. The “black box” nature of the models meant that we had to interpret the findings in a way that departs slightly from the well accepted process in the field. For this data set, that was possible, given the size, but for future data sets that are larger, it might not be. The second limitation is financial. The nature and amount of the grant, while making this project possible, limited our ability to continue data collection efforts or to increase them to get better data. Future studies might consider larger grants for more robust data – quantitative and qualitative.

Ultimately, this is a preliminary report on a preliminary study, which gives us a preliminary answer to one important question about homelessness in the City of Thunder Bay – why are so many people who experience homelessness here from out of town?

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Why Are So Many People Who Experience Homelessness in the City of Thunder Bay from Out of Town?

To better understand this question, the District of Thunder Bay Social Services Administration Board (TBDSSAB) and Lakehead University (LU) partnered to form an interdisciplinary research team to highlight the factors that led people experiencing homelessness to the City of Thunder Bay.

Key findings of the study:

69%
of migration from neighbouring districts comes from First Nation Communities

77%
of people from a First Nation Community reporting being from Treaty 9 or Treaty 3 territories.



54%
of people surveyed migrated from Kenora, Cochrane and Rainy River Districts. Machine learning models show that a person experiencing homelessness and being from, or passing through, these districts is a predictor of migration to the City of Thunder Bay.



People are also more likely to stay in a Thunder Bay emergency shelter if: they migrated for education, mental health supports, or a medical appointment **or** they recently received support for mental health or addictions



People migrate to the City of Thunder Bay due to:

Social Factors



43%

migrated to Thunder Bay for family, friends, or a sense of community

Service Factors



migrated to Thunder Bay for health care, housing, or social services

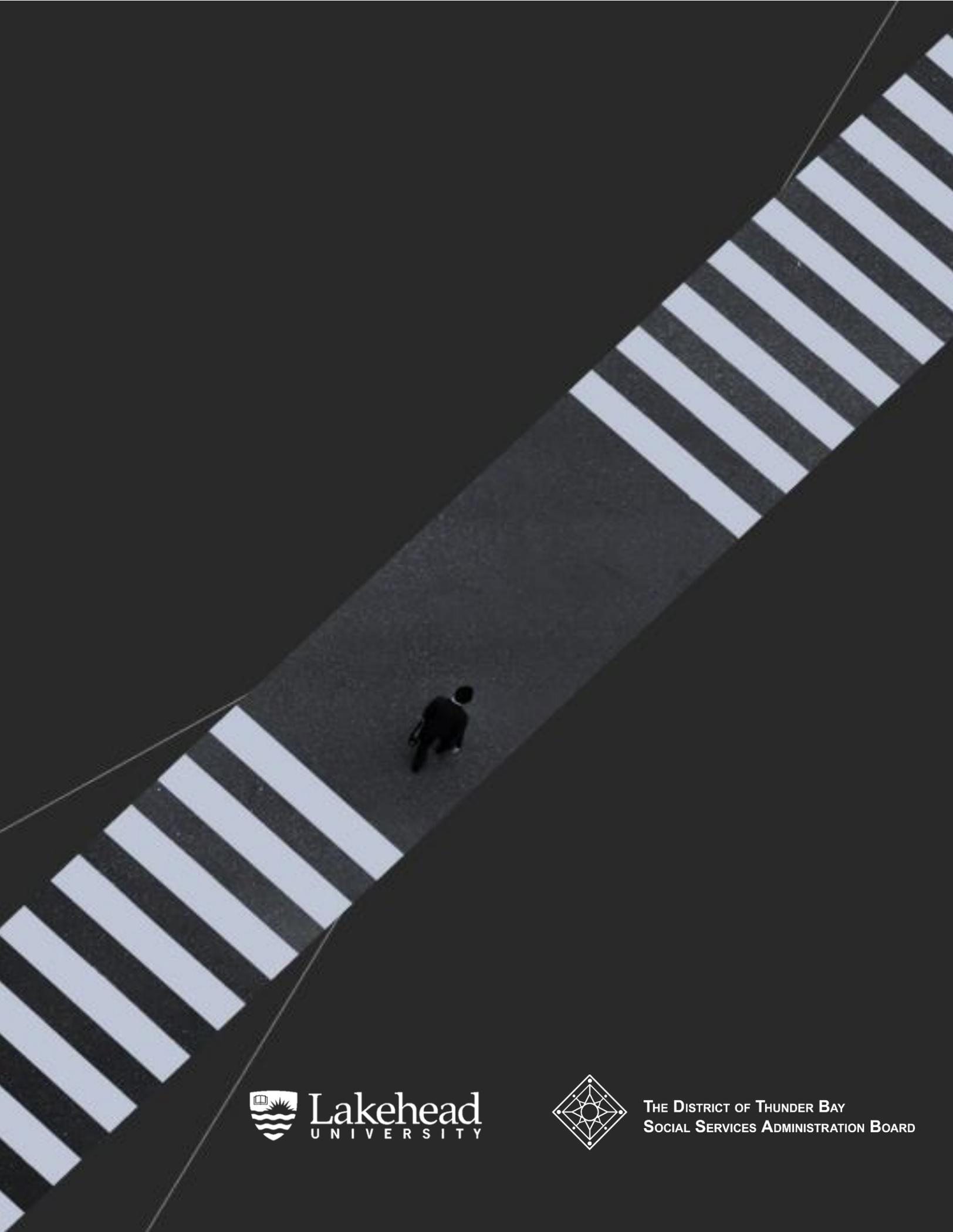
Economic Factors



22%

migrated to Thunder Bay for employment or education

“...having this kind of community is really cool. And there's a lot of things about Thunder Bay that are different from other places. It almost seems like it's kind of magical.”



Lakehead
UNIVERSITY



THE DISTRICT OF THUNDER BAY
SOCIAL SERVICES ADMINISTRATION BOARD