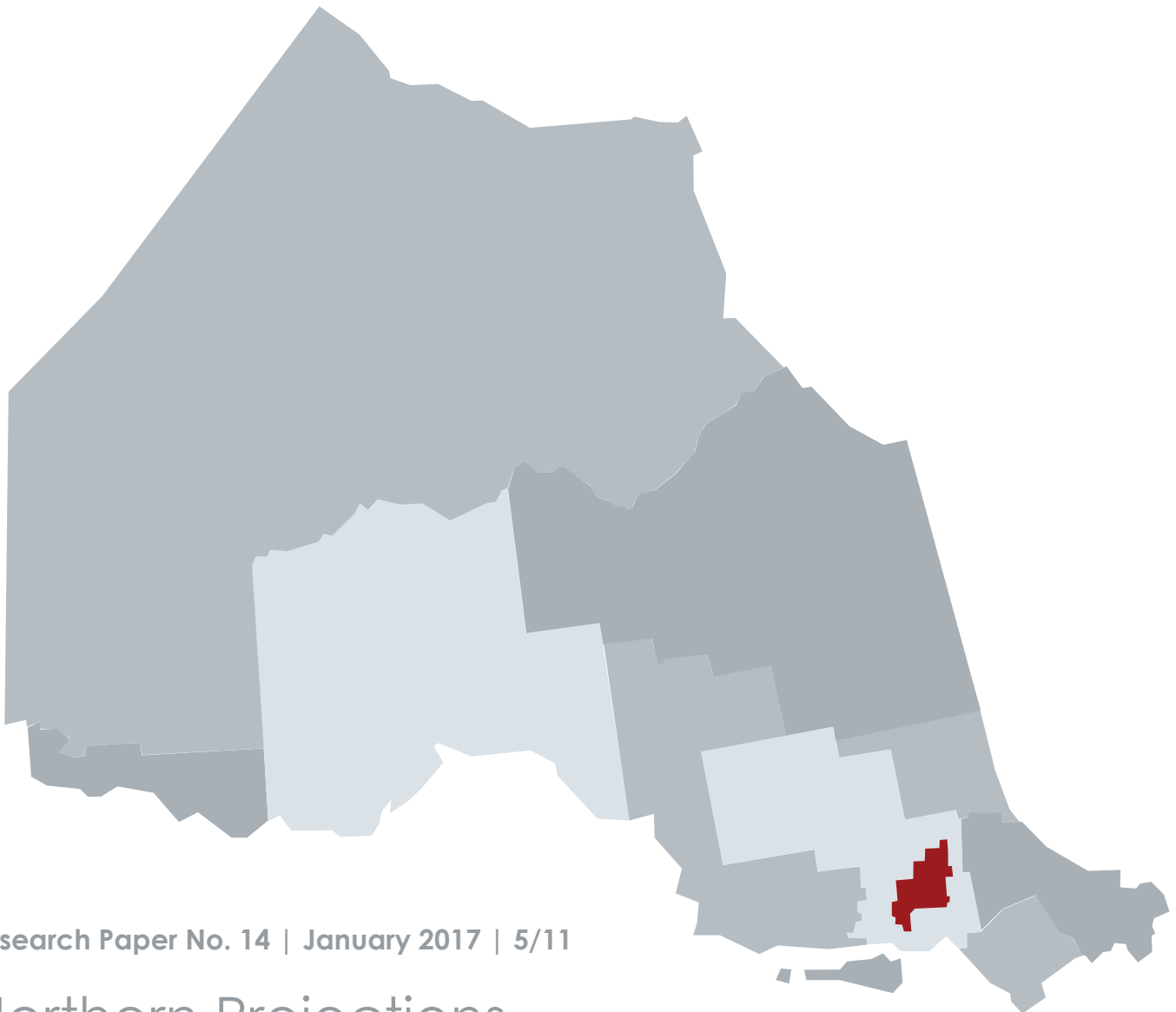


NORTHERN
POLICY INSTITUTE

INSTITUT DES POLITIQUES
DU NORD



NORTHERN
ONTARIO
WORKFORCE PLANNING



Research Paper No. 14 | January 2017 | 5/11

Northern Projections
Human Capital Series - GREATER SUDBURY

Who We Are - Northern Ontario Workforce Planning

Workforce Planning Ontario is a network of 26 Workforce Planning Boards covering four regions across the province. Workforce Planning Boards gather intelligence about the supply and demand side of the local labour market and work in partnership with employers, employment services, educators, researchers, economic development, government and other stakeholders to identify, understand and address labour market issues. This includes supporting and coordinating local responses to meet current and emerging workforce needs.

Given the unique geography and labour market issues that impact Northern Ontario, all 6 planning boards in the north have collaborated to form Northern Ontario Workforce Planning. They include: Algoma Workforce Investment Corporation (AWIC); Far Northeast Training Board (FNETB); The Labour Market Group (LMG); Northwest Training and Adjustment Board (NTAB); North Superior Workforce Planning Board (NSWPB); and Workforce Planning for Sudbury & Manitoulin (WPSM). FNETB and NSWPB are currently pilot sites for Local Employment Planning Councils (LEPC).



Jonathan Coulman - Executive Director
www.awic.ca
Algoma District



FAR NORTHEAST TRAINING BOARD (FNETB)
your **Local Employment Planning Council**

COMMISSION DE FORMATION DU NORD-EST (CFNE)
votre **Conseil Local de Planification de l'Emploi**

Julie Joncas - Executive Director
www.fnetb.com
Cochrane & Timiskaming Districts



The Labour Market Group

Guiding partners to workforce solutions.

Stacie Fiddler - Executive Director
www.thelabourmarketgroup.ca
Nipissing & Parry Sound Districts



Local Employment Planning Council

Madge Richardson - Executive Director
www.nswpb.ca
Thunder Bay District



Sonja Wainio - Executive Director
www.ntab.on.ca
Kenora & Rainy River Districts



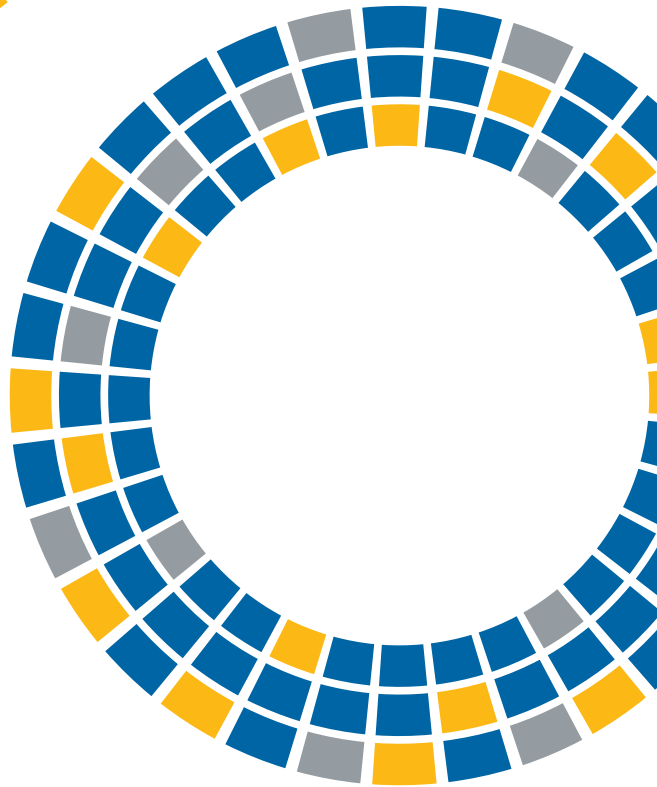
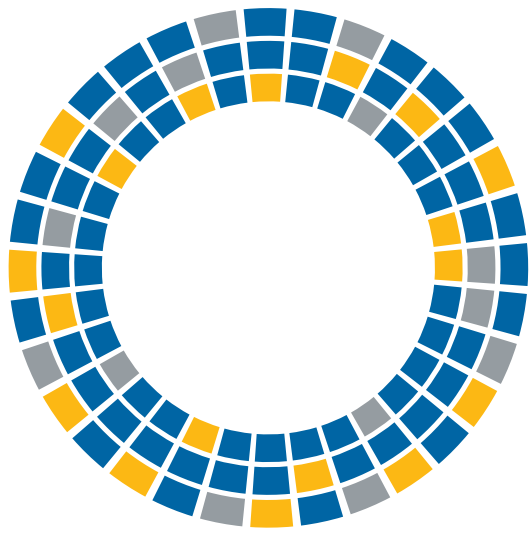
Sudbury & Manitoulin

Workforce Planning
Planification en main-d'oeuvre

Reggie Caverson - Executive Director
www.planningourworkforce.ca
Greater Sudbury, Sudbury & Manitoulin Districts



This project is funded in part by the Government of Canada and the Government of Ontario.



Who We Are

Some of the key players in this model, and their roles, are as follows:

Board: The Board of Directors sets strategic direction for Northern Policy Institute. Directors serve on operational committees dealing with finance, fundraising and governance, and collectively the Board holds the CEO accountable for achieving our Strategic Plan goals. The Board's principal responsibility is to protect and promote the interests, reputation, and stature of Northern Policy Institute.

President & CEO: Recommends strategic direction, develops plans and processes, and secures and allocates resources to achieve it.

Advisory Council: A group of committed individuals interested in supporting, but not directing, the work of Northern Policy Institute. Leaders in their fields, they provide advice on potential researchers or points of contact in the wider community.

Research Advisory Board: A group of academic researchers who provide guidance and input on potential research directions, potential authors, and draft studies and commentaries. They are Northern Policy Institute's formal link to the academic community.

Peer Reviewers: Ensure specific papers are factual, relevant and publishable.

Authors and Research Fellows: Provide independent expertise on specific policy areas as and when needed.

Standing engagement tools (general public, government stakeholders, community stakeholders): Ensure Northern Policy Institute remains responsive to the community and reflects THEIR priorities and concerns in project selection.

President & CEO

Charles Cirtwill

Board of Directors

Martin Bayer (Chair)
Thérèse Bergeron-Hopson
(Vice Chair)
Dr. George Macey
(Vice Chair & Secretary)
Emilio Rigato (Treasurer)
Dr. Brian Tucker
Hal McGonigal
Dr. Harley d'Entremont

Dawn Madahbee
Michael Atkins
Terry Bursey
Gerry Munt
Pierre Bélanger
Lucy Bonanno
Alex Freedman

Advisory Council

Kim Jo Bliss
Don Drummond
John Fior
Ronald Garbutt
Jean Paul Gladu
Audrey Glibeau
Peter Goring
Frank Kallonen

Allyson Pele
Ogimaa Duke Peltier
Seppo Paivalainen
Peter Politis
Tina Sartoretto
Keith Saulnier
David Thompson

Research Advisory Board

Dr. John Allison
Dr. Hugo Asselin
Dr. Randy Battochio (Chair)
Dr. Stephen Blank
Dr. Gayle Broad
George Burton
Dr. Robert Campbell
Dr. Iain Davidson-Hunt

Dr. Livio Di Matteo
Dr. Morley Gunderson
Dr. Anne-Marie
Mawhiney
Leata Ann Rigg
S. Brenda Small
J.D. Snyder
Dr. Lindsay Tedds

This report was made possible through the support of our partners Lakehead University, Laurentian University and Northern Ontario Heritage Fund Corporation and the financial support of Northern Ontario Workforce Planning Boards. Northern Policy Institute expresses great appreciation for their generous support but emphasizes the following: The views expressed in this report are those of the authors and do not necessarily reflect the opinions of the Institute, its Board of Directors and its supporters, Northern Ontario Workforce Planning Boards, the government of Ontario, or the government of Canada. Quotation with appropriate credit is permissible.

Author's calculations are based on data available at the time of publication and are therefore subject to change.

© 2016 Northern Policy Institute
Published by Northern Policy Institute
874 Tungsten St.
Thunder Bay, Ontario P7B 6T6

Contents

Partners _____ 3

Who We Are _____ 4

About the Authors _____ 5

Summary of Findings _____ 6

Introduction _____ 8

Demographic Change: The Past Three Decades _____ 9

Demographic Change: The Next Three Decades _____ 13

Labour Force: Past, Present and Future Trends _____ 17

Productivity and the Human Capital Composition of the Workforce _____ 21

The Consequences of Shifting the Composition of the Employed Labour Force _____ 28

Recommendations _____ 32

Related Research _____ 35

About the Authors

James Cuddy



James Cuddy is a market analyst at the Canada Mortgage and Housing Corporation (CMHC). He has over 5 years of experience conducting research on various economic issues, with a particular focus on labour market and socioeconomic analysis and regional and urban economics.

Prior to his role at CMHC, Cuddy served as Northern Policy Institute's in-house Economist, where he played the role of principal in-house researcher who helped to expand and implement research priorities and assist in quality control.

James is a graduate of Carleton University with a B.A. in Economics (2013) and the University of Ottawa with a M.A. in Economics (2015).

Dr. Bakhtiar Moazzami



Dr. Moazzami has taught Economics and Econometrics at Lakehead University since 1988. He is well known for his research activities particularly related to Northern Ontario. He has written many reports on Northern Ontario's economic development challenges and opportunities. He was commissioned by the Ministry of Northern Development and Mines to undertake a comprehensive study of Northern Ontario's economy as a part of the research conducted for the Growth Plan for Northern Ontario. Included in the study were the identification of growing, declining and emerging industrial clusters in the region. Professor Moazzami has also written extensively on Northern Ontario's Aboriginal people and Northern Aboriginal economy. Dr. Moazzami's expertise and influence reaches beyond Lakehead University and Northern Ontario. He has been a regular guest speaker at the University of Waterloo's Economic Development Program.

Summary of Findings

Greater Sudbury should strive to reverse the trend in domestic out-migration:

Greater Sudbury has experienced slightly negative net intra-provincial migration in recent years, as more individuals from Ontario have moved out of the city than into it. Interprovincial migration, known as the movement of individuals from one province to another, has also been negative, and declining, for the last decade and a half. As a result, the total net domestic migration in 2014-15 was negative 400, meaning that the city had more individuals leaving Greater Sudbury than entering it.

Greater Sudbury is an immigration leader in the North:

Greater Sudbury had the highest number of immigrants per capita compared to other census districts in Northern Ontario. However, compared to provincial levels, immigration levels are low and should be bolstered.

Indigenous Population:

The Indigenous population in Greater Sudbury is expected to increase from 13,458 in 2013 to 17,285 in 2041, a growth rate of about 28.4 percent. The number of individuals under age 20 are expected to increase by 12.7 percent during this period, while working-age Indigenous people are expected to rise from 8,375 in 2013 to 9,293 in 2041. The number of individuals aged 65 and over are expected to rise from 1,027 in 2013 to 3,419 in 2041, an increase of 135.5 percent.

The Indigenous population's share of total population is expected to increase from 8.2 percent in 2013 to 10.5 percent in 2041 (Figure 8). The share of prime-working-age people (those ages 20 to 44) is expected to increase from 9.0 percent in 2013 to 10.83 percent in 2041. Similarly, the share of working-age Indigenous people (those ages 20 to 64) is expected to increase from 8.1 percent in 2013 to 10.6 percent in 2041. The share of Indigenous seniors is expected to rise from 3.7 percent in 2013 to 7.4 percent in 2041.

The labour force will decline, but slower than most other areas in the Northeast (except for Nipissing):

The city's labour force is expected to decline by about 14 percent between 2013 and 2041, while the Indigenous labour force is expected to increase by about 10 percent. As a result, the share of Indigenous people in the total regional labour force is expected to increase from 8 percent in 2013 to 10 percent in 2041.

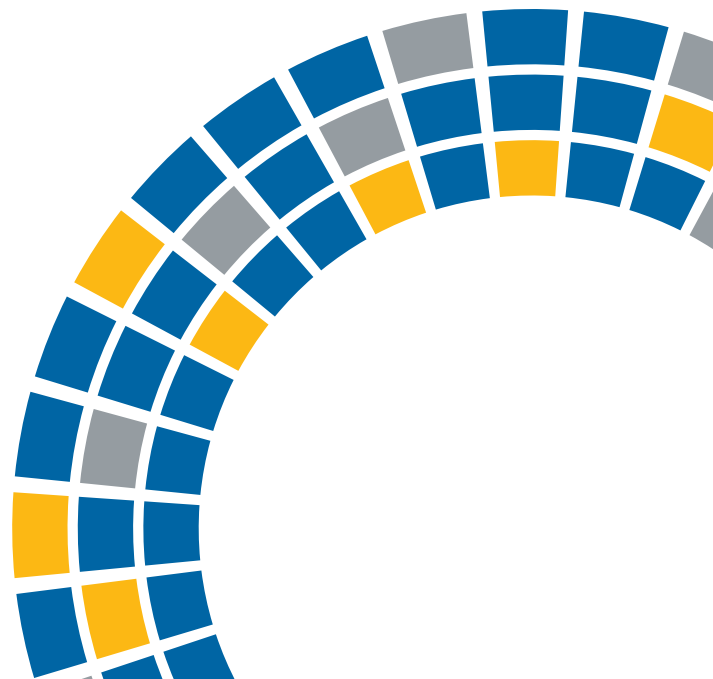
Greater Sudbury is a leader in generating Indigenous and immigrant human capital – Greater Sudbury has the highest human capital index for Indigenous and immigrant people in all of Northern Ontario, as well as higher than provincial and national levels.

The human capital composition of the working-age population in Greater Sudbury is above that in Northeastern Ontario, but below provincial and national levels. Meanwhile, the human capital indexes for immigrants in Greater Sudbury are higher than in Ontario and Canada, and notably higher than the total working-age population across all jurisdictions. Additionally, the human capital indexes for the Indigenous labour force in Greater Sudbury, while below the rest of the population, are higher than in Ontario and Canada.

The education levels of the prime-working-age population in Greater Sudbury is at the same level as Ontario and Canada for the total population. The local Indigenous population has notably higher levels of education compared to Indigenous people at the provincial and national levels. Greater Sudbury is in a better position than any other census district in Northern Ontario to meet current and future requirements.

Greater Sudbury's labour income and GDP grew more than any other Northeastern census district from 2001 to 2011

From 2001 to 2011, labour income in Greater Sudbury increased by 13.6 percent from \$3.02 to \$3.43 billion, compared with a 6.7 percent increase in Northeastern Ontario during the same period. Assuming that the share of labour in regional gross domestic product (GDP) stayed relatively constant during 2001-2011, it is evident that Greater Sudbury also experienced positive growth in GDP, from \$5.58 to \$6.34 billion, as shown in Figure 22.



Introduction

The objective of this report is to examine past and present trends and characteristics in Greater Sudbury's economy and to forecast its future challenges and opportunities. The report focuses primarily on the supply side of the economy. The authors examine the region's labour market including its human capital composition; employment trends; the shifting occupational composition of the employed workforce; the shifting of the region's industrial composition from goods-producing to services-producing sectors; the declining share of the private sector; the region's rising dependency on the public sector; and declining labour income and gross domestic product (GDP) in Greater Sudbury.

The report begins by examining demographic change in Greater Sudbury over the past three decades and by defining and estimating various dependency indicators.

The study looks into the future and provides projections for total and Indigenous populations of Greater Sudbury over the next three decades. From these population projections, the study estimates past, present and future trends in the size and composition of the regional labour force.

In the following section, the study defines and quantitatively measures the human capital composition of Greater Sudbury's workforce in the coming years. This section also discusses the implications of the growing application of technology in the production process and, accordingly, the future requirements of the workforce.

The report then moves on to discuss the consequences of shifting the composition of the employed labour force in Northeastern Ontario from goods-producing, dominated by private businesses, to services-producing, predominantly financed by the public sector. The study also examines the shifting occupational composition of the employed workforce, and the implication thereof for total regional income and GDP in the Greater Sudbury.

The study concludes with a summary and discussion of some policy implications.

Data Sources

Most of the data used are based on detailed information regarding individual census subdivisions

(CSDs) in Greater Sudbury and Northeastern Ontario obtained through special tabulations from Statistics Canada. Except for the population data, the 2011 data are based on the 2011 National Household Survey (NHS). Total population forecasts are based on data made available by the Ontario Ministry of Finance.

Population Groups Studied

The report provides information on the following four population groups:

- The total population;
- The francophone population, defined as individuals who report their mother tongue to be French;
- The Indigenous population, defined by Statistics Canada as persons who reported identifying with at least one Indigenous group – that is, North American Indian, Métis or Inuit – and/or those who reported being a Treaty Indian or a registered Indian, as defined by the Indian Act, and/or those who reported they were members of an Indian band or First Nation; and
- Immigrant population defined as persons who are, or have ever been, landed immigrants in Canada.

The Geographical Specification of Northeastern Ontario

Northern Ontario is subdivided into Northwestern and Northeastern Ontario. The three most western Census districts – namely Rainy River, Kenora and Thunder Bay – constitute Northwestern Ontario. The region that lies north and east of Lakes Superior and Huron constitutes Northeastern Ontario. It is defined to include the following census divisions: Cochrane, Timiskaming, Algoma, Sudbury, Nipissing, Manitoulin, Parry Sound and Greater Sudbury. The federal government and FedNor also include Muskoka district in their definition of Northeastern Ontario. The provincial government removed the district of Muskoka from the jurisdictional area of the Ministry of Northern Development and Mines and the Northern Ontario Heritage Fund in 2004, but has continued to include Parry Sound as a Northern Ontario division. This is what the authors have assumed in the present study.

Demographic Change: The Past Three Decades

Greater Sudbury covers 3,238 square kilometers and recorded a population of 160,376 in 2011. It has a population density of 49.5 persons per square kilometer, making it the densest census district in Northern Ontario. According to Statistics Canada's census of population, Greater Sudbury's population grew from 1986 to 1996, and after a sharp decline in 2001, continued to increase until 2011 (Figure 1).

In terms of net migration flows, Greater Sudbury has experienced slightly negative net intra-provincial migration in recent years, as more individuals from Ontario have moved out of the city than into it. Interprovincial migration, known as the movement of individuals from one province to another, has also been negative, and declining, for the last decade and a half. As a result, the total net domestic migration in 2014/2015 was negative 400, meaning that the city had more individuals leaving Greater Sudbury than entering. (Figure 2). Also contributing to population is low immigration levels in the Greater Sudbury (Figure 2). While Greater Sudbury attracted 9.7 immigrants per 10,000 people in 2014/2015 (Figure 3) – the highest number of attracted immigrants per capita compared to all census districts in Northern Ontario – they still remain well-below provincial levels of 64.8 immigrants per 10,000 people.

In addition to migration patterns and low levels of immigration in the region, rising life expectancy and lower fertility rates have resulted in the aging of Greater Sudbury's population. At the same time, the large baby-boom generation, born in the two decades following the Second World War, is now beginning to retire. The generations that followed were much smaller, primarily due to a declining fertility rate. As a result the share of individuals in the city below the age of 20 has declined from 29 percent in 1991 to 22 percent in 2011, while the share of seniors rose from 10 percent in 1991 to 16 percent in 2011 (Figure 4). During the same period, the share of individuals between the ages of 20 to 34 declined from 24 to 19 percent, while individuals aged 35 to 64 increased from 37 to 43 percent.

These demographic changes have had a significant impact on social and economic conditions in the city. The population will continue to age in the foreseeable future, with implications for the supply of labour, production capacity, and the ability of Greater Sudbury to stay economically viable. One important aspect of the aging population relates

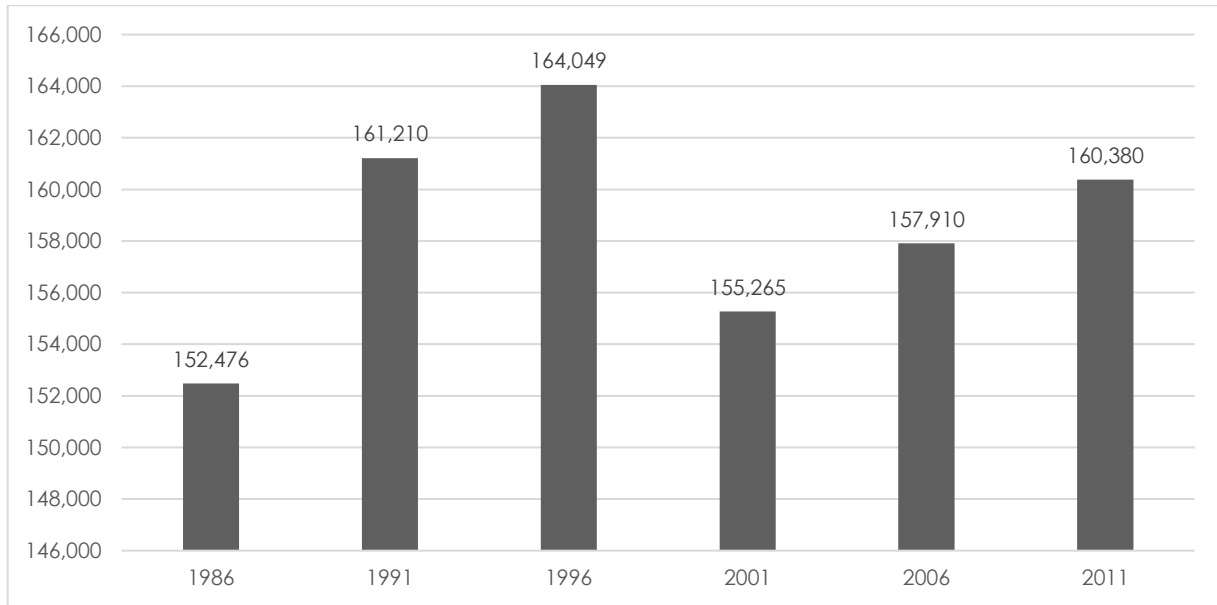
to the relationship between economically active and economically dependent age groups – that is, between the working population on the one hand and the young and elderly on the other.

This study examines three dependency ratios: old age dependency, defined as the number of persons ages 65 years and older relative to the working-age population (ages 20 to 64); youth dependency, defined as the ratio of the number of persons ages 20 years and younger to the working-age population; and total dependency ratio, defined as the ratio of the total dependent population, which is essentially the number of mouths to feed, to the working-age population. This last ratio is a crude measure of the burden or cost associated with demographic change in terms of raising and educating children as well as taking care of the elderly at any given time. Assuming jobs are available for the working-age population, a rising dependency ratio suggests that there are more dependent persons per each member of the working-age population. A declining dependency rate implies that there are more working persons per dependent, enabling a region to reap the benefits of increased production capacity, therefore lowering the costs associated with the declining proportion of dependents.

Figure 5 shows that, in Greater Sudbury, the youth dependency ratio declined from 47 persons per every 100 working-age persons in 1991 to 36 in 2011 due to the fact that the number of youth declined much faster than the number of working age persons. During the same period, the youth dependency index declined from 44 to 38 youth to every 100 working age persons in Ontario.

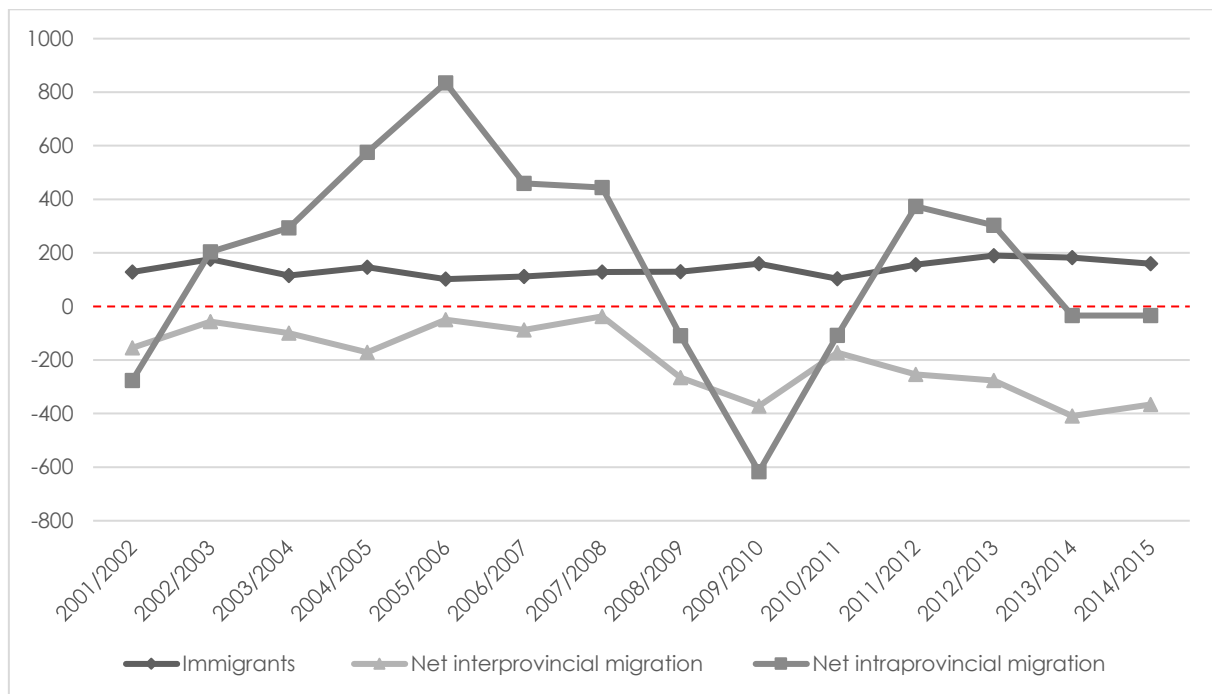
At the same time, the old age dependency rose from 17 to every 100 working age individuals in 1991 to 26 in 2011 due to an increasing number of seniors relative to the working age population. In other words, there were 5.9 working persons in 1991 per each senior, but only 3.8 working persons per senior in 2011. The ratio of seniors to working age population in Greater Sudbury (26) is slightly higher than the provincial value of 24 to every 100 working age persons in 2011. Having higher old age dependency ratios can have budgetary implications related to health care and other expenditures required to care for the seniors in the coming years. This ratio is expected to continue to rise as working age persons retire and change their status from working to retired in the future.

Figure 1: Population, Greater Sudbury, 1986–2011



Sources: Statistics Canada, Census of Canada; and idem, National Household Survey.

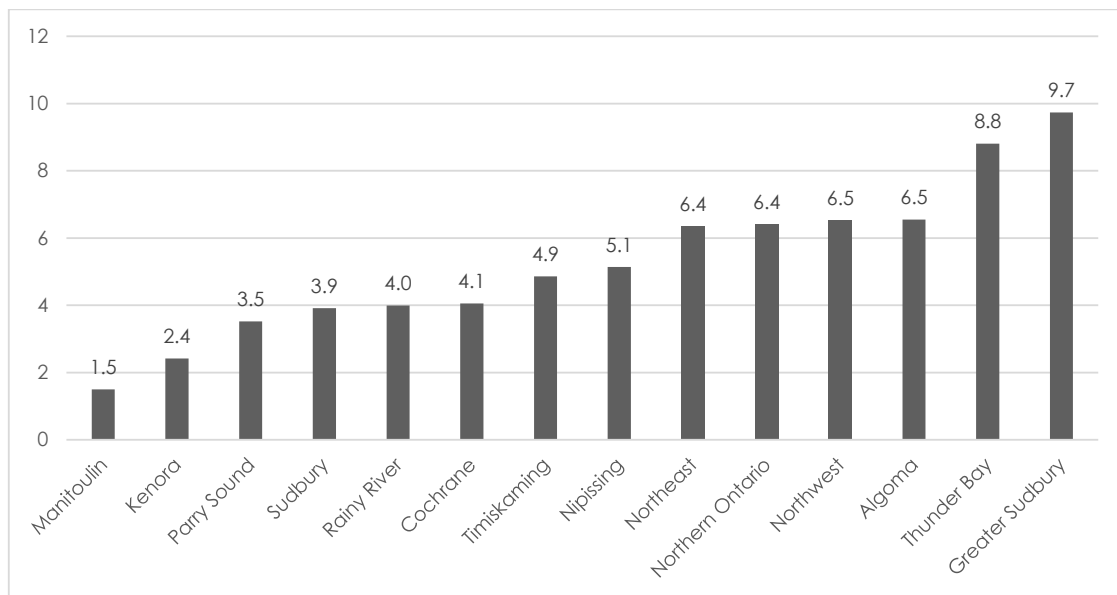
Figure 2. Net Domestic Migration and Immigration, Greater Sudbury, 2001/2002–2014/2015



Source: Author's calculations based on Statistics Canada, CANSIM database, table 051-0063.

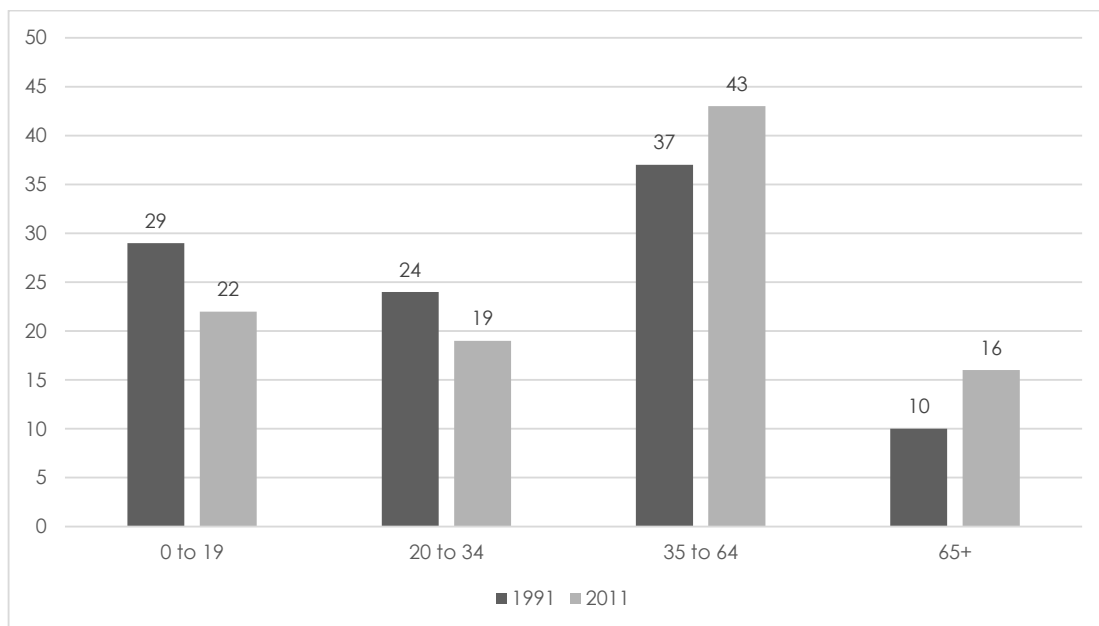
Overall, the total dependency rate – the number of youths and seniors relative to those of working age – declined from 64 in 1991 to 62 in 2011, suggesting the city increased its capacity to support its non-working population over the period. This rate was the same as the provincial average in 2011. This ratio is expected to rise as the baby boomers start to retire in the coming years. Reducing the overall dependency in Greater Sudbury through bolstering the working-age population could be a goal the region might strive to achieve in the long term.

Figure 3. Number of Immigrants per 10,000 people, Northern Ontario Districts, 2014/2015



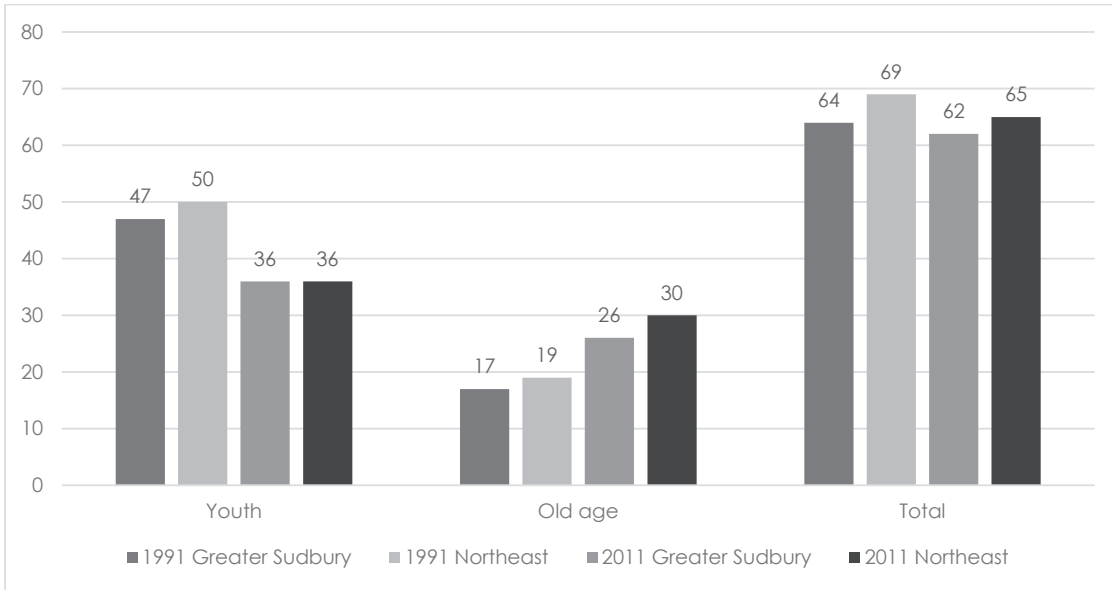
Source: Author's calculations based on Statistics Canada, CANSIM database, tables 051-0062 and 051-0063.

Figure 4: Age Distribution of Population, Greater Sudbury, 1991 and 2011



Source: Author's calculations based on Statistics Canada, Census of Canada, and National Household Survey, custom tabulation.

Figure 5: Ratio of the Working-Age Population to Other Age Groups, Greater Sudbury, 1991 and 2011



Source: Author's calculations based on Statistics Canada, Census of Canada, and National Household Survey, custom tabulation.



Demographic Change: The Next Three Decades

This part of the study provides population projections for Greater Sudbury, both for the total population and for the Indigenous population. Estimates for the former are based on projections by the Ontario Ministry of Finance; estimates for the latter are based on Northern Ontario's Demographic Model, developed by Moazzami.

A few words regarding the Ministry of Finance projections are in order. First, the ministry's 2011 population estimates are about 4,520 greater than those reported by the 2011 census, having been adjusted for net under coverage by the census, especially of the region's Indigenous population in Greater Sudbury.

Second, the ministry's estimated parameters for fertility at the census division level were modelled to maintain regional differences. The census division-to-province ratio for mean age at fertility in the most recent period was assumed to remain constant.

Thirdly, the ministry's mortality estimates at the census division level were developed using a ratio methodology. The ministry applied the Ontario-level mortality structure to each census division's age structure over the most recent three years of comparable data and calculated the expected number of deaths. It then compared these estimates to the actual annual number of deaths in each census division over this period to create ratios of actual-to-expected numbers of deaths. These ratios were then multiplied by provincial age-specific death rates to create death rates for each census division. These were then applied to the corresponding census division population to derive the number of deaths for each census division.¹

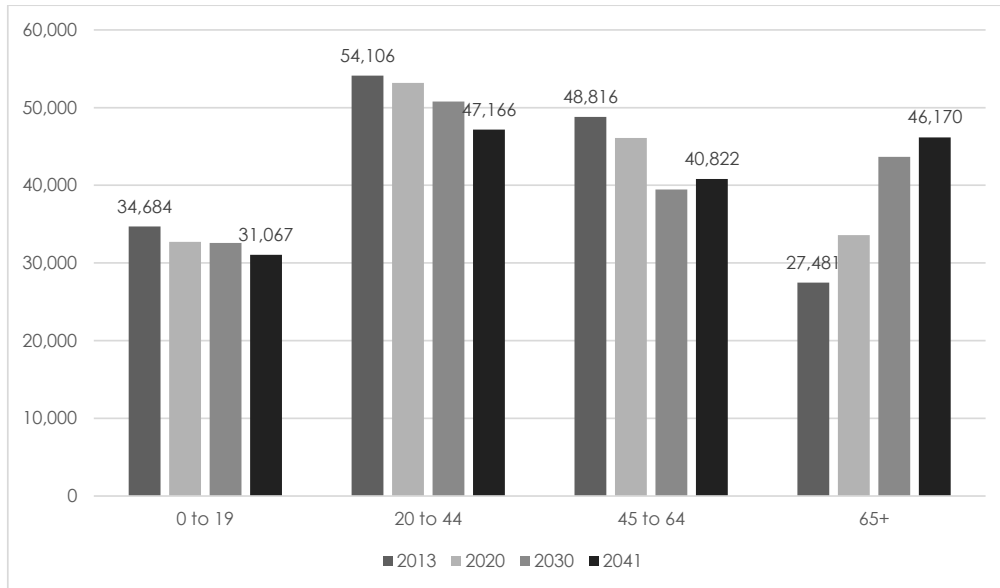
Population Projections

Greater Sudbury's total population is expected to remain largely constant from 2013 to 2041 (Table 1). The continuing aging of Greater Sudbury's population is also evident from the Ministry of Finance's projections (Figure 6 and Table 2), with the share of individuals under age 20 expected to decline from 21 percent in 2013 to 19 percent in 2041, the share of working-age people (ages 20 to 64) projected to decline from 62 percent in 2013 to 53 percent in 2041, and the share of seniors is expected to rise from 17 percent in 2013 to 28 percent in 2041. As the next part of the study will show, the dramatic decline in the working-age population has important implications for the future availability of a qualified labour force in the city.

1 See Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

2 Focus is placed on individuals aged 20 to 64 as the core working-age population since there has been a declining trend in the labour force participation rate of Ontario's youth in recent years primarily due to a significant rise in enrolment rates in postsecondary education institutions.

Figure 6: Population Projections by Age Group, Greater Sudbury, 2013–41



Source: Author's calculations based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Table 1: Population Projections by Age Group, Greater Sudbury, 2013–2041

| | 0 to 19 | 20 to 44 | 45 to 64 | 65+ | Total |
|------|---------|----------|----------|--------|---------|
| 2013 | 34,684 | 54,106 | 48,816 | 27,481 | 165,087 |
| 2020 | 32,734 | 53,174 | 46,079 | 33,589 | 165,576 |
| 2030 | 32,563 | 50,781 | 39,468 | 43,675 | 166,487 |
| 2041 | 31,067 | 47,166 | 40,822 | 46,170 | 165,225 |

Source: Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Table 2: Population Projections by Age Distribution, Greater Sudbury, 2013–2041

| | 0 to 19 | 20 to 44 | 45 to 64 | 65+ |
|------|---------|----------|----------|-------|
| 2013 | 21.01 | 32.77 | 29.57 | 16.65 |
| 2020 | 19.77 | 32.11 | 27.83 | 20.29 |
| 2030 | 19.56 | 30.50 | 23.71 | 26.23 |
| 2041 | 18.80 | 28.55 | 24.71 | 27.94 |

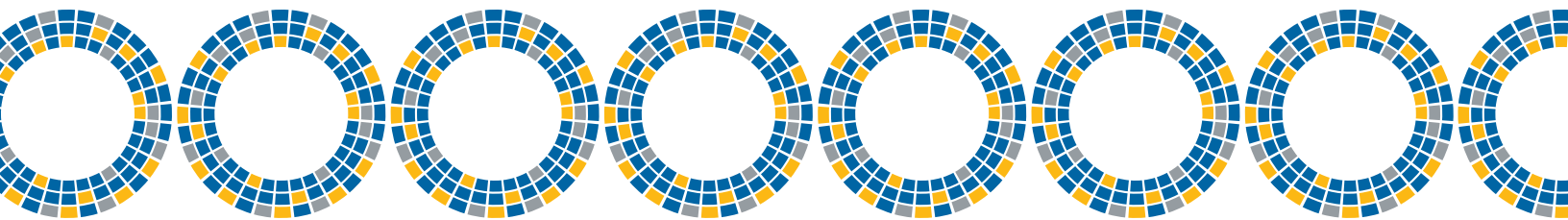
Source: Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Indigenous Population Projections

In making projections for the Indigenous population in Greater Sudbury out to 2041, this study employs Northern Ontario's Demographic Forecasting Model, which is based on the Cohort Component method.³ The base year data for the projection are from Statistics Canada's National Household Survey for 2011. In projecting the future Indigenous population, this study does not adjust for the under coverage of Indigenous people in the region — as mentioned above, there were 4,520 omitted persons in Greater Sudbury alone — so the projections should be considered conservative. This study also assumes zero net migration of Indigenous people over the forecast period, since the existing evidence suggests there is relatively low mobility among the region's Indigenous population. The fertility rate for the Indigenous population is assumed equal to that in rural Northeastern Ontario, and the mortality rate to equal the rate for the general population of Canada based on the 2011 census.

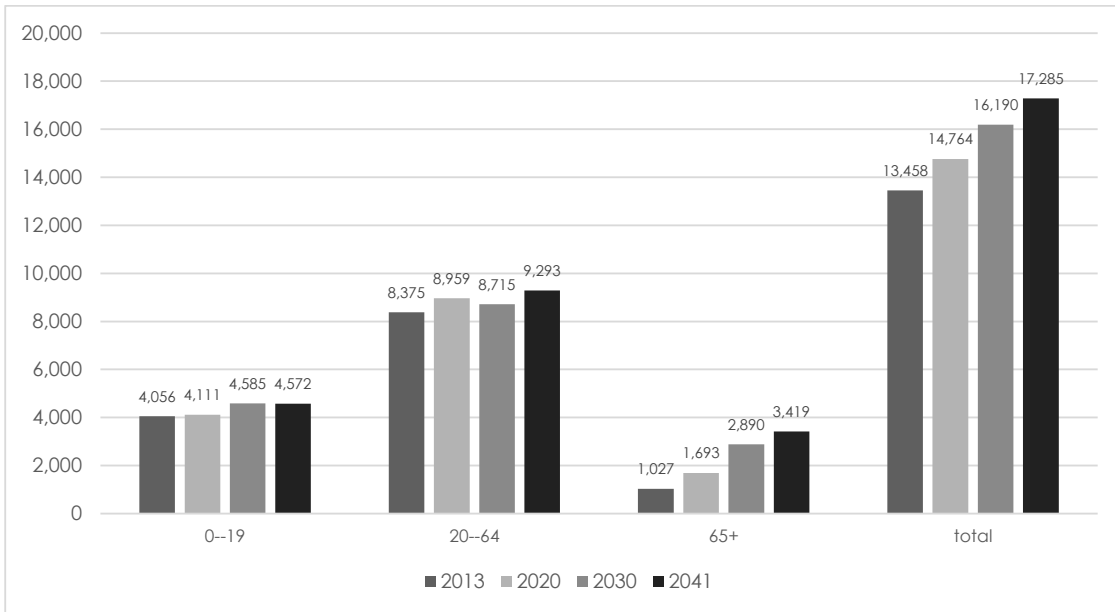
Based on these assumptions, Figure 7 shows that the Indigenous population in Greater Sudbury is expected to increase from 13,458 in 2013 to 17,285 in 2041, a growth rate of about 28.4 percent. The number of individuals under age 20 are expected to increase by 12.7 percent during this period, while working-age Indigenous are expected to rise from 8,375 in 2013 to 9,293 in 2041. The number of individuals aged 65 and over are expected to rise from 1,027 in 2013 to 3,419 in 2041, an increase of 135.5 percent.

The Indigenous population's share of total population is expected to increase from 8.2 percent in 2013 to 10.5 percent in 2041 (Figure 8). The share of prime-working-age (those ages 20 to 44) is expected to increase from 9.0 percent in 2013 to 10.83 percent in 2041. Similarly, the share of working-age Indigenous (those ages 20 to 64) is expected to increase from 8.1 percent in 2013 to 10.6 percent in 2041. The share of Indigenous seniors is expected to rise from 3.7 percent in 2013 to 7.4 percent in 2041.



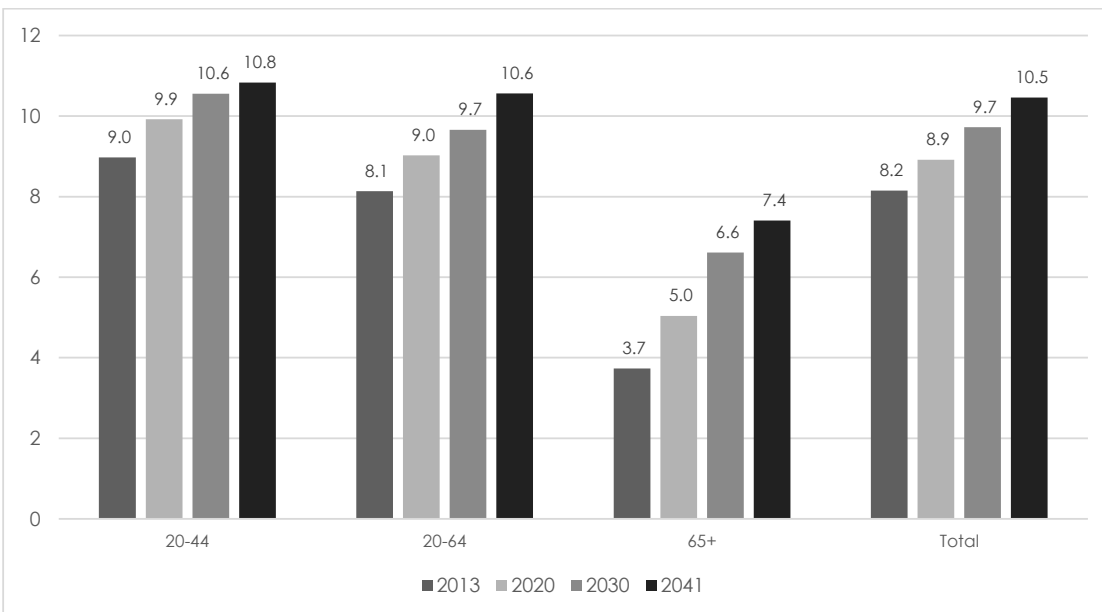
3 For a complete discussion of this model, see B. Moazzami, "It's What You Know (and Where You Can Go): Human Capital and Agglomeration Effects on Demographic Trends in Northern Ontario" (Thunder Bay, ON: Northern Policy Institute, 2015).

Figure 7: Indigenous Population Projections by Age Group, Greater Sudbury, 2013–2041



Source: Author's calculations based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Figure 8: Projections of the Share of the Indigenous Population, Greater Sudbury, 2013–2041



Source: Author's calculations based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Labour Force: Past, Present and Future Trends

Demographic changes have a direct impact on the supply side of the economy through their influence on the labour force. Population aging and a declining share of working-age people can seriously restrain future economic development unless productivity growth accelerates or steps are taken to increase participation of older workers, youth and other underrepresented groups in the labour force.

This study has shown that the Indigenous population represents a growing segment of Greater Sudbury's total population and its working-age population. A significant gap exists, however, between the level of educational achievement of Indigenous individuals and that of the general population, resulting in a severe labour market outcome disparity that affects the current and future productive capacity of Greater Sudbury's labour force.

Labour Market Trends

Table 3 shows various labour market indicators for Northeastern Ontario in 2001 and 2011. The total core working-age population (ages 15 to 64) in the region declined from 365,020 in 2001 to 364,100 in 2011. The francophone and immigrant population both declined during this period while the Indigenous population grew. During the same period, the labour force participation rate among women rose by 3.8 percent resulting in an increased number of people in the labour force. The Ontario Ministry of Finance reports that, "[t]he most significant trend driving the aggregate labour force participation rate in Ontario has been the increase in the number of women in the workforce. Labour force participation rates for adult women have risen dramatically, from 57.0 percent in 1976 to 82.0 percent in 2013."⁴ Total employment among men declined while that among women increased from 2001 to 2011. The unemployment rate among men and women both declined slightly during this period.

The labour force participation rate of Indigenous men declined from 70.3 percent in 2001 to 66.6 percent in 2011. On the other hand, the participation rate among Indigenous women increased from 49.2 percent in 2001 to 55.1 percent in 2011. The unemployment rate among Indigenous men declined from 21.3 percent in 2001 to 16.4 percent in 2011, which can be attributed partly to some previously unemployed persons having stopped

participating in the labour force. The unemployment rate among Indigenous women also declined from 16.5 percent in 2001 to 11.0 percent in 2011. The labour market outcome for Indigenous People who live on reserve is different from those who live off-reserve, where those living on-reserve have lower participation rates and much higher unemployment rates.

In general, Indigenous People tend to participate in the labour force less than that of the total population. As Figure 9 shows, their labour force participation rate was below the regional average in 2011. Their unemployment rate was also significantly higher than the regional average. In fact, their lower labour force participation rate is partly attributable to the high unemployment rate among the Indigenous workforce and partly related to the fact that their level of educational attainment is below the regional average.

Figure 10 compares labour force characteristics among various demographics of the population in Greater Sudbury and Northeastern Ontario.⁵ The labour force participation rate among men is 77.6 percent in Greater Sudbury compared to 75.3 percent in Northeastern Ontario and 76.0 percent in Ontario in 2011. The Indigenous population living off-reserve have the lowest participation rates for men, while immigrants men have the highest participation rates. On the other hand, among women, immigrants have the lowest participation rates. The participation rate among women as a whole was 72.3 percent in Greater Sudbury compared to 70.3 in Northeastern Ontario and 72.6 in Ontario. The participation rate among Indigenous women in the city is generally higher than levels across Northeastern Ontario.

The unemployment rate among men in Greater Sudbury was 8.2 percent compared to 10.6 and 8.4 in Northeastern Ontario and Ontario, respectively. The unemployment rate among women in Greater Sudbury was 7.5 percent compared to 8.3 percent in both Northeastern Ontario and the province as a whole. The unemployment rate among the off-reserve Indigenous population and immigrant women in Greater Sudbury was relatively high.

The employment rate which represents the share of the working-age population who were employed was 71.3 percent for men in Greater Sudbury compared

4 Ontario Ministry of Finance, "Ontario's Long-Term Report on the Economy", 2014.

5 Note that the indicators for population groups with fewer than 500 individuals are not very reliable.

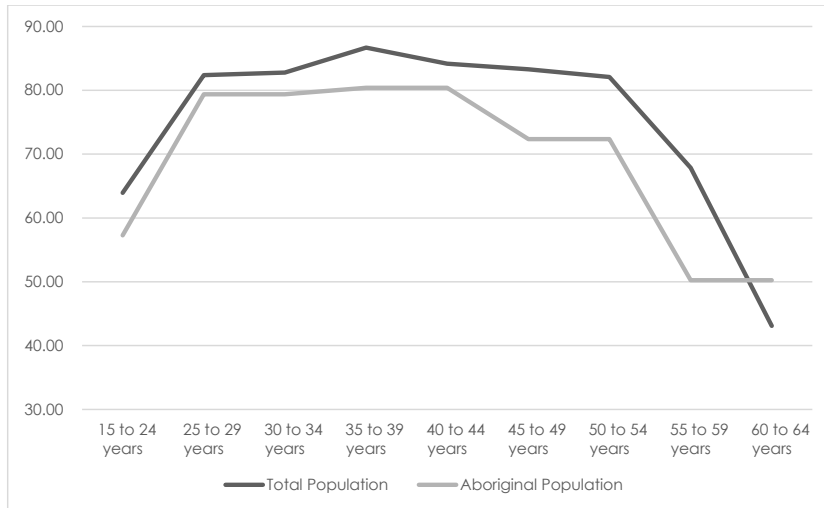
to 67.3 percent in Northeastern Ontario in 2011. The employment rates are generally lower for the Indigenous population and immigrant women in the city. The employment rate among working-age women is 65.4 percent in Greater Sudbury compared to 64.5 percent in the Northeast.

Table 3: Labour Market Trends, Working-age Population (ages 15 to 64), Northeastern Ontario, 2001 and 2011

| Labour Market Outcome | Men | | Women | |
|--|---------|---------|---------|---------|
| | 2001 | 2011 | 2001 | 2011 |
| Total Regional Population | | | | |
| Total population 15 to 64 years of age | 179,755 | 180,120 | 185,265 | 183,980 |
| In the labour force | 137,045 | 135,580 | 123,265 | 129,300 |
| Employed | 122,290 | 121,260 | 112,320 | 118,615 |
| Unemployed | 14,760 | 14,320 | 10,945 | 10,680 |
| Not in the labour force | 42,705 | 44,540 | 61,995 | 54,680 |
| Participation Rate | 76.2 | 75.3 | 66.5 | 70.3 |
| Employment Rate | 68.0 | 67.3 | 60.6 | 64.5 |
| Unemployment Rate | 10.8 | 10.6 | 8.9 | 8.3 |
| Francophones | | | | |
| Total population 15 to 64 years of age | 44,465 | 37,800 | 46,575 | 40,405 |
| In the labour force | 33,855 | 28,640 | 30,285 | 27,975 |
| Employed | 30,060 | 26,125 | 28,230 | 26,390 |
| Unemployed | 3,795 | 2,510 | 2,060 | 1,585 |
| Not in the labour force | 10,605 | 9,155 | 16,285 | 12,430 |
| Participation Rate | 76.1 | 75.8 | 65.0 | 69.2 |
| Employment Rate | 67.6 | 69.1 | 60.6 | 65.3 |
| Unemployment Rate | 11.2 | 8.8 | 6.8 | 5.7 |
| Immigrants | | | | |
| Total population 15 to 64 years of age | 9,555 | 7,345 | 10,650 | 8,660 |
| In the labour force | 7,165 | 5,415 | 6,440 | 5,480 |
| Employed | 6,670 | 5,055 | 6,070 | 5,080 |
| Unemployed | 495 | 355 | 370 | 400 |
| Not in the labour force | 2,390 | 1,930 | 4,205 | 3,175 |
| Participation Rate | 75.0 | 73.7 | 60.5 | 63.3 |
| Employment Rate | 69.8 | 68.8 | 57.0 | 58.7 |
| Unemployment Rate | 7.0 | 6.6 | 5.8 | 7.3 |
| Indigenous | | | | |
| Total population 15 to 64 years of age | 13,015 | 19,135 | 13,855 | 20,635 |
| In the labour force | 9,145 | 12,740 | 8,155 | 12,765 |
| Employed | 7,195 | 10,655 | 6,810 | 11,360 |
| Unemployed | 1,950 | 2,085 | 1,345 | 1,410 |
| Not in the labour force | 3,870 | 6,400 | 5,700 | 7,870 |
| Participation Rate | 70.3 | 66.6 | 58.9 | 61.9 |
| Employment Rate | 55.2 | 55.7 | 49.2 | 55.1 |
| Unemployment Rate | 21.3 | 16.4 | 16.5 | 11.0 |

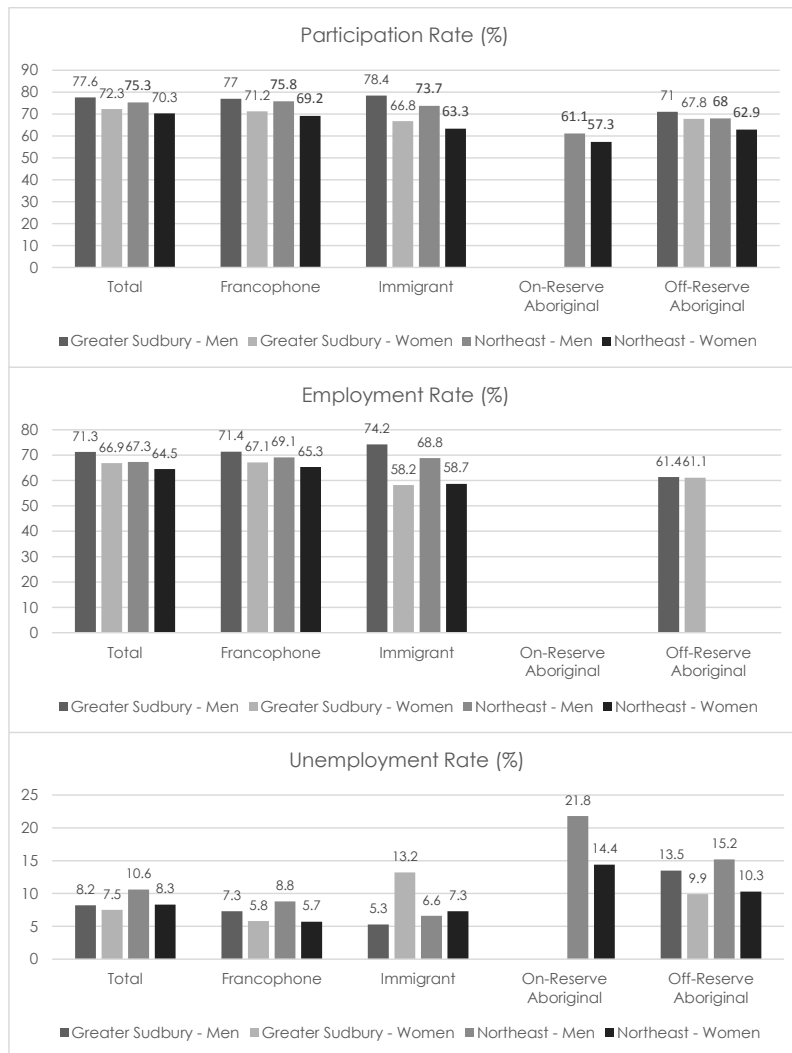
Source: Statistics Canada, 2001 Census and 2011 NHS, custom tabulation.

Figure 9: Labour Force Participation Rates (%), Total and Indigenous Population, by Age Group, Northeastern Ontario, 2011



Sources: Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Figure 10: Labour Force Participation, Employment and Unemployment Rates (%), Ages 15 to 64 years, Greater Sudbury and Northeast Ontario, 2011



Note: Missing bars indicate that data was not available.

Sources: Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Size and Composition of the Future Labour Force

To forecast the future labour force in Greater Sudbury and Northeastern Ontario, this study uses detailed population projections along with information regarding labour force participation rates for men and women in different age groups. It is assumed that participation rates during the projection period (out to 2041) stay constant at their 2011 level. Different assumptions regarding participation rates would alter the labour force estimates, but only to a limited extent. The main determinants of the future labour force are the size and age distribution of the population in each jurisdiction.

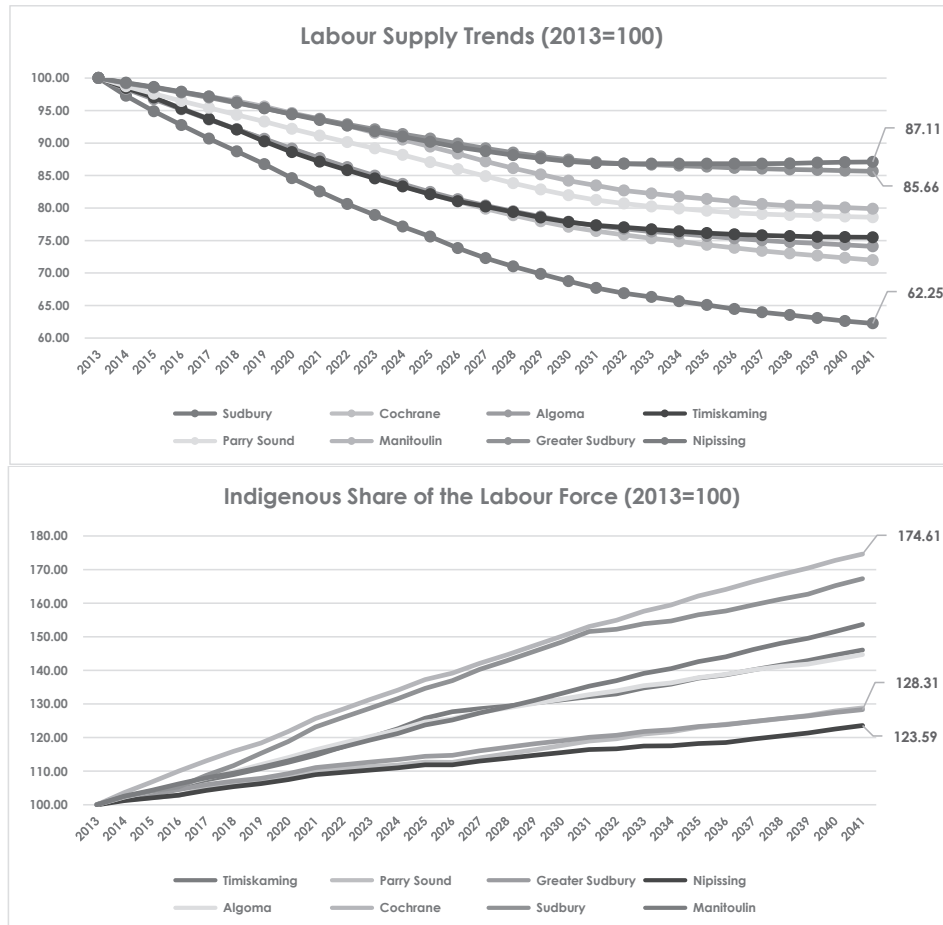
Table 4 Figure 11 provide labour supply projections for Greater Sudbury and Northeast Ontario for the period from 2013 to 2041. The city's labour force is expected to decline by about 14 percent over the period, while the Indigenous labour force is expected to increase by about 10 percent. As a result, the share of Indigenous in the total regional labour force is expected to increase from 8 percent in 2013 to 10 percent in 2041.

Table 4: Projected Labour Supply, Total and Indigenous, Greater Sudbury and Northeastern Ontario, 2013–2041

| Year | Greater Sudbury | | | Northeast Ontario | | |
|------|--------------------|-------------------------|----------------------|--------------------|-------------------------|----------------------|
| | Total Labour Force | Indigenous Labour Force | Indigenous Share (%) | Total Labour Force | Indigenous Labour Force | Indigenous Share (%) |
| 2013 | 80,642 | 6,503 | 8.06 | 264,860 | 27,372 | 10.33 |
| 2014 | 80,045 | 6,568 | 8.21 | 261,674 | 27,632 | 10.56 |
| 2015 | 79,463 | 6,604 | 8.31 | 258,626 | 27,751 | 10.73 |
| 2016 | 78,838 | 6,641 | 8.42 | 255,558 | 27,874 | 10.91 |
| 2017 | 78,228 | 6,683 | 8.54 | 252,470 | 28,059 | 11.11 |
| 2018 | 77,545 | 6,692 | 8.63 | 249,289 | 28,142 | 11.29 |
| 2019 | 76,880 | 6,685 | 8.69 | 246,155 | 28,200 | 11.46 |
| 2020 | 76,180 | 6,709 | 8.81 | 242,891 | 28,327 | 11.66 |
| 2021 | 75,544 | 6,761 | 8.95 | 239,896 | 28,554 | 11.9 |
| 2022 | 74,912 | 6,754 | 9.02 | 236,948 | 28,590 | 12.07 |
| 2023 | 74,265 | 6,746 | 9.08 | 234,070 | 28,611 | 12.22 |
| 2024 | 73,680 | 6,737 | 9.14 | 231,333 | 28,627 | 12.37 |
| 2025 | 73,137 | 6,746 | 9.22 | 228,687 | 28,737 | 12.57 |
| 2026 | 72,498 | 6,703 | 9.25 | 226,057 | 28,594 | 12.65 |
| 2027 | 71,917 | 6,728 | 9.35 | 223,711 | 28,695 | 12.83 |
| 2028 | 71,386 | 6,738 | 9.44 | 221,550 | 28,741 | 12.97 |
| 2029 | 70,931 | 6,753 | 9.52 | 219,616 | 28,813 | 13.12 |
| 2030 | 70,509 | 6,766 | 9.6 | 217,788 | 28,885 | 13.26 |
| 2031 | 70,191 | 6,795 | 9.68 | 216,402 | 29,033 | 13.42 |
| 2032 | 70,027 | 6,812 | 9.73 | 215,433 | 29,087 | 13.5 |
| 2033 | 69,898 | 6,863 | 9.82 | 214,669 | 29,304 | 13.65 |
| 2034 | 69,773 | 6,877 | 9.86 | 213,998 | 29,374 | 13.73 |
| 2035 | 69,647 | 6,919 | 9.93 | 213,288 | 29,586 | 13.87 |
| 2036 | 69,494 | 6,934 | 9.98 | 212,569 | 29,671 | 13.96 |
| 2037 | 69,387 | 6,978 | 10.06 | 211,992 | 29,880 | 14.09 |
| 2038 | 69,299 | 7,018 | 10.13 | 211,538 | 30,067 | 14.21 |
| 2039 | 69,248 | 7,057 | 10.19 | 211,198 | 30,240 | 14.32 |
| 2040 | 69,159 | 7,107 | 10.28 | 210,792 | 30,497 | 14.47 |
| 2041 | 69,077 | 7,144 | 10.34 | 210,397 | 30,706 | 14.59 |

Source: Author's estimates based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Figure 11: Future Supply of Labour, Total and Indigenous Share, Northeastern Ontario Districts, 2013–2041



Source: Author's estimates based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Productivity and the Human Capital Composition of the Workforce

Productivity growth is directly linked to the human capital composition of the workforce. Human capital is defined as the stock of knowledge, skills and abilities embodied in individuals that directly affects their level of productivity. Since knowledge and skills are acquired through education and experience, investing in human capital represents an avenue through which Greater Sudbury can enhance productivity and minimize the impact of its declining labour force.

To estimate the human capital composition of the regional workforce, one needs to specify and measure a proxy for human capital that also reflects and incorporates a measure of productivity of the workforce in Greater Sudbury and Northeastern Ontario. To obtain such an index, this study first estimated a standard earnings model using the 2006

census micro-data file. This study used data pertaining to all working Canadians between the ages of 15 and 64 who were not attending school and whose employment earnings were greater than \$1,000 and less than \$1 million. The benchmark or reference group is those with less than a high school diploma.

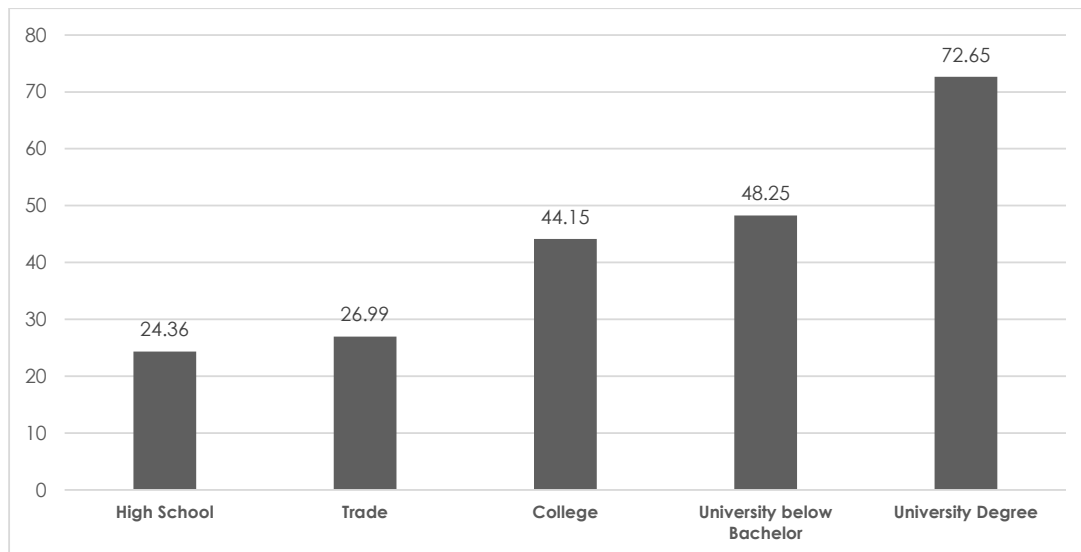
The estimated return-to-schooling coefficients (Figure 12) show the increased earnings, compared to the reference group, of obtaining different levels of education. Therefore, they represent the average rate of return to schooling at the national level. For example, obtaining a high school diploma increases a person's earnings by 24.4 percent above the earnings of those without a high school diploma. Similarly, obtaining a trade or college diploma increases earnings by 27.0 and 44.1 percent respectively. A university degree

increases earnings by 72.6 percent. The return to schooling estimates reflect higher productivity resulting from an increased level of education. In short, the return to education increase as the level of schooling rises, reflecting higher earnings commensurate with higher productivity as the level of education increases.

This study then used the estimated return-to-schooling coefficients as weights to calculate a weighted average index of the share of individuals aged 15 to 64 with different levels of schooling for each of the census districts in Northeastern Ontario.⁶ Figure 13 shows estimated human capital indexes for working-age Indigenous, immigrants, francophones and the total population in Canada, Ontario, Northeastern Ontario and Greater Sudbury.⁷ The estimated indexes range from 100 if none of the area's residents have completed high school to about 200 if all residents have obtained a university degree.

As Figure 13 shows, the human capital composition of the working-age population in Greater Sudbury is above that in Northeastern Ontario, but below provincial and national levels. Meanwhile, the human capital indexes for immigrants in Greater Sudbury are higher than in Ontario and Canada, and notably higher than the total working-age population across all jurisdictions. Additionally, the human capital indexes for the Indigenous labour force in Greater Sudbury, while below the rest of the population, are higher than in Ontario and Canada.

Figure 12. The Return to Education (%), by Level of Educational Attainment, Canada, 2006



Note: Persons with an education who do not have a job are not included.

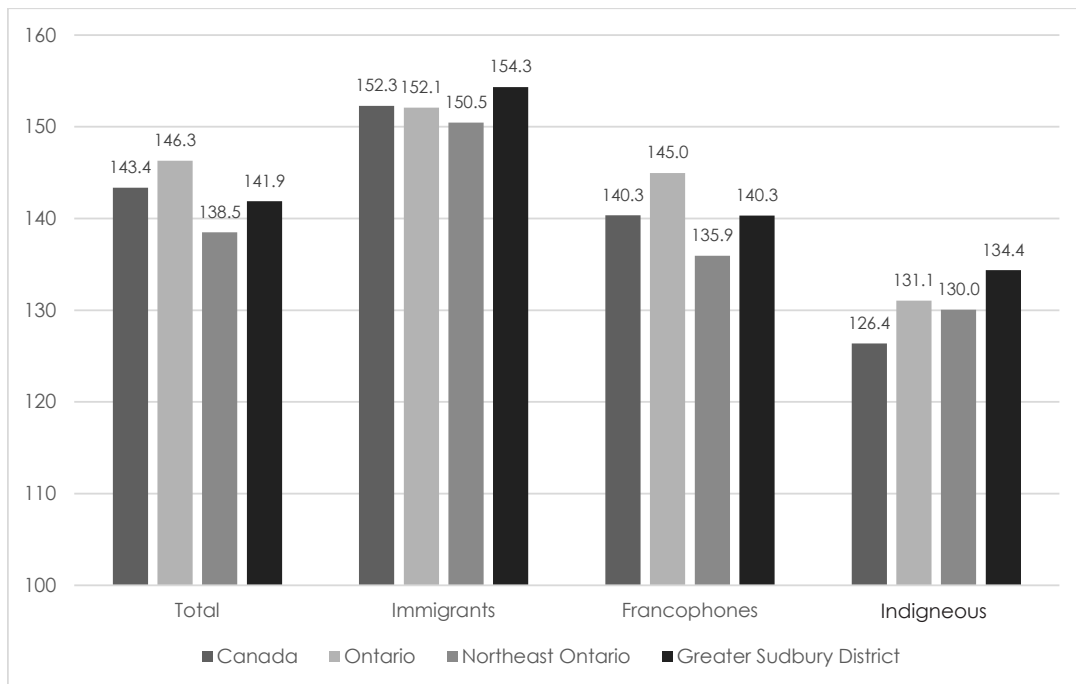
Source: Author's estimates based on Statistics Canada's 2006 Census Microdata file.

6 The earnings model is of the form: $\ln Wage = \alpha + \sum \beta_i S_i + \sum X_i \delta_i + \epsilon_i$, where S_i s are the highest level of schooling, X_i s are other control variables which include age categories, marital status, etc. and ϵ_i is an error term.

HCI = $\exp\{\sum \beta_i \cdot S_i \text{ shares}\}$, where HCI stands for Human Capital Index, \exp stands for exponential, and S_i shares are the share of the population ages 15 to 64 with S_i level of education in a given census subdivision. The formulation of the human capital measure is based on R.E. Hall and C.I. Jones (1999), "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics* 114 (1, 1999): 83–116. See also Francesco Caselli, "Accounting for Cross-Country Income Differences", First Draft, November 2003.

7 Note that the human capital indexes reported here are numerically different from the ones reported in my previous report since I have used return to education or productivity measure in Canada as a benchmark in calculating the above indexes where Ontario was the benchmark in my previous report. Using Canada as a benchmark has an advantage of making the indexes comparable to other provinces as well.

Figure 13. Human Capital Index for the Working-Age Population, Canada, Ontario, Northeastern Ontario and Greater Sudbury, 2011



Source: Author's estimates based on Statistics Canada's 2006 Census Microdata file.

A Perfect Storm: Declining Labour Supply and Labour Productivity

Earlier, this study identified two important demographic trends in Greater Sudbury. First, the working-age population is declining; as a result, the supply of labour is expected to decline over the coming years. Second, a growing Indigenous labour force potentially could offset that trend, but the human capital composition of the Indigenous workforce is lower than the rest of the population, so if the current situation continues, future labour productivity will decline.

To estimate the human capital composition of the future regional workforce, this study combined the labour force projections with the human capital indications for various segments of the workforce. As Figure 14 shows, if the current level of educational achievement continues, the human capital composition of the workforce will decline in the coming years in Greater Sudbury, however it is expected to decline at a slower rate than almost all other census districts in Northeastern Ontario. This index is positively correlated with labour productivity, labour income and output in the region.

The declining supply of labour and declining labour productivity in Greater Sudbury is only half of the story. Technological changes and the emergence of the knowledge economy have altered the requirements

of the labour market. Various studies suggest that, by 2031, about 80 percent of the workforce need to have post-secondary credentials such as an apprenticeship, college or university degree. Currently, 70 percent of the new jobs and an average of 63.4 percent of all jobs require some post-secondary credential.⁸ Based on various studies by the Ontario Ministry of Education, Human Resources and Skills Development Canada, the British Columbia Ministry of Skills, Training and Education, the British Columbia Ministry of Advanced Education and Labour Market Development and other government agencies, Miner Management Consultants provides estimates of the percentage of new jobs that will require post-secondary education in the coming years (Figure 15). As Figure 16 shows, the education levels of the prime-working-age population in Greater Sudbury is at the same level as Ontario and Canada for the total population, while the Indigenous population has notably higher levels of education compared to provincial and national levels.

8 Miner Management Consultants, 'Ontario's Labour Market Future- People without Jobs, Jobs without People', February 2010.

Greater Sudbury is in a better position than any other census district in Northern Ontario to meet current and future skills requirements.

Since the Indigenous labour force will account for a significant and growing share of Greater Sudbury's future workforce, it is vital for the social and economic viability of the region to adopt education policies that enable this segment of the labour force to meet the requirements of the future labour market.

Does the level of education affect labour market performance – that is, the likelihood of employment, labour force participation and unemployment rates? Figure 17 shows that a higher education level increases the likelihood of participation in the workforce. In Greater Sudbury in 2011, the participation rate of the prime-working-age population (25-64) without a high school diploma was 51.3 percent compared to 71.5 percent for those with a high school diploma and 83.7 percent for those with postsecondary credentials. Figure 17 also shows that total labour force participation rates in Greater Sudbury lag behind the provincial and national averages.

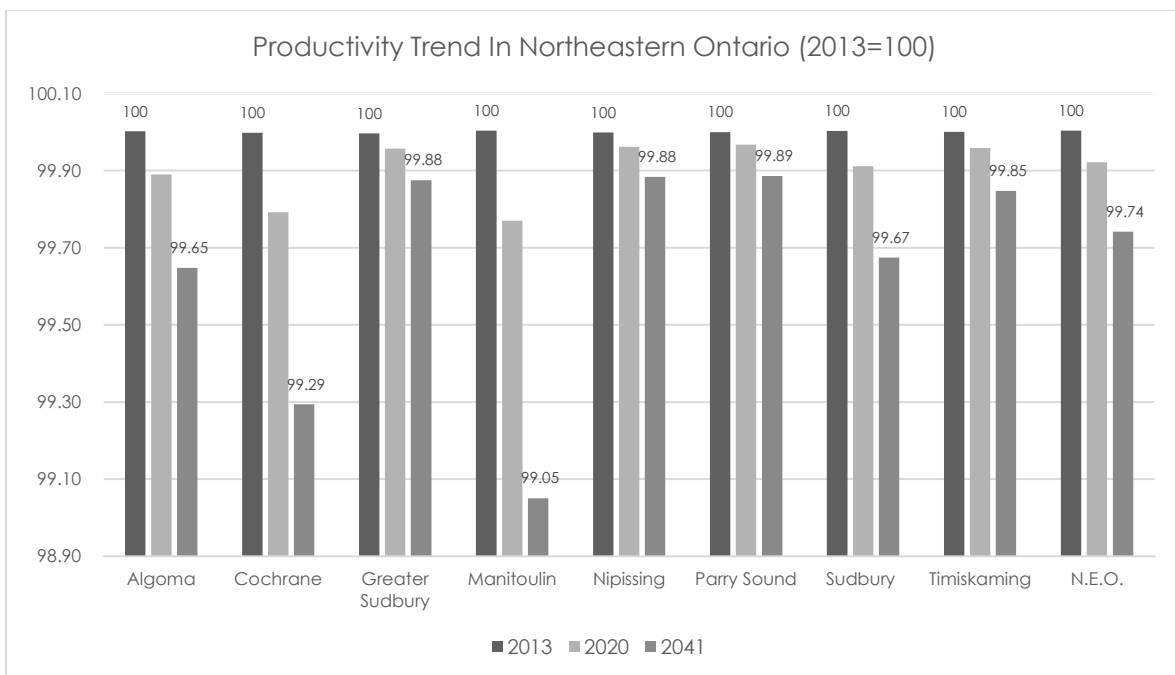
Similarly, as shown in Figure 18, the average unemployment rate among those without a high school

diploma was 10.1 percent compared to 5.9 percent for those with a high school diploma and 5 percent for those with a postsecondary credentials. Overall, the total unemployment rate in 2011 in Greater Sudbury of 5.6 percent was slightly lower than in Ontario and Canada.

The employment rate – defined as the percentage of the prime working age population who are employed – was 46 percent for those without a high school diploma, which increases to 67.3 percent for those with a high school diploma and 78.9 percent for those with a postsecondary credential (Figure 19). Again, the employment rates in Greater Sudbury lag behind provincial and national averages.

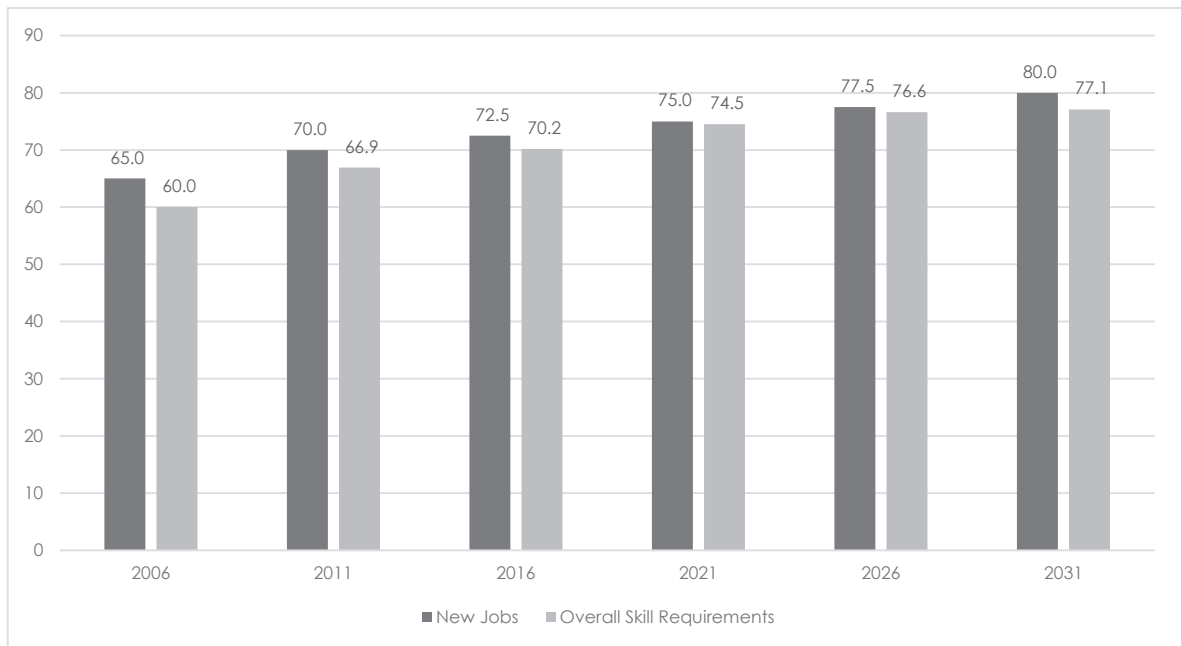
In short, individuals who do not have post-secondary credentials have a higher likelihood of non-participation in labour force and face a greater probability of unemployment, and these probabilities will only increase in the coming years. To the extent that the education level of the workforce in Greater Sudbury does not keep pace with the estimated requirement needed for emerging occupations, the region will face a situation of workers with qualifications that do not match the existing jobs and of jobs that cannot find qualified workers — Miner's "People without

Figure 14. Human Capital Composition of the Workforce in Northeastern Ontario Districts, 2013–2041



Source: Author's estimates based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Figure 15. Percentage of Jobs Requiring Post-Secondary Education, Canada, 2006–2031

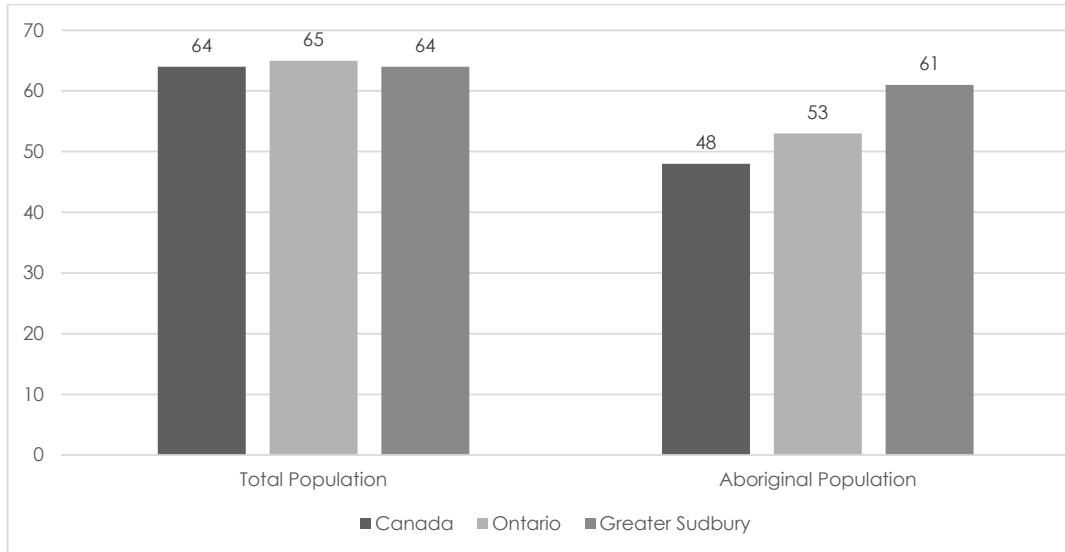


Source: Rick Miner, "People without Jobs, Jobs without People: Canada's Future Labour Market" (Toronto: Miner Management Consultants, 2010).

Jobs, Jobs without People." Even if markets adjust to bring labour demand and supply into balance, the social impact of having many people with low education in the region will be enormous.

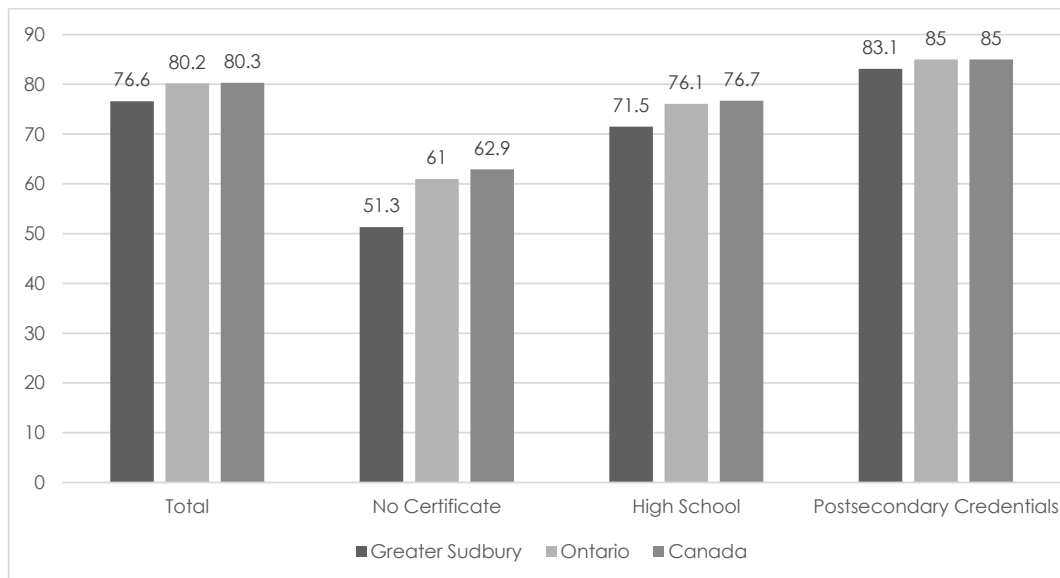
The evidence above suggests that one potential solution to Greater Sudbury's declining workforce size and productivity is to promote higher education through increased access to services, especially for the Indigenous population who experience lower levels of educational achievement. One of the benefits of investing in education is a lower likelihood of unemployment and dependency on government transfer payments. Additionally, labour will continue to be more mobile among various countries, increasing the importance of achieving higher levels of education. In this case, workers in Greater Sudbury will not only be competing with other workers in Ontario and Canada, but will be facing competition from other countries as well.

Figure 16: Percentage of the Labour Force Ages 25–64 with Postsecondary Credentials, Greater Sudbury, Ontario and Canada, 2011



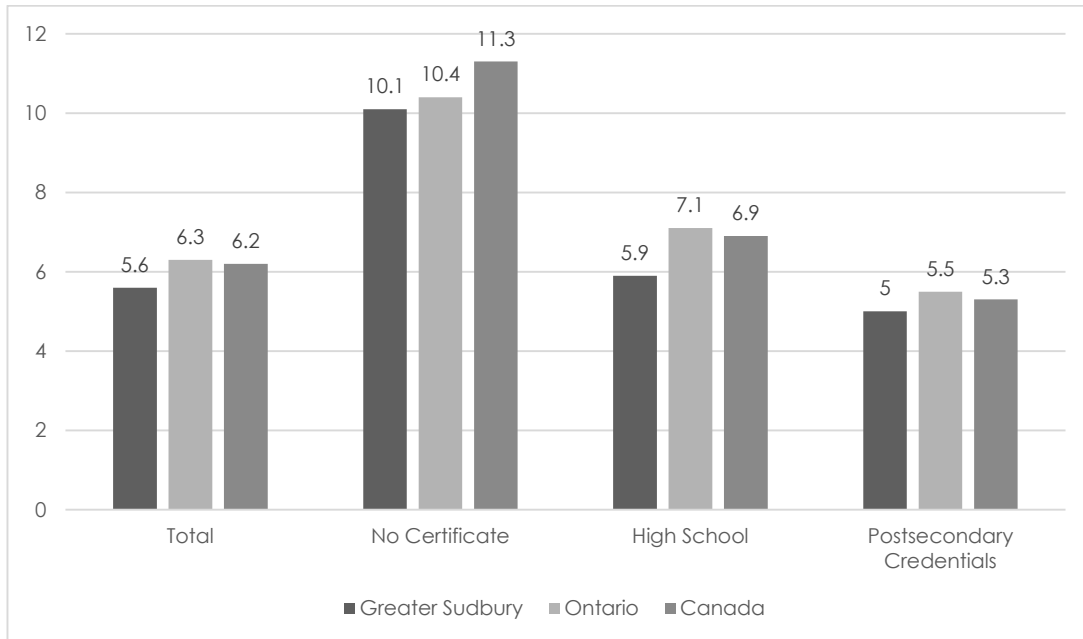
Source: Author's estimates based on Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Figure 17: Labour Force Participation Rate by Level of Educational Attainment (%), Ages 25–64, Canada, Ontario and Greater Sudbury, 2011



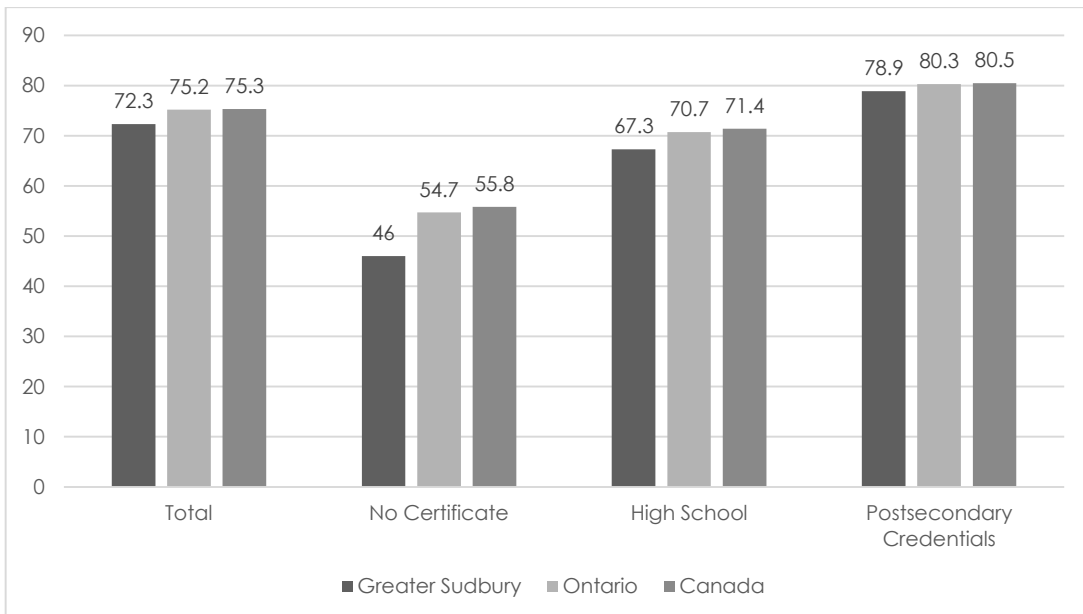
Source: Author's calculations based on Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Figure 18: Likelihood of Unemployment by Highest Level of Schooling (%), Ages 25–64, Canada, Ontario and Greater Sudbury, 2011



Source: Author's calculations based on Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Figure 19: Labour Force Employment Rate by Level of Educational Attainment (%), Ages 25–64, Canada, Ontario and Greater Sudbury, 2011



Source: Author's calculations based on Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

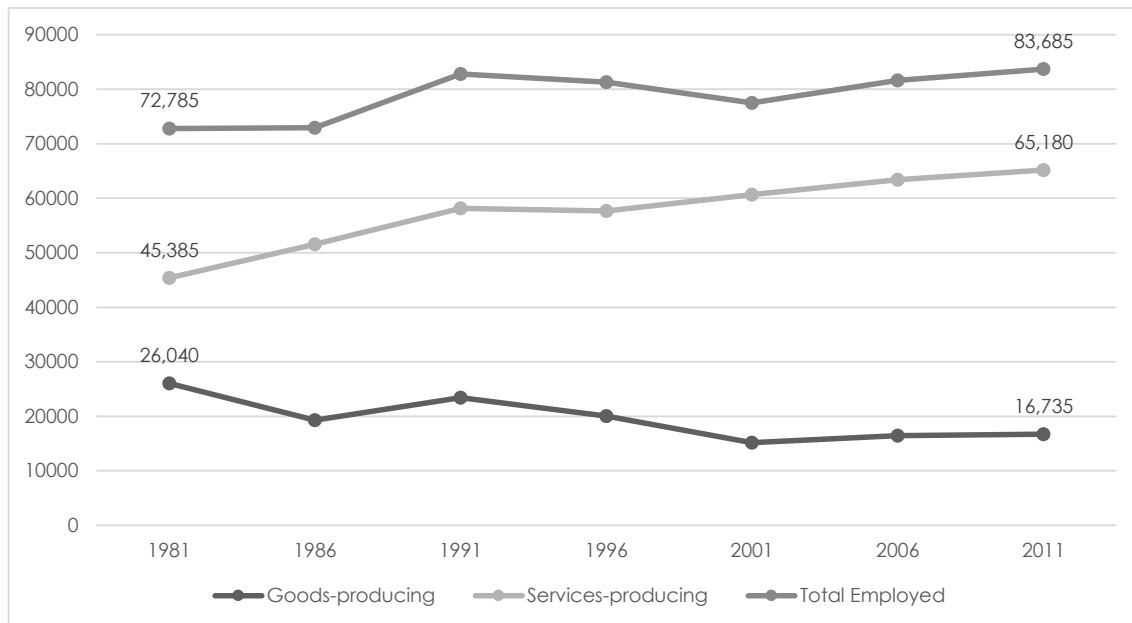
The Consequences of Shifting the Composition of the Employed Labour Force

The structure of Greater Sudbury's workforce has been changing due to a population that is simultaneously declining and aging. At the same time, the industrial and occupational composition of the employed workforce is shifting due to changing market conditions. As a result, the size and industrial makeup of the employed workforce has changed over the past three decades. There has been a continuous shift away from the goods-producing sector dominated by private businesses to the service-producing sector, a large portion of which is publicly funded. Using data from various Censuses of Canada as well as the 2011 NHS, Figure 20 and Table 5 show the changing industrial composition of the employed workforce in Greater Sudbury.

gas sector increased by 46 percent and construction employment increased by 29 percent over this period. It is imperative to acknowledge that the goods-producing sector is a major component of Northeastern Ontario's economic base and its change in employment can have serious impacts on the region's long-term economic growth potential. The multiplying effect between employment in goods-producing industries and total regional employment equals 1.87, meaning that one job in the goods-producing sector supports 1.87 jobs in the regional economy.

Employment in the services-producing sector has grown by 15 percent since the early-1980s. Since 2001, service

Figure 20: Employment in the Goods- and Services-Producing Industries, Greater Sudbury, 1986–2011



Source: Author's calculations based on Statistics Canada, Census of Canada (various years), and National Household Survey 2011, custom tabulation.

The shift away from the goods-producing sector has resulted in a net employment loss of over 9,000 jobs since the early-1980s. From 2001 to 2011, this sector grew slightly, however total employment in agriculture, forestry, fishing and hunting sector declined by 53 percent, while manufacturing employment declined by 32 percent and utilities declined by 5 percent. On the other hand, employment in the mining and oil and

producing industries that experienced notable growth included professional, scientific and technical services (41 percent), health care and social assistance (31 percent), educational services (27%), and wholesale trade (22 percent). On the other hand, industries that experienced a decline during this period included administrative and support, waste management and remediation services (48 percent), information and

cultural industries (14 percent), and other services (9 percent). The growth of health care and education services, which are referred to as quasi-base sectors since they are financed from outside the region, has to a large extent mitigated the decline in the traditional base sectors of the economy.

The changing industrial composition of the workforce has also been accompanied by a shift in the occupational structure of the employed workforce (Table 6). Since 2001, some occupations experienced notable growth, including occupations in education, law and social, community and government services (70 percent), health occupations (38 percent), and natural and applied sciences and related occupations (38 percent). On the other hand, occupations that experienced a decline included occupations in manufacturing and utilities (16 percent), sales and service occupations (8 percent), and management occupations (5 percent).

Labour Income and Gross Domestic Product

The changing size and composition of Greater Sudbury's employed workforce has also impacted total labour income and output in the city. Using detailed employment by occupation and industry data along with average employment earnings by industry and occupation, this study estimated trends in total labour income in 2010 dollars in Greater Sudbury, shown in Figure 21. Labour income is influenced by size, productivity and the occupational composition of the employed workforce. From 2001 to 2011, labour income in Greater Sudbury increased by 13.6 percent from \$3.02 to \$3.43 billion, compared with a 6.7 percent increase in Northeastern Ontario during the same period. Assuming that the share of labour in regional gross domestic product (GDP) stayed relatively constant during 2001-2011, it is evident that Greater Sudbury also experienced positive growth in GDP, from \$5.58 to \$6.34 billion, as show in Figure 22.

Table 5: Industrial Composition of the Employed Workforce Ages 15 and Older, Greater Sudbury, 2001–2011

| | 2001 | 2006 | 2011 | Employment change from 2001 to 2011 | |
|---|---------------|---------------|---------------|-------------------------------------|--------------|
| | (number) | | | (number) | (percent) |
| Total | 77,500 | 81,620 | 83,685 | 6,185 | 7.98 |
| Industry - not applicable | 1,685 | 1,795 | 1,760 | 75 | 4.45 |
| All industries | 75,815 | 79,825 | 81,920 | 6,105 | 8.05 |
| Goods-producing sector | 15,160 | 16,440 | 16,735 | 1,575 | 10.39 |
| Agriculture, forestry, fishing and hunting | 535 | 290 | 250 | -285 | -53.27 |
| Mining, quarrying, and oil and gas extraction | 4,835 | 5,725 | 7,035 | 2,200 | 45.50 |
| Utilities | 515 | 510 | 490 | -25 | -4.85 |
| Construction | 4,410 | 5,145 | 5,675 | 1,265 | 28.68 |
| Manufacturing | 4,865 | 4,770 | 3,285 | -1,580 | -32.48 |
| Services-producing sector | 60,655 | 63,380 | 65,180 | 4,525 | 7.46 |
| Wholesale trade | 2,470 | 3,020 | 3,015 | 545 | 22.06 |
| Retail trade | 10,110 | 10,270 | 10,350 | 240 | 2.37 |
| Transportation and warehousing | 3,840 | 3,645 | 3,530 | -310 | -8.07 |
| Information and cultural industries | 1,535 | 1,220 | 1,320 | -215 | -14.01 |
| Finance and insurance | 2,040 | 2,195 | 2,270 | 230 | 11.27 |
| Real estate and rental and leasing | 1,075 | 1,135 | 1,455 | 380 | 35.35 |
| Professional, scientific and technical services | 2,865 | 3,530 | 4,035 | 1,170 | 40.84 |
| Management of companies and enterprises | 10 | 20 | 20 | 10 | 100.00 |
| Administrative and support, waste management and remediation services | 4,955 | 3,800 | 2,575 | -2,380 | -48.03 |
| Educational services | 5,905 | 7,040 | 7,525 | 1,620 | 27.43 |
| Health care and social assistance | 8,680 | 9,915 | 11,355 | 2,675 | 30.82 |
| Arts, entertainment and recreation | 1,585 | 1,555 | 1,560 | -25 | -1.58 |
| Accommodation and food services | 5,400 | 5,615 | 5,415 | 15 | 0.28 |
| Other services (except public administration) | 4,000 | 4,230 | 3,650 | -350 | -8.75 |
| Public administration | 6,185 | 6,190 | 7,105 | 920 | 14.87 |

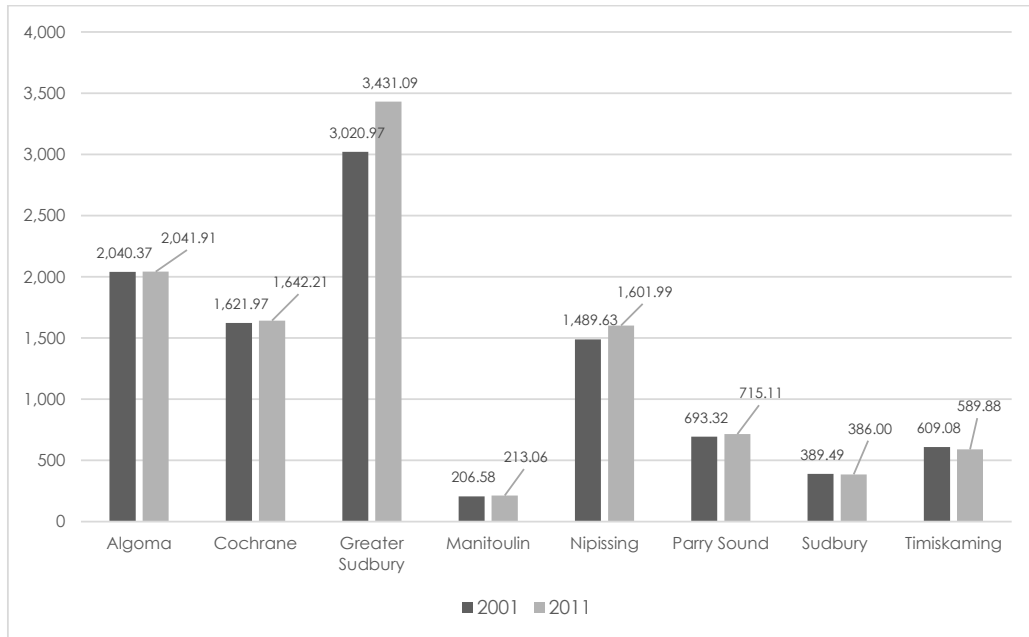
Source: Author's calculations based on Statistics Canada, Census of Canada (various years), and National Household Survey 2011, custom tabulation.

Table 6: Employed Workforce by Occupation, Greater Sudbury, 1996–2011

| | 1996 | 2001 | 2006 | 2011 | Employment change from 2001 to 2011 | |
|---|---------------|---------------|---------------|---------------|-------------------------------------|--------------|
| | (number) | | | | (number) | (percent) |
| Total | 81,310 | 77,500 | 81,620 | 83,685 | 6,185 | 7.98 |
| Occupation - not applicable | 3,585 | 1,685 | 1,795 | 1,765 | 80 | 4.75 |
| All occupations | 77,720 | 75,815 | 79,830 | 81,920 | 6,105 | 8.05 |
| Management occupations | 6,020 | 7,270 | 6,300 | 6,880 | -390 | -5.36 |
| Business, finance and administration occupations | 14,850 | 13,945 | 15,700 | 13,905 | -40 | -0.29 |
| Natural and applied sciences and related occupations | 3,000 | 3,500 | 3,990 | 4,750 | 1,250 | 35.71 |
| Health occupations | 4,255 | 4,410 | 5,145 | 6,075 | 1,665 | 37.76 |
| Occupations in education, law and social, community and government services | 5,630 | 6,085 | 7,595 | 10,325 | 4,240 | 69.68 |
| Occupations in art, culture, recreation and sport | 1,285 | 1,330 | 1,765 | 1,630 | 300 | 22.56 |
| Sales and service occupations | 22,325 | 21,165 | 20,735 | 19,430 | -1,735 | -8.20 |
| Trades, transport and equipment operators and related occupations | 13,035 | 12,690 | 13,110 | 13,490 | 800 | 6.30 |
| Natural resources, agriculture and related production occupations | 4,475 | 3,475 | 3,765 | 3,805 | 330 | 9.50 |
| Occupations in manufacturing and utilities | 2,845 | 1,945 | 1,720 | 1,630 | -315 | -16.20 |

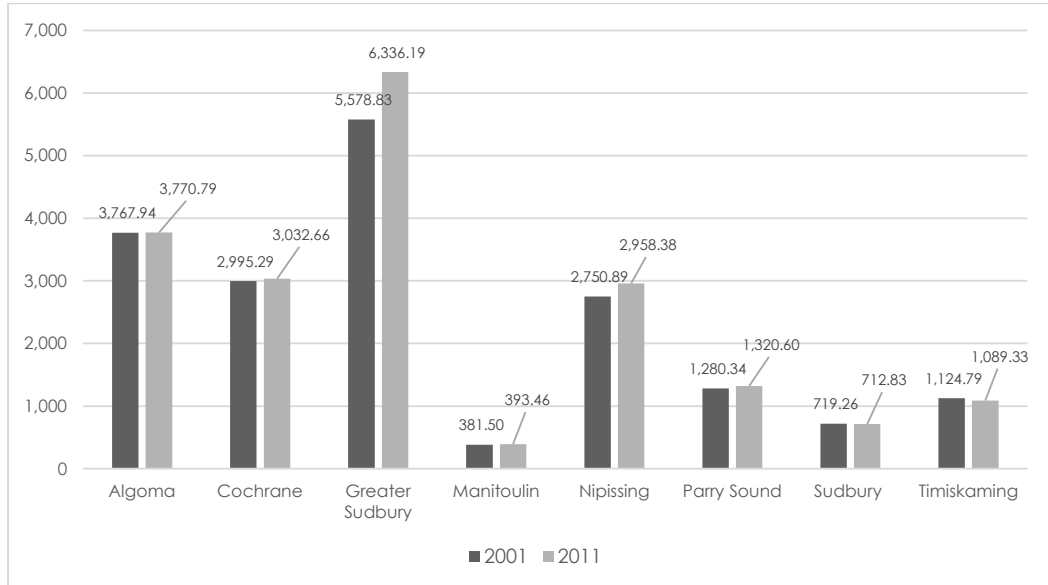
Source: Statistics Canada, Census of Canada (various years), and National Household Survey 2011, custom tabulation.

Figure 21: Total Labour Income (millions of 2010 dollars), Northeastern Districts, 2001–2011



Author's calculations based on Statistics Canada, Census of Canada (various years), and National Household Survey 2011, custom tabulation.

Figure 22: Regional Gross Domestic Product (millions of 2010 dollars), Northeastern District, 2001–2011



Author's calculations based on Statistics Canada, Census of Canada (various years), and National Household Survey 2011, custom tabulation.

Recommendations

1. Market the City of Greater Sudbury as a desirable destination for secondary immigration

Greater Sudbury has experienced slightly negative net intra-provincial migration in recent years, as more individuals from Ontario have moved out of the city than into it. Meanwhile, the human capital indexes for immigrants in Greater Sudbury are higher than in Ontario and Canada, and notably higher than the total working-age population across all jurisdictions. With significant numbers of unemployed and underemployed new Canadians in the Greater Toronto Area there is a real opportunity for Greater Sudbury to address its population challenges by playing to its demonstrated strength in supporting immigrant success.

2. Continue to build on Indigenous partnerships

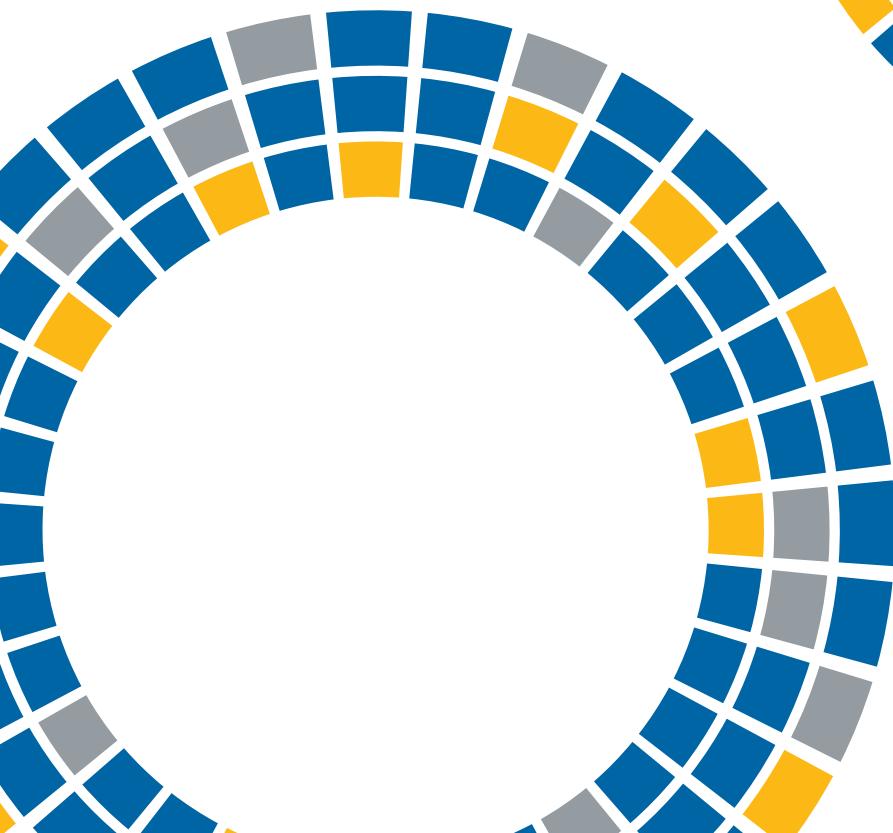
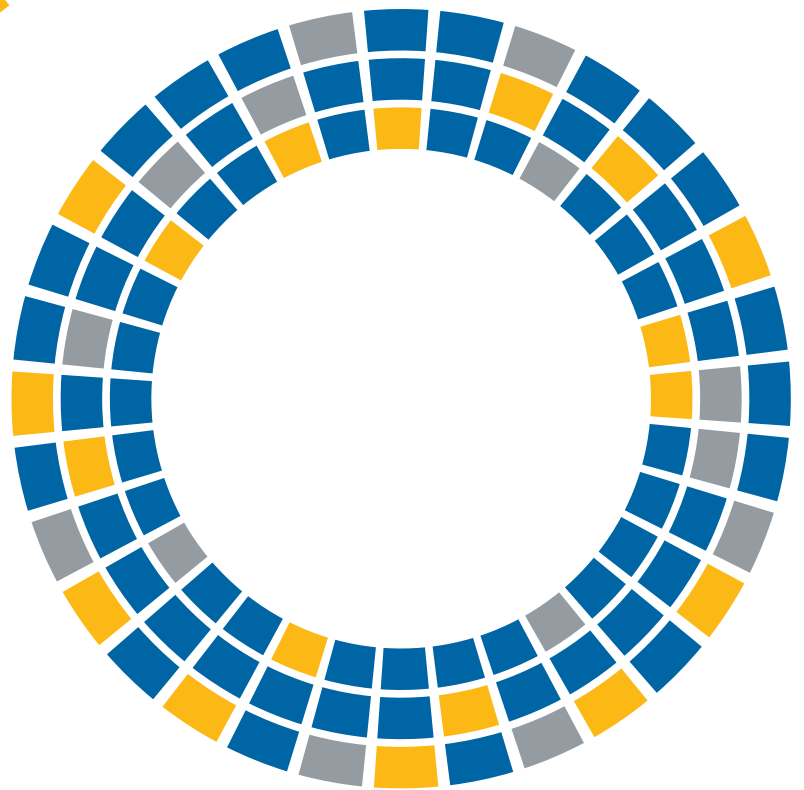
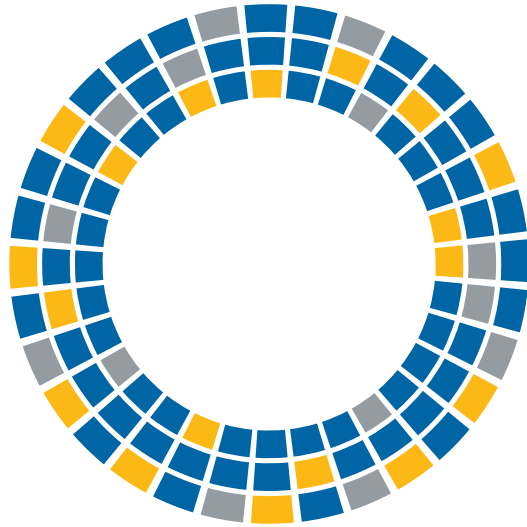
The human capital indexes for the Indigenous labour force in Greater Sudbury, while below the rest of the population, are higher than in Ontario and Canada. As with new Canadians, there is a real opportunity for Greater Sudbury to be marketed as a destination for Indigenous migration within Canada. The city has a track record of delivering better social and education outcomes to its Indigenous population and, given the growth trends among this population across Northern Ontario, this is an opportunity that should continue to be aggressively pursued.

3. “Education” may be the new “Mining” in Greater Sudbury

The skill levels of the prime-working-age population in Greater Sudbury is at the same level as Ontario and Canada for the total population, while the Indigenous population has notably higher levels of education compared to provincial and national levels. Greater Sudbury is in a better position than any other census district in Northern Ontario to meet current and future skills requirements. This suggests that the education institutions based in Greater Sudbury are very good at what they do. This provides another high quality product for the city to market over and above its traditional strengths in mining and mining supply. Recent investments in Post-Secondary Institutions in Greater Sudbury indicate a collective awareness of this opportunity.

References

- Ontario. 2014. Ministry of Finance. "Ontario Population Projections, 2013–2041." Toronto.
- Moazzami, B. 2015. "It's What You Know (and Where You Can Go): Human Capital and Agglomeration Effects on Demographic Trends in Northern Ontario." Thunder Bay: Northern Policy Institute.
- Ontario. 2014. Ministry of Finance. "Ontario's Long-Term Report on the Economy." Toronto.
- Hall, R.E., and C.I. Jones. 1999. "Why Do Some Countries Produce So Much More Output per Worker than Others?" *Quarterly Journal of Economics* 114 (1): 83–116.
- Caselli, F. 2003. "Accounting for Cross-Country Income Differences." Unpublished first draft, November.
- Miner, R. 2010. "People without Jobs, Jobs without People: Canada's Future Labour Market." Toronto: Miner Management Consultants.
- Moazzami, B. 2012. "Multi-national and Multi-locational Enterprise Initiative, Survey of Northern Ontario Companies and Analysis of the Results." Prepared for the Federal Economic Development Initiative for Northern Ontario.
- Canadian Council of Chief Executives. "Taking Action for Canada: Jobs and Skills for the 21st Century." Ottawa.



About Northern Policy Institute

Northern Policy Institute is Northern Ontario's independent think tank. We perform research, collect and disseminate evidence, and identify policy opportunities to support the growth of sustainable Northern Communities. Our operations are located in Thunder Bay, Sudbury, Sault Ste. Marie, and Kenora. We seek to enhance Northern Ontario's capacity to take the lead position on socio-economic policy that impacts Northern Ontario, Ontario, and Canada as a whole.

Related Research

It's What You Know (And Where You Can Go): Human Capital and Agglomeration Effects on Demographic Trends in Northern Ontario

Dr. Bakhtiar Moazzami

Settling Down in the Northwest

James Cuddy

Show me The Money: Some Positive Income Trends in Northern Ontario

Kyle Leary

Northern Projections: Human Capital Series - Rainy River District

James Cuddy
and Dr. Bakhtiar Moazzami

To stay connected or get involved, please contact us at:

1 (807) 343-8956 info@northernpolicy.ca www.northernpolicy.ca



NORTHERN
POLICY INSTITUTE

INSTITUT DES POLITIQUES
DU NORD

northernpolicy.ca