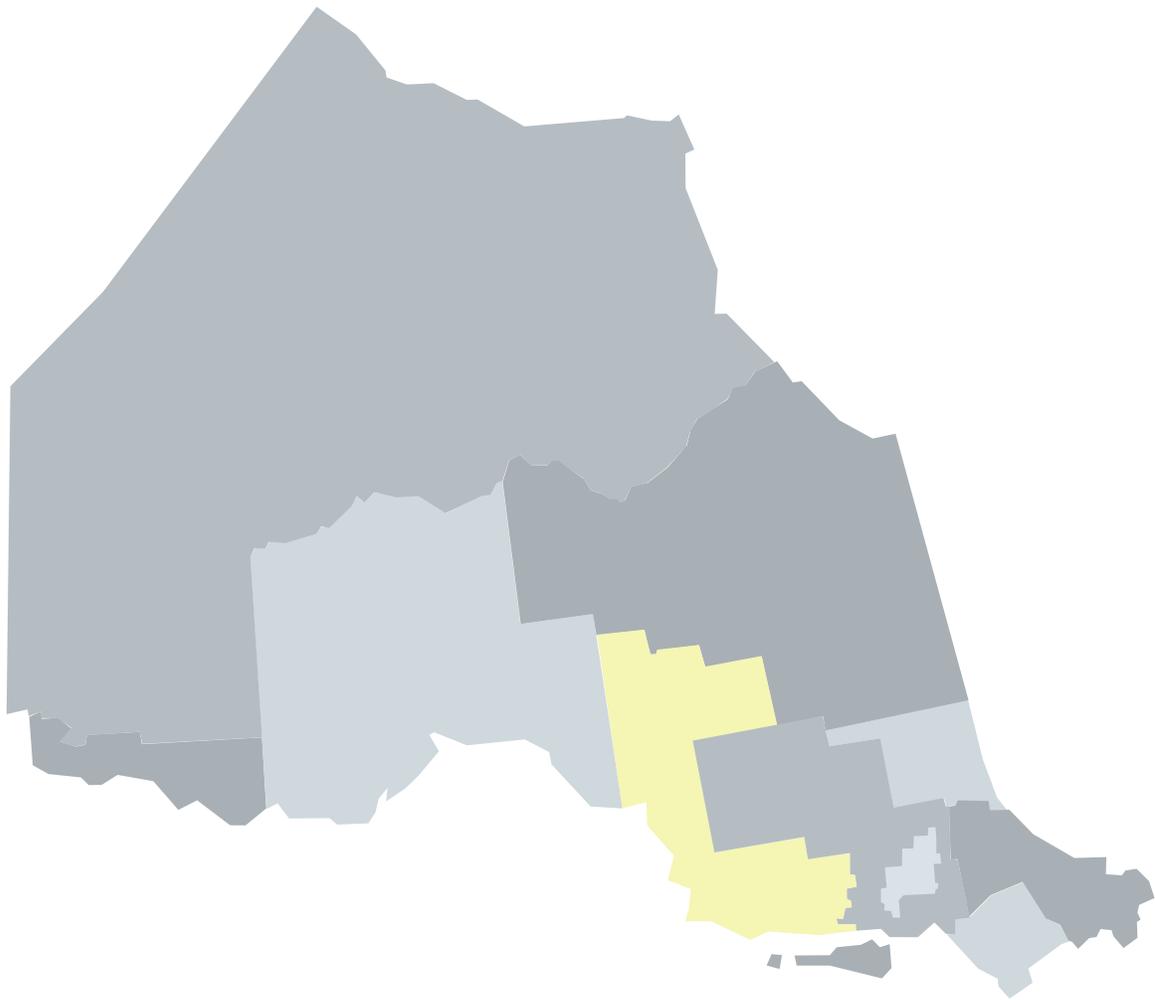


NORTHERN
POLICY INSTITUTE

INSTITUT DES POLITIQUES
DU NORD



NORTHERN
ONTARIO
WORKFORCE PLANNING



Research Paper No. 17 | April 2017 | 8/11

Northern Projections Human Capital Series - ALGOMA DISTRICT

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



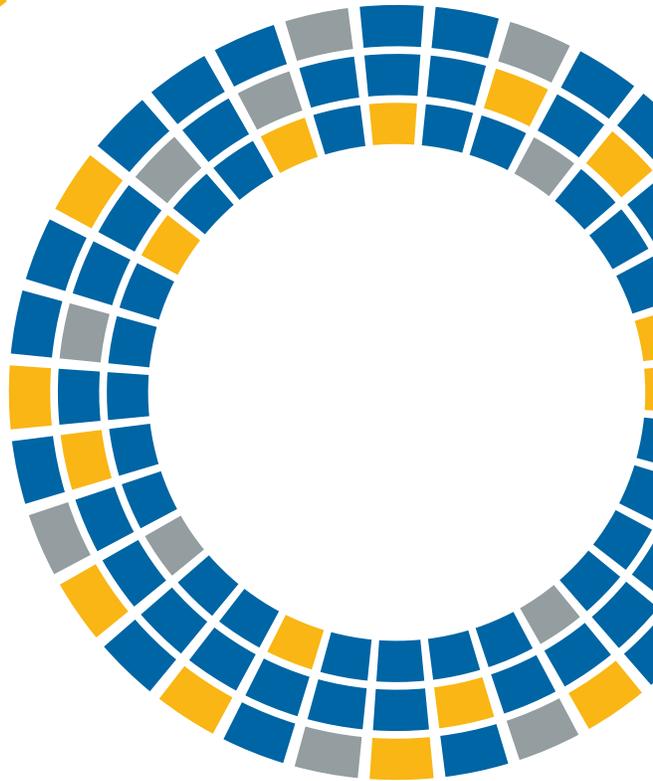
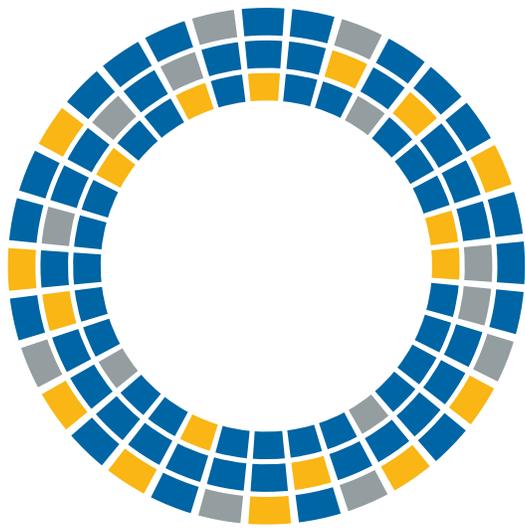
Sudbury & Manitoulin

Workforce Planning
Planification en main-d'oeuvre

Reggie Caverson - Executive Director
www.planningourworkforce.ca
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)
Michael Atkins
Pierre Bélanger
Thérèse Bergeron-Hopson
(Vice Chair)
Lucy Bonanno
Terry Bursey
Dr. Harley d'Entremont

Alex Freedman
Dr. George Macey
(Vice Chair & Secretary)
Dawn Madahbee Leach
Hal J. McGonigal
Gerry Munt
Emilio Rigato (Treasurer)
Dr. Brian Tucker

Advisory Council

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

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

Research Advisory Board

Dr. John Allison
Dr. Hugo Asselin
Dr. Randy Battocchio (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 Rigg
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 or the Government of Ontario. 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.

© 2017 Northern Policy Institute
Published by Northern Policy Institute
874 Tungsten St.
Thunder Bay, Ontario P7B 6T6

ISBN: 978-1-988472-08-9

Contents

Partners _____ 2

Who We Are _____ 4

About the Authors _____ 5

Summary of Findings _____ 6

Introduction _____ 7

Demographic Change: The Past Three Decades _____ 8

Demographic Change: The Next Three Decades _____ 12

Algoma District's Labour Force: Past, Present and Future Trends _____ 16

Productivity and the Human Capital Composition of the Workforce _____ 22

The Consequences of Shifting the Composition of the Employed Labour Force in Algoma District _____ 29

Recommendations _____ 34

Related Research _____ 37

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

If the current level of educational achievement continues, the human capital composition of the workforce will decline in the coming years in both the Algoma district and across Northeastern Ontario. The Algoma district (like several others in the Northeast) will, however, decline at a slower rate than the region as a whole.

The human capital composition of the working-age population in the Algoma district is above that in Northeastern Ontario, but below provincial and national levels. Notably, the human capital indexes for immigrants are higher than the total population in Northeastern Ontario, Ontario and Canada. Additionally, the indexes for the Indigenous labour force in the Algoma district, while below the rest of the population, are higher than national levels.

Since the Indigenous labour force will account for a significant and growing share of the Algoma district'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. In general, the Indigenous population tends to participate less in the labour force than that of the total population. Indigenous labour force participation in the district of Algoma 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 that of the regional average.

Labour force participation and education levels for men are a problem and are getting worse, particularly for the male Indigenous population on-reserve. The labour force participation rate of Indigenous men in Northeastern Ontario declined from 70.3 percent in 2001 to 66.6 percent in 2011. This is a challenge that needs to be met head on and resolved. One factor that likely contributes to this growing challenge is that education levels of the prime-working-age population in the Algoma district are lower than education levels in Ontario and Canada for the total population. On the other hand, the Indigenous population has education levels at provincial levels and above national benchmarks.

The participation rate among Indigenous women in Northeastern Ontario increased from 49.2 percent in 2001 to 55.1 percent in 2011. 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."¹ This is a positive trend and one that could be accelerated going forward.

Finally, similar to other regions in Northern Ontario, a declining and aging population is one of the most fundamental challenges facing the district of Algoma. Indeed, the district's population declined by 13.5 percent from 1986 to 2016 and the share of seniors in the district rose from 11 percent in 1991 to 21 percent in 2011. These trends are a due in part to out-migration among younger cohorts, and low and declining levels of immigration. In fact, total net domestic out-migration from 2014 to 2015 equaled nearly 480 individuals in the district, while in 2015, Algoma district attracted only 76 immigrants. This is equivalent to roughly 10 times less immigrants per capita in the district compared to Ontario as a whole. In order to mitigate the effects of these population and demographic trends, the district should consider strategies to attract newcomers from other parts of Ontario, Canada and abroad.

¹ Ontario Ministry of Finance, "Ontario's Long-Term Report on the Economy", 2014.

Introduction

The objective of this report is to examine past and present trends and characteristics in the district of Algoma'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 district'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 rising dependency on the public sector, and declining labour income and gross domestic product (GDP).

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

The study looks into the future and provides projections for the total and Indigenous populations 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 the Algoma district'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 skill 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 Algoma district.

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

Data Sources

Most of the data used in this report are based on detailed information regarding individual census subdivisions (CSDs) in the district of Algoma 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.

Census 2016 data are being released in stages between February, 2017 and November 2017. At the time of publication, only population and dwelling count data had been released. Population figures have been added to this publication, where applicable, however, the vast majority of the data presented in this publication rely on Census 2016 data that will be released later in 2017. Thus, the majority of the data presented in this report are based of the 2011 National Household Survey.

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, Metis 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
- The 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.²

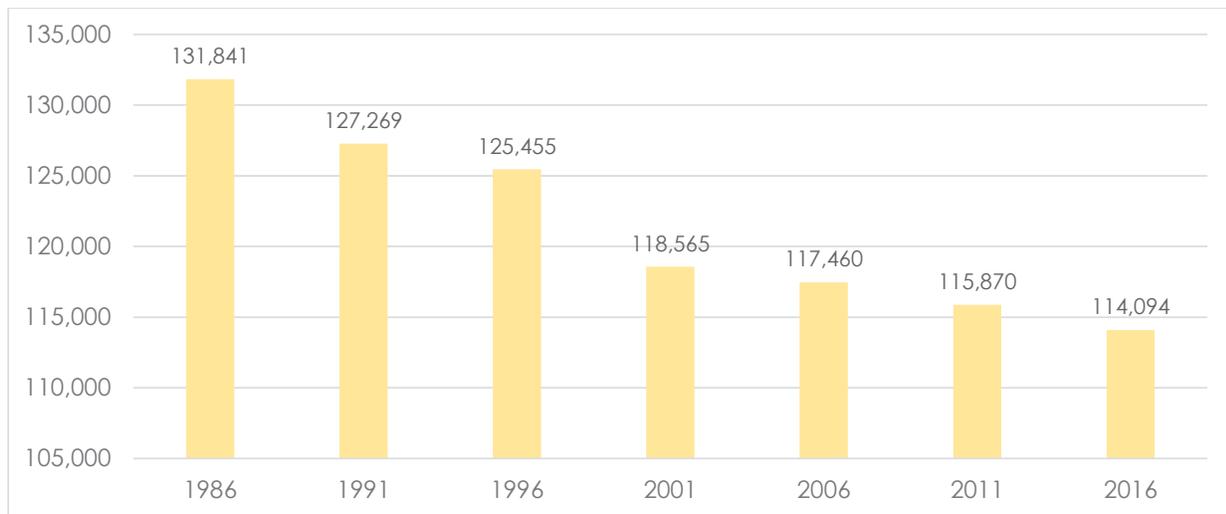
2 The analysis in this study is based on these jurisdictional and geographical parameters.

Demographic Change: The Past Three Decades

The Algoma district covers 48,811 square kilometers and recorded a population of 114,094 in 2016. It has a population density of 2.3 persons per square kilometer which is well below that of Ontario (14.8). According to Statistics Canada's census of population, the district declined by about 13.5 percent from 1986 to 2016 (Figure 1).

In terms of net migration flows, the Algoma district has experienced negative net intraprovincial migration for the last decade, as more individuals from Ontario have moved out of the district than into it. In addition, interprovincial migration, known as the movement of individuals from one province to another, has also been consistently negative during this period. The total domestic out-migration in 2014-15 was 480 (Figure 2). Also contributing to population levels is low and declining immigration in the district of Algoma (Figure 2). As of 2015, the district attracted 6.5 immigrants per 10,000 people compared to 64.8 in Ontario, which translates into roughly 10 times less immigrants per capita compared to the province as a whole (Figure 3).

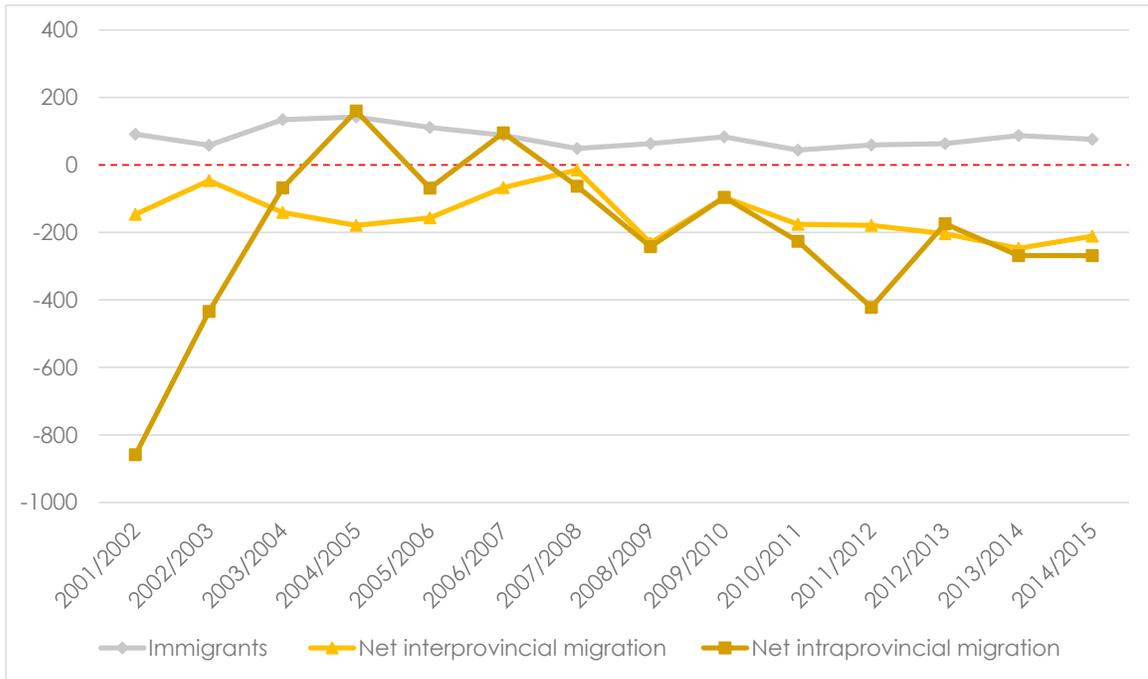
Figure 1: Population, Algoma District, 1986–2016



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

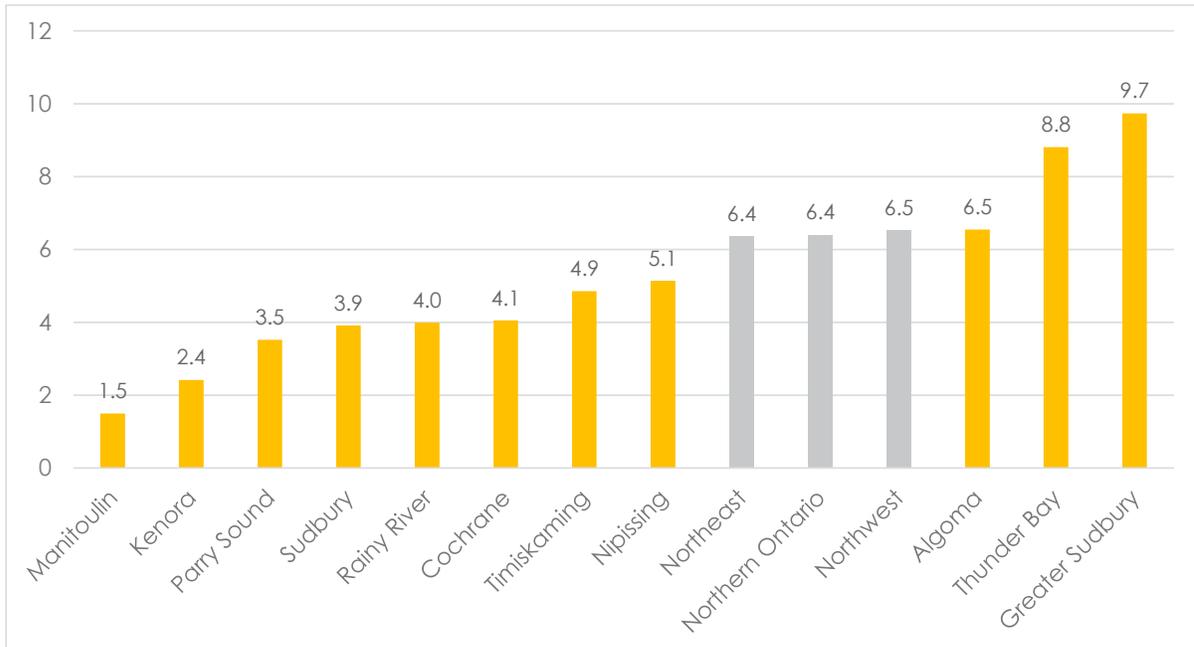


Figure 2: Net Domestic Migration and Immigration, Algoma District, 2001/2002-2014/2015



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

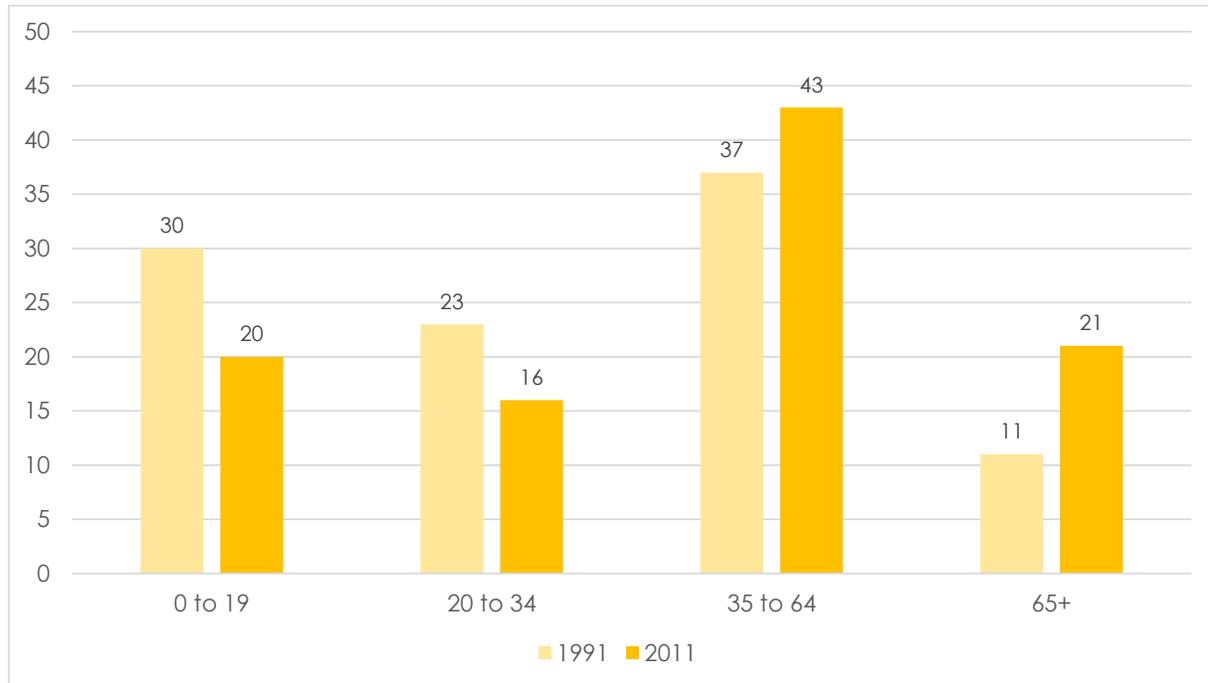
Figure 3: Number of Immigrants per 10,000 people, Northern Ontario Districts, 2014/2015



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

In addition to migration patterns and low levels of immigration in the district, rising life expectancy and lower fertility rates have resulted in the aging of the 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 district below the age of 20 has declined from 30 percent in 1991 to 20 percent in 2011, while the share of seniors rose from 11 percent in 1991 to 21 percent in 2011 (Figure 4). During the same period, the share of individuals between the ages of 20 to 34 declined from 23 to 16 percent, while individuals aged 35 to 64 increased from 37 to 43 percent.

Figure 4: Age Distribution of Population, Algoma District, 1991-2011



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

These demographic changes have had a significant impact on social and economic conditions in the district. The population will continue to age in the foreseeable future, with implications for the supply of labour, production capacity, and the ability of the Algoma district 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.

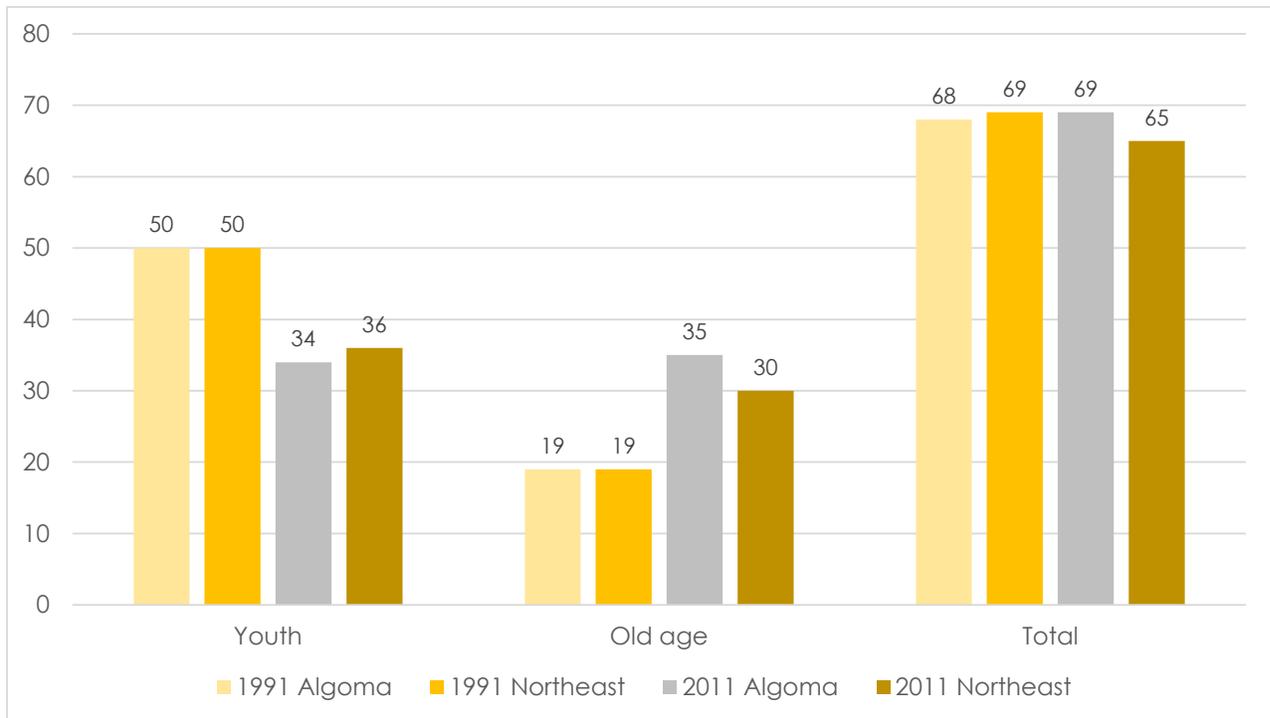
This study examines three dependency ratios: old age dependency, defined as the number of persons aged 65 years and older relative to the working-age population (ages 20 to 64); youth dependency, defined as the ratio of the number of persons aged 20 years and younger to the working-age population; and 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 suggests 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 the district, the youth dependency ratio declined from 50 persons per every 100 working-age persons in 1991 to 34 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 19 to every 100 working age individuals in 1991 to 35 in 2011 due to an increasing number of seniors relative to the working age population. In other words, there were 5.3 working persons in 1991 per each senior, but only 2.9 working persons per senior in 2011. The ratio of seniors to working age population in the Algoma District (35) is notably above 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 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.

Overall, the total dependency rate – the number of youths and seniors relative to those of working age – increased from 68 in 1991 to 69 in 2011, suggesting that the district decreased its capacity to support its non-working population over the period. This rate was also well-above the provincial average of 62 in 2011. This ratio is expected to rise as the baby boomers start to retire in the coming years. Decreasing the gap between the dependency ratios in the district and those of the province as a whole could be a goal the region might strive to achieve in the long term.

Figure 5: Ratio of the Working-Age Population to Other Age Groups, Algoma District, 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 the district, 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 Bakhtiar Moazzami.

A few words regarding the Ministry of Finance projections are in order. First, the Ministry's 2011 population estimates are about 3,430 greater than those reported by the 2011 census, having been adjusted for net undercoverage by the census, especially of the region's Indigenous population in the Algoma district.

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 government 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.³

Population Projections

The Algoma district's total population is expected to decrease by 9.7 percent from 2013 to 2041 (Table 1). The continuing aging of the 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 19.7 percent in 2013 to 17.7 percent in 2041, the share of working-age people (ages 20 to 64) projected to decline from 58.8 percent in 2013 to 47.7 percent in 2041, and the share of seniors is expected to rise from 21.6 percent in 2013 to 34.6 percent in 2041.⁴ 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 district.

Table 1: Population Projections by Age Group, Algoma District, 2013-2041

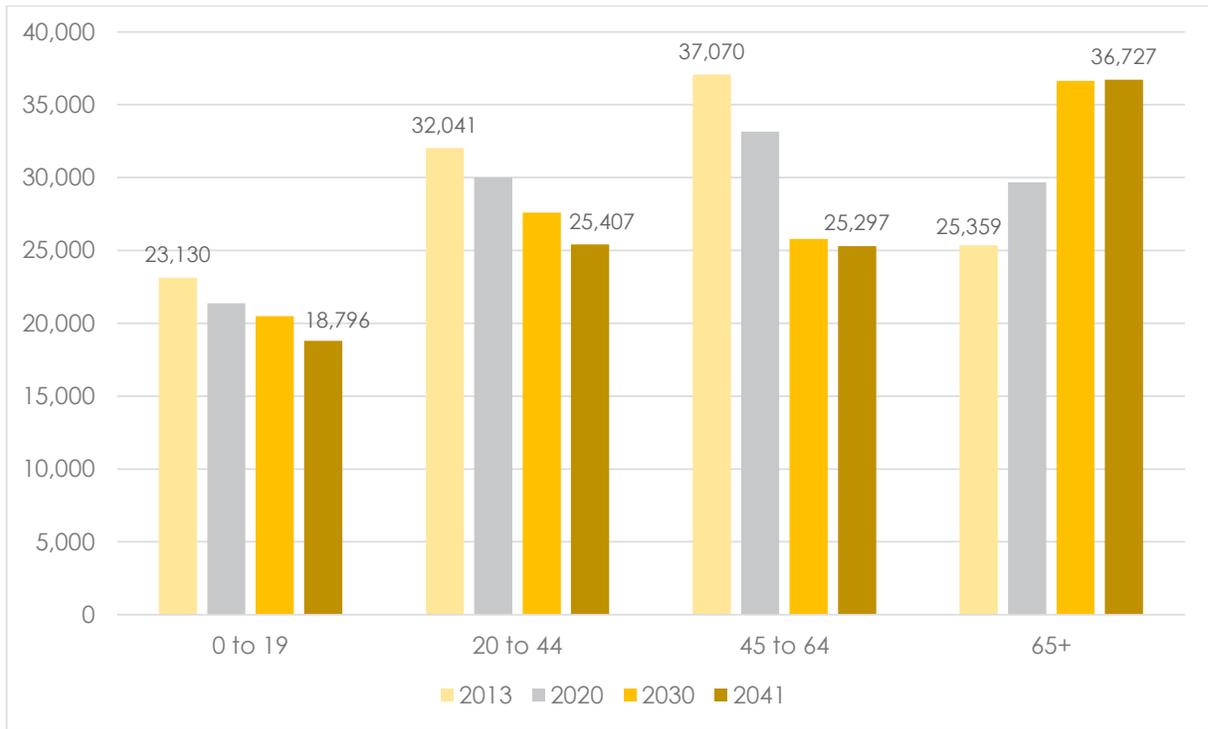
	0 to 19	20 to 44	45 to 64	65+	Total
2013	23,130	32,041	37,070	25,359	117,600
2020	21,375	30,016	33,149	29,663	114,203
2030	20,486	27,610	25,792	36,650	110,538
2041	18,796	25,407	25,297	36,727	106,227

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

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

4 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, Algoma District, 2013-41

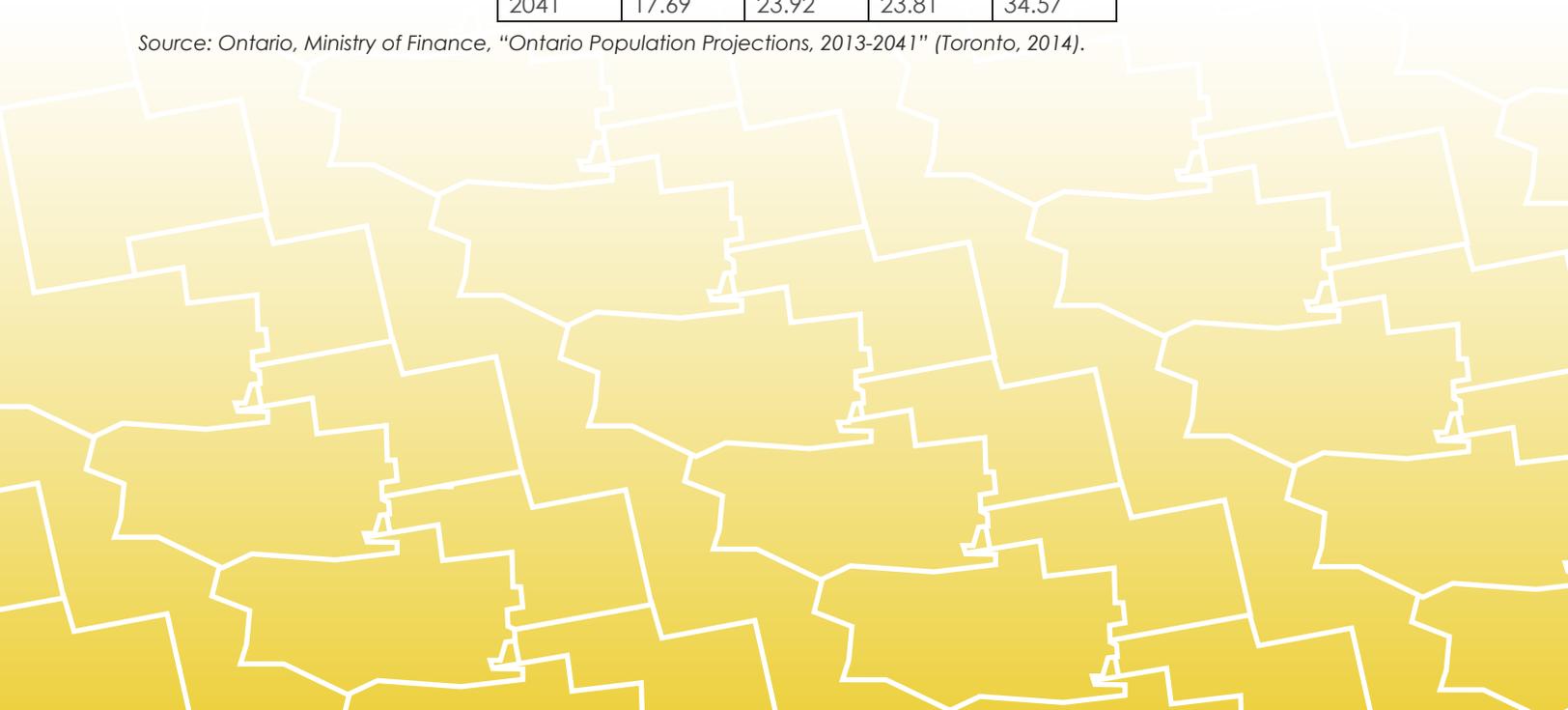


Source: Author's calculations based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

Table 2: Population Projections by Age Distribution, Algoma District, 2013-2041

	0 to 19	20 to 44	45 to 64	65+
2013	19.67	27.25	31.52	21.56
2020	18.72	26.28	29.03	25.97
2030	18.53	24.98	23.33	33.16
2041	17.69	23.92	23.81	34.57

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



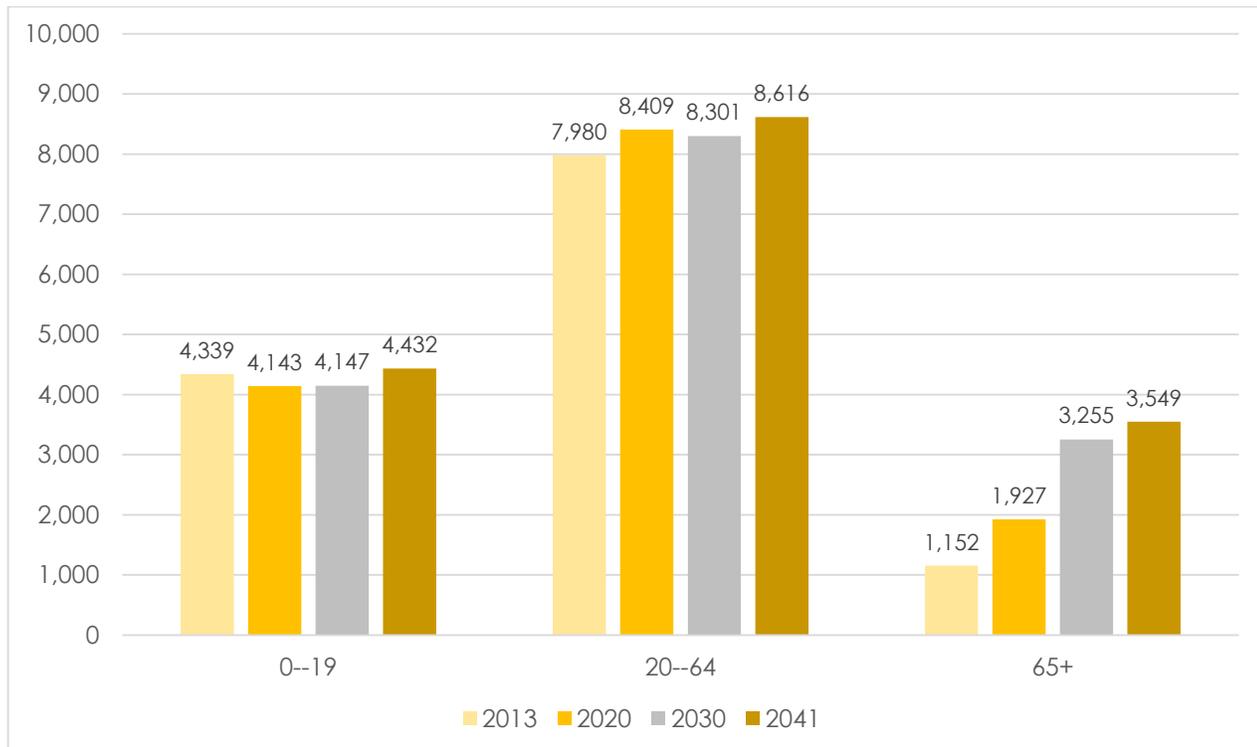
Indigenous Population Projections

In making projections for the Indigenous population in the Algoma District out to 2041, this study employs Northern Ontario's Demographic Forecasting Model, which is based on the Cohort Component method.⁵ 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 undercoverage of Indigenous people in the region — as mentioned above, there were 3,430 omitted persons in the Algoma district 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 the district is expected to increase from 13,471 in 2013 to 16,597 in 2041, a growth rate of about 23.2 percent. The number of individuals under age 20 expected to remain roughly constant during this period, while working-age individuals will increase by about 8 percent and the number of individuals aged 65 and over are expected to rise from 1,152 in 2013 to 3,549 in 2041, an increase of 208 percent.

The Indigenous population's share of total district's population is expected to increase from 16.4 percent in 2013 to 22.7 percent in 2041 (Figure 8). The share of prime-working-age people (those ages 20 to 44) is expected to increase from 16.6 percent in 2013 to 27.2 percent in 2041. Similarly, the share of working-age Indigenous people (those ages 20 to 64) is expected to increase from 15.8 percent in 2013 to 23.9 percent in 2041. The share of Indigenous seniors is expected to rise from 8.9 percent in 2013 to 16.4 percent in 2041.

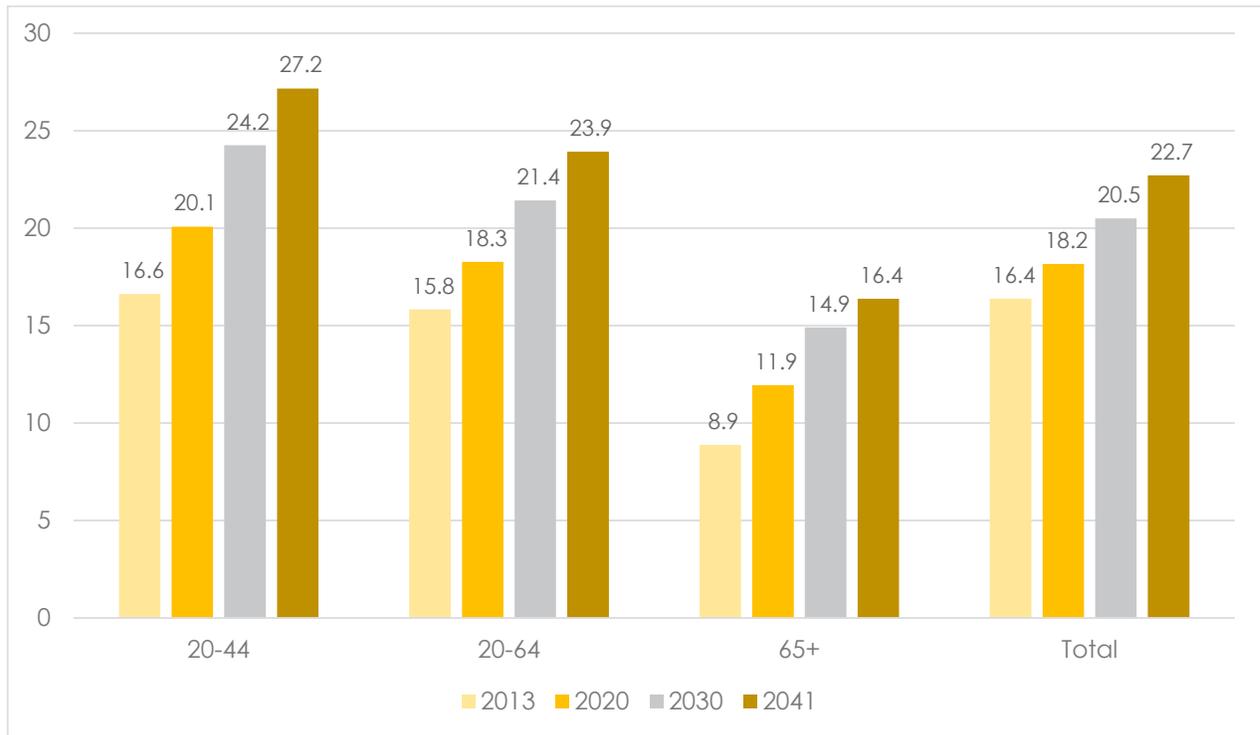
Figure 7: Indigenous Population Projections by Age Group, Algoma District, 2013–2041



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

⁵ 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 8: Projections of the Share of the Indigenous Population, Algoma District, 2013–2041



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

Algoma District's 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. An aging population 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 the Algoma district'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 the district of Algoma's labour force.

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, whereas those living on-reserve have lower participation rates and much higher unemployment rates.

Labour Market Trends in Algoma District

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."⁶ 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.

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

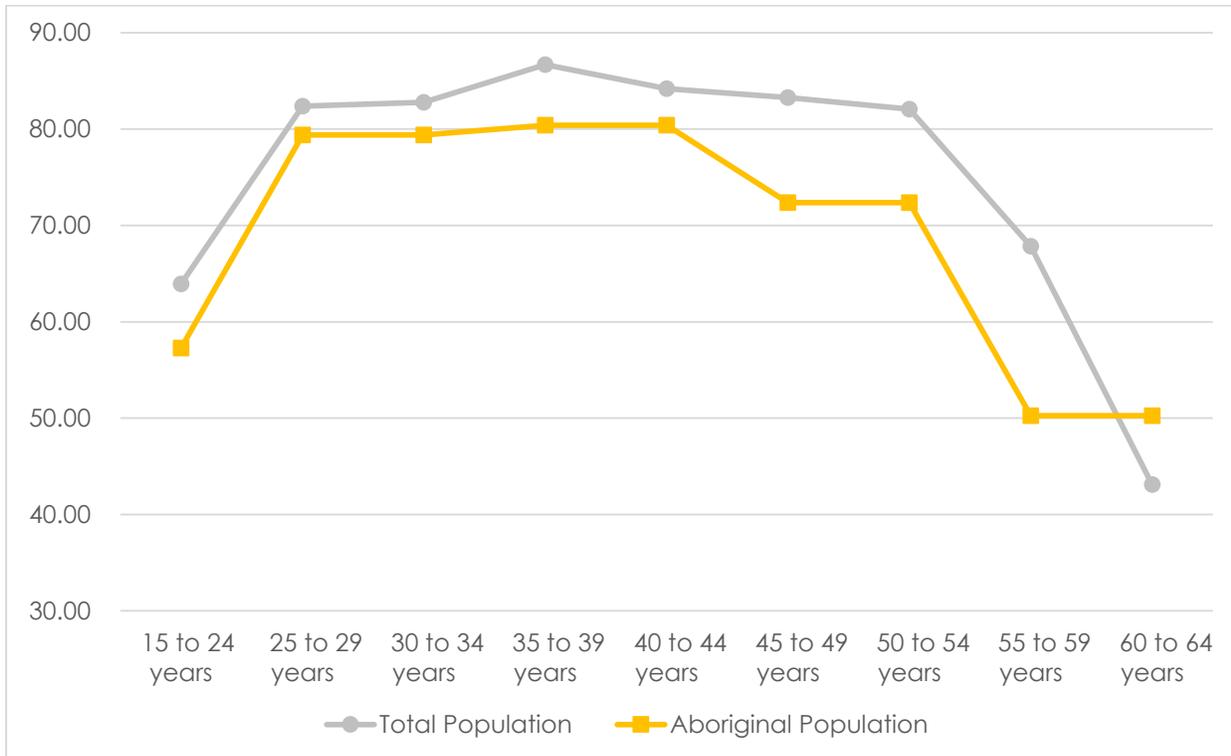
Table 3: Labour Market Trends, Working-age Population (ages 15 to 64), Northeastern Ontario, 2001 and 2011

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.

According to the available data, Indigenous peoples tend to participate less in the formal labour force as compared to the non-Indigenous population. It is important to note that these findings do not necessarily take into account alternative and traditional economies that Indigenous populations historically and presently participate in. 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 that of the regional average.

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 compares labour force characteristics among various demographics of the population in the Algoma district and Northeastern Ontario.⁷ The labour force participation rate among men is 73.1 percent in the district compared to 75.3 percent in Northeastern Ontario and 76.0 percent in Ontario in 2011. The Indigenous population living on-reserve in the Algoma district have the lowest levels of participation, followed by the immigrant population and then the off-reserve Indigenous population. The participation rate among women was 69 percent in the district compared to 70.3 in Northeastern Ontario and 72.6 in Ontario. The participation rate among on-reserve Indigenous women in the district was the lowest compared to all other comparators.

The unemployment rate among men in the district was 12.7 percent compared to 10.6 and 8.4 in Northeastern Ontario and Ontario, respectively. The unemployment rate among women in Algoma was 8.8 percent compared to 9.3 percent in the Algoma district and 8.3 in Northeastern Ontario and the province as a whole. The unemployment rate among on-reserve Indigenous men was the highest in Algoma at 22.5 percent.

The employment rate which represents the share of the working-age population who were employed was 63.8 percent for men in the Algoma district compared to 67.3 percent in Northeastern Ontario in 2011. Again, employment rates were generally lower for the Indigenous population. The employment rate among working-age women is 62.6 percent in the district compared to 64.5 percent in the Northeast.

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

Figure 10: Labour Force Participation, Employment and Unemployment Rates (%), Ages 15 to 64 years, Algoma District 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 the Algoma district 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.

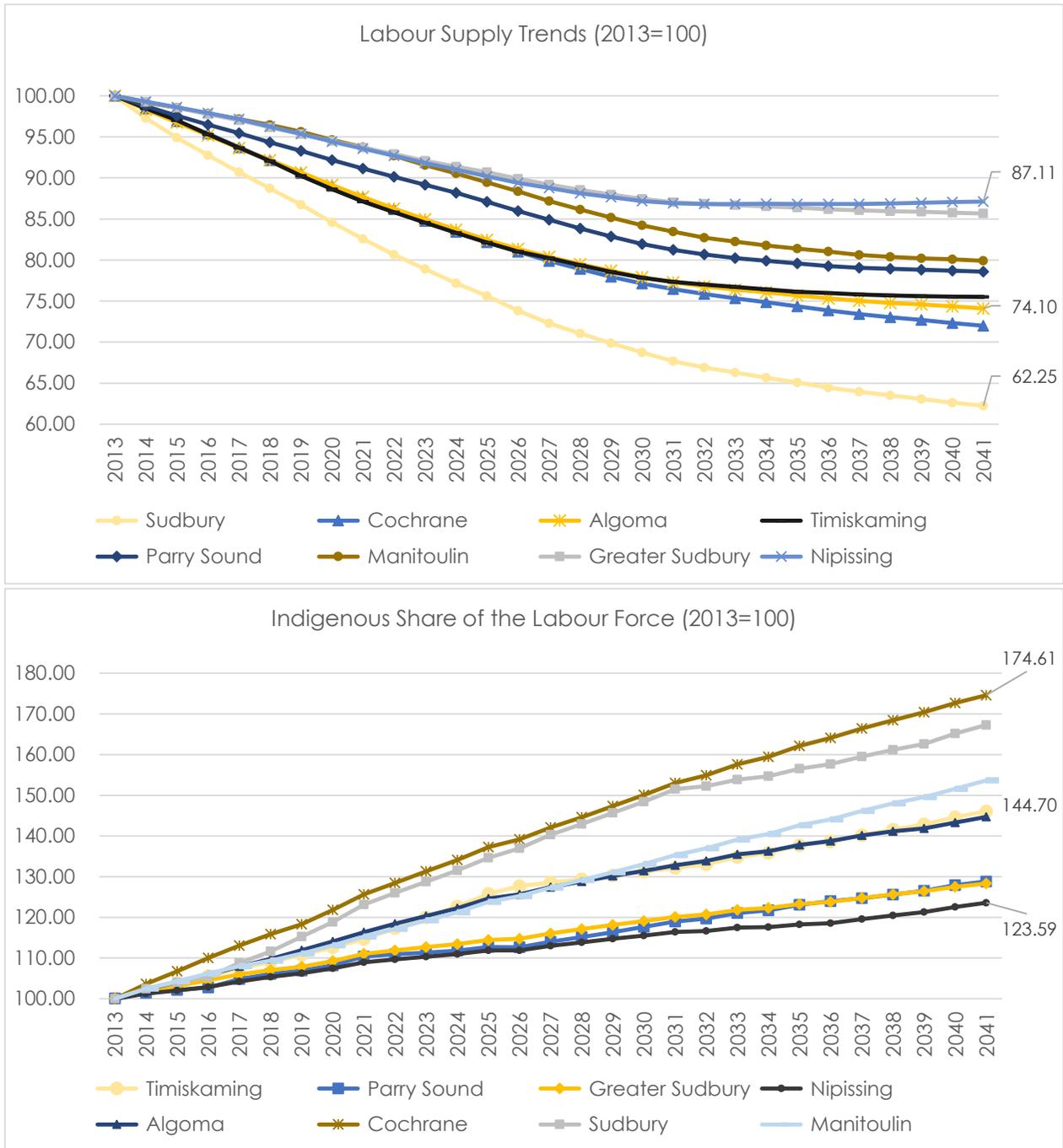
Table 4 and Figure 11 provide labour supply projections for the district of Algoma and Northeastern Ontario for the period from 2013 to 2041. The district's labour force is expected to decline by about 25.9 percent over the period, while the Indigenous labour force is expected to increase by 7.2 percent. As a result, the share of the Indigenous labour force is expected to increase from 11.6 percent in 2013 to 16.8 percent in 2041.

Table 4: Projected Labour Supply, Total and Indigenous, Algoma District and Northeastern Ontario, 2013–2041

Year	Algoma District			Northeast Ontario		
	Total Labour Force	Indigenous Labour Force	Indigenous Share (%)	Total Labour Force	Indigenous Labour Force	Indigenous Share (%)
2013	53,239	6,192	11.63	264,860	27,372	10.33
2014	52,345	6,228	11.9	261,674	27,632	10.56
2015	51,502	6,234	12.1	258,626	27,751	10.73
2016	50,670	6,239	12.31	255,558	27,874	10.91
2017	49,845	6,257	12.55	252,470	28,059	11.11
2018	49,047	6,263	12.77	249,289	28,142	11.29
2019	48,267	6,283	13.02	246,155	28,200	11.46
2020	47,452	6,295	13.27	242,891	28,327	11.66
2021	46,674	6,315	13.53	239,896	28,554	11.9
2022	45,931	6,325	13.77	236,948	28,590	12.07
2023	45,234	6,330	13.99	234,070	28,611	12.22
2024	44,560	6,335	14.22	231,333	28,627	12.37
2025	43,900	6,364	14.5	228,687	28,737	12.57
2026	43,310	6,328	14.61	226,057	28,594	12.65
2027	42,791	6,343	14.82	223,711	28,695	12.83
2028	42,327	6,340	14.98	221,550	28,741	12.97
2029	41,905	6,343	15.14	219,616	28,813	13.12
2030	41,468	6,340	15.29	217,788	28,885	13.26
2031	41,139	6,353	15.44	216,402	29,033	13.42
2032	40,879	6,364	15.57	215,433	29,087	13.5
2033	40,669	6,407	15.76	214,669	29,304	13.65
2034	40,493	6,418	15.85	213,998	29,374	13.73
2035	40,301	6,460	16.03	213,288	29,586	13.87
2036	40,107	6,474	16.14	212,569	29,671	13.96
2037	39,943	6,510	16.3	211,992	29,880	14.09
2038	39,810	6,536	16.42	211,538	30,067	14.21
2039	39,706	6,552	16.5	211,198	30,240	14.32
2040	39,582	6,596	16.66	210,792	30,497	14.47
2041	39,450	6,639	16.83	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).

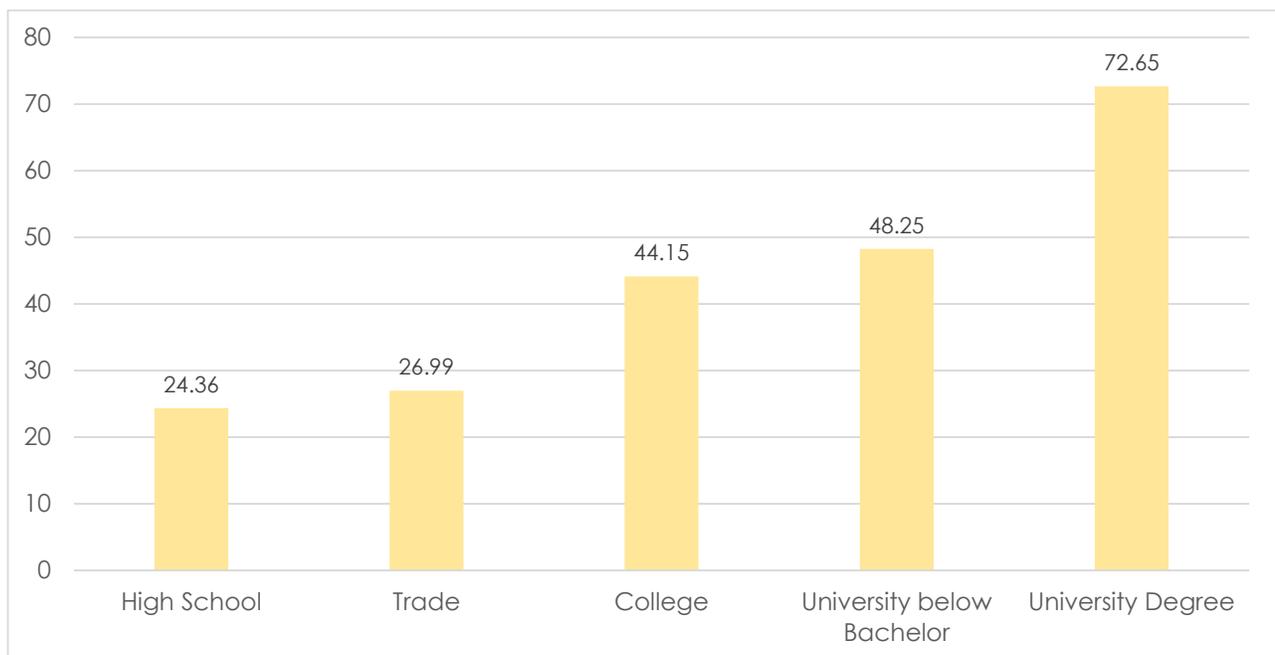
Productivity and the Human Capital Composition of the Workforce in Algoma District and Northeastern Ontario

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 this district 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 the Algoma district and Northeastern Ontario. To obtain such an index, this study first estimated a standard earnings model using the 2006 census micro-data file.⁸ 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 increases as the level of schooling rises, reflecting higher earnings commensurate with higher productivity as the level of education increases.

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.

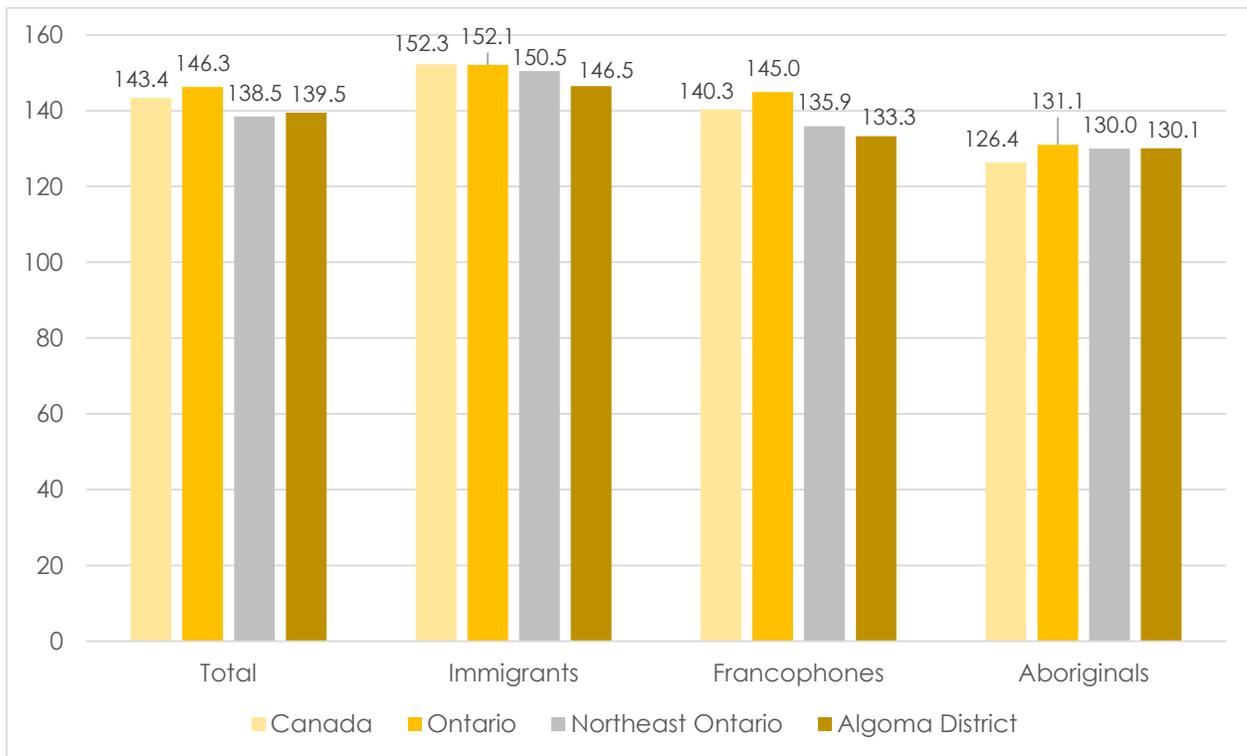
Source: Author's estimates based on Statistics Canada's 2006 Census Microdata file.

8 The earnings model is of the form: $\ln Wage = a + \sum \beta_s S_s + X_s \delta + \epsilon$, where S_s are the highest level of schooling, X_s are other control variables which include age categories, marital status, etc. and ϵ is an error term.

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 districts in Northeastern Ontario.⁹ Figure 13 shows estimated human capital indices for working-age Indigenous people, immigrants, Francophones and the total population in Canada, Ontario, Northeastern Ontario and the district of Algoma.¹⁰ 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 this district is above that in Northeastern Ontario, but below provincial and national levels. Notably, the human capital indexes for immigrants in this area are higher than total population in Northeastern Ontario, Ontario and Canada. In addition, the indexes for the Indigenous labour force, while below the rest of the population, are higher than national levels.

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



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

9 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.

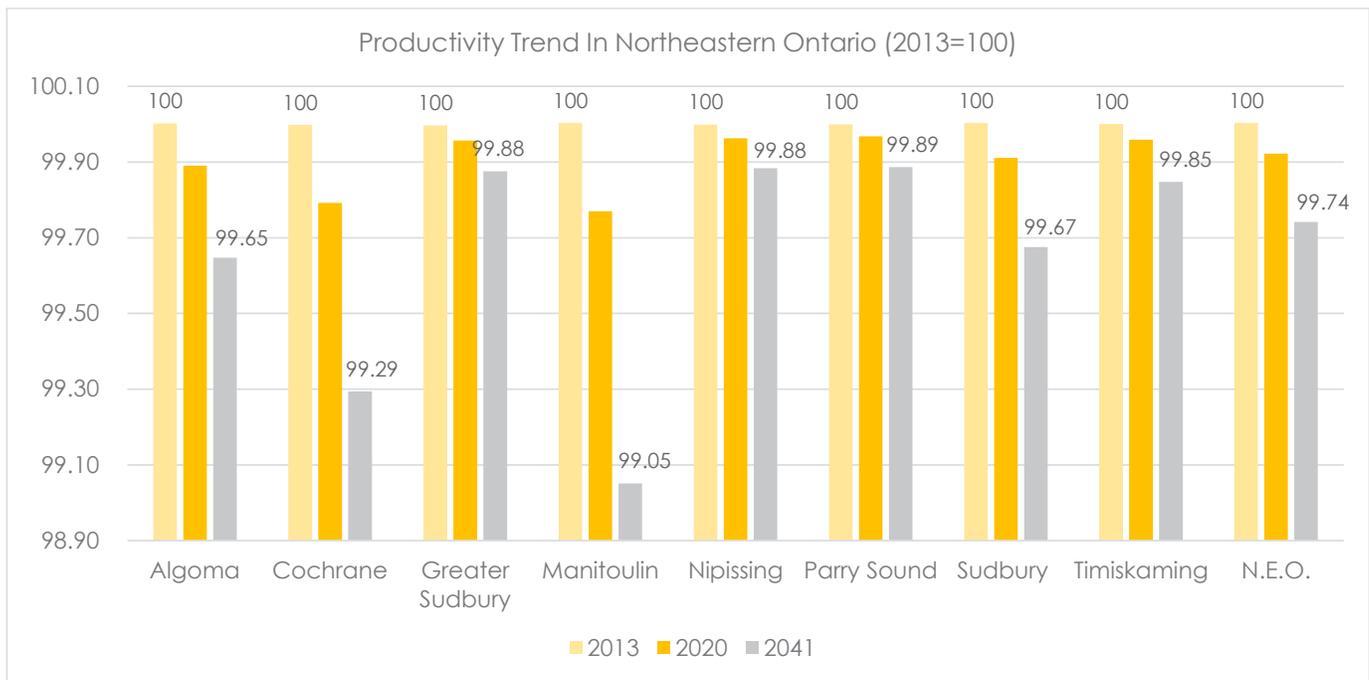
10 Note that the human capital indexes reported here are numerically different from the ones reported in my previous report since I have used return to education or productivity measure in Canada as a benchmark in calculating the above indexes where Ontario was the benchmark in my previous report. Using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

A Perfect Storm: Declining Labour Supply and Labour Productivity in Algoma District

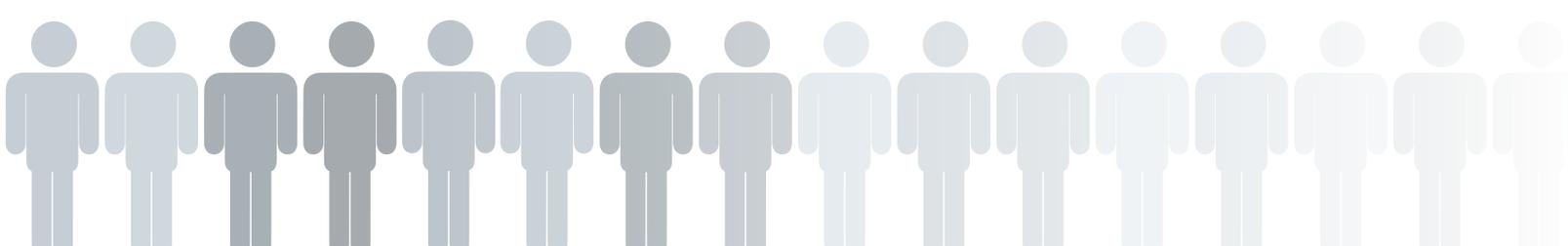
Earlier, this study identified two important demographic trends in the Algoma district. First, the working-age population is declining; as a result, the supply of labour is expected to decline over the coming years. Second, a growing Indigenous labour force potentially could offset that trend, but the 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 indexes 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 both the Algoma district and across Northeastern Ontario, however, the district is expected to decline at a slower rate than the region. This index is positively correlated with labour productivity, labour income and output in the region.

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



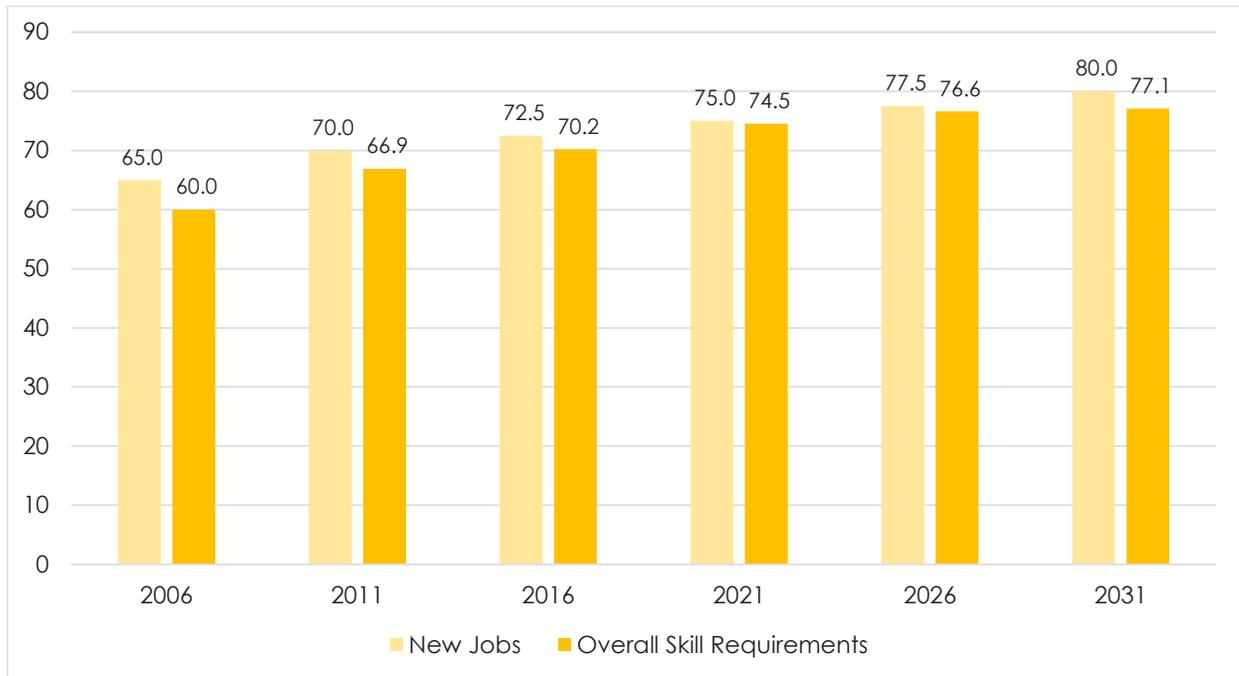
Source: Author's estimates based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).



The declining supply of labour and declining labour productivity 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.¹¹ 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). Yet, as Figure 16 shows, the skill levels of the prime-working-age population in the district are lower than the skill levels in Ontario and Canada for the total population, while, on the other hand, the Indigenous population has education levels at provincial levels and above national levels. Importantly, however, the present skill level in the district overall are below the current estimated skill requirements of about 63.4 percent.

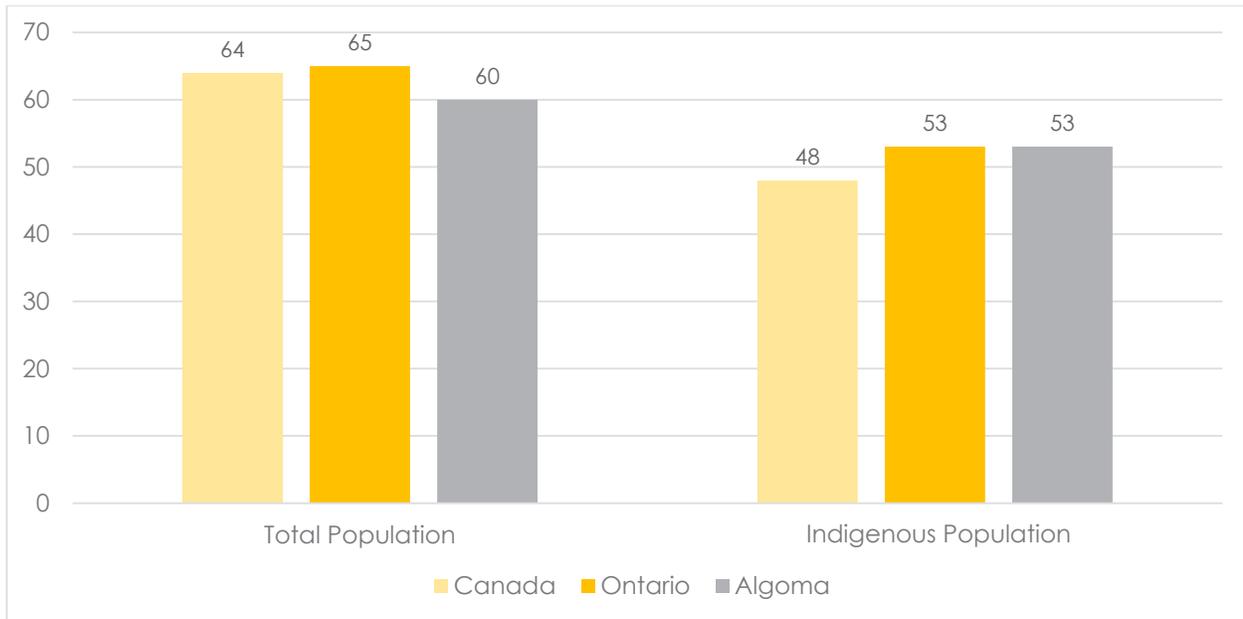
Figure 15. Percentage of Jobs Requiring Post-Secondary Education, Canada, 2006–2031



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

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

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



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

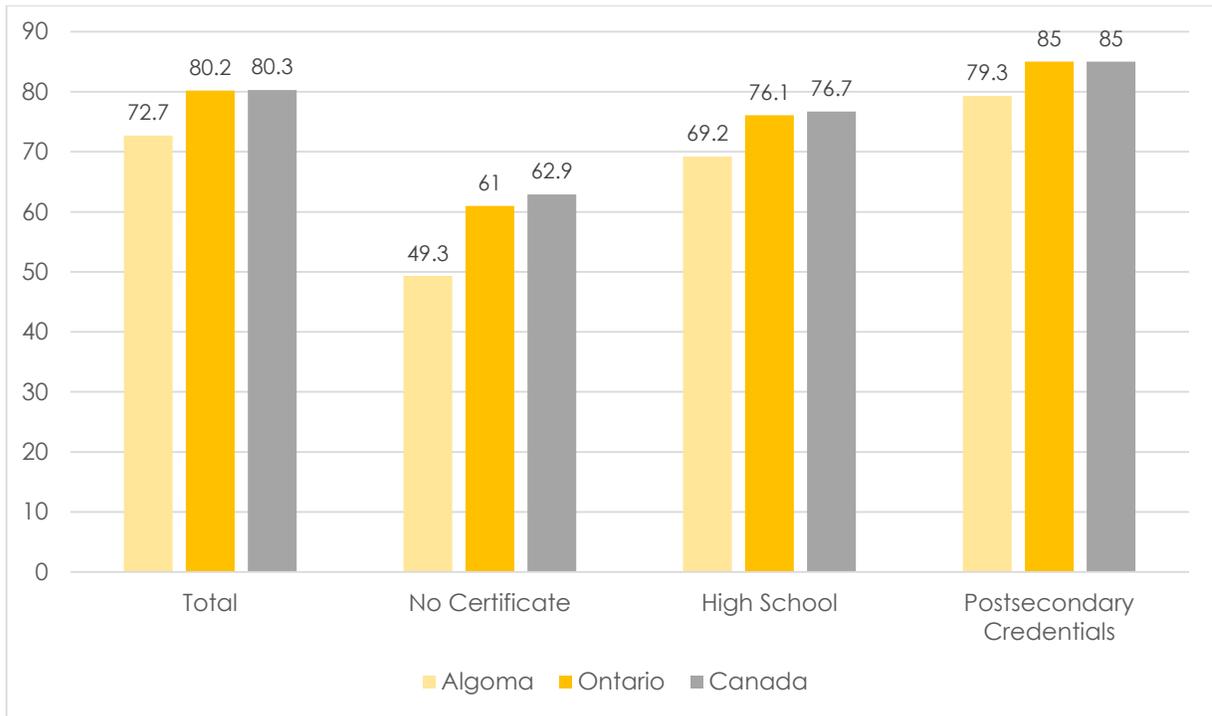
Since the Indigenous labour force will account for a significant and growing share of the district's future workforce, it is vital for the social and economic viability of the region to adopt education policies that enable this segment of the labour force to meet the requirements of the future labour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

Does the level of skills affect labour market performance – that is, the likelihood of employment, labour force participation and unemployment rates? Figure 17 shows that a higher skill level increases the likelihood of participation in the workforce. In the Algoma district in 2011, the participation rate of the prime working age population (25-64) without a high school diploma was 49.3 percent compared to 69.2 percent for those with a high school diploma and 79.3 percent for those with postsecondary credentials. Figure 17 also shows that total labour force participation rates in this district 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 17.0 percent compared to 8.2 percent for those with a high school diploma and 6.5 percent for those with a postsecondary credentials. Overall, the total unemployment rate in 2011 in this district of 7.8 percent was higher than in Ontario and Canada.

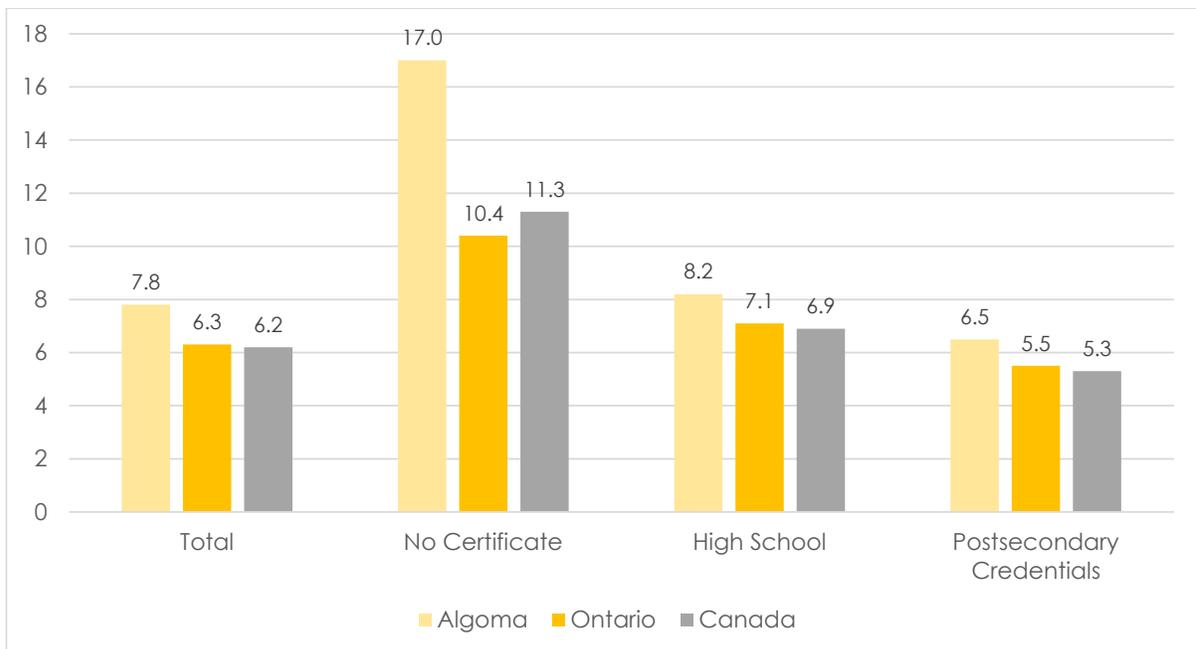
The employment rate – defined as the percentage of the prime working age population who are employed – was 40.9 percent for those without a high school diploma, which increases to 63.5 percent for those with a high school diploma and 74.1 percent for those with a postsecondary credential (Figure 19). Again, the employment rates lag behind the provincial and national averages.

Figure 17: Labour Force Participation Rate by Level of Educational Attainment (%), Canada, Ontario and Algoma District, 2011



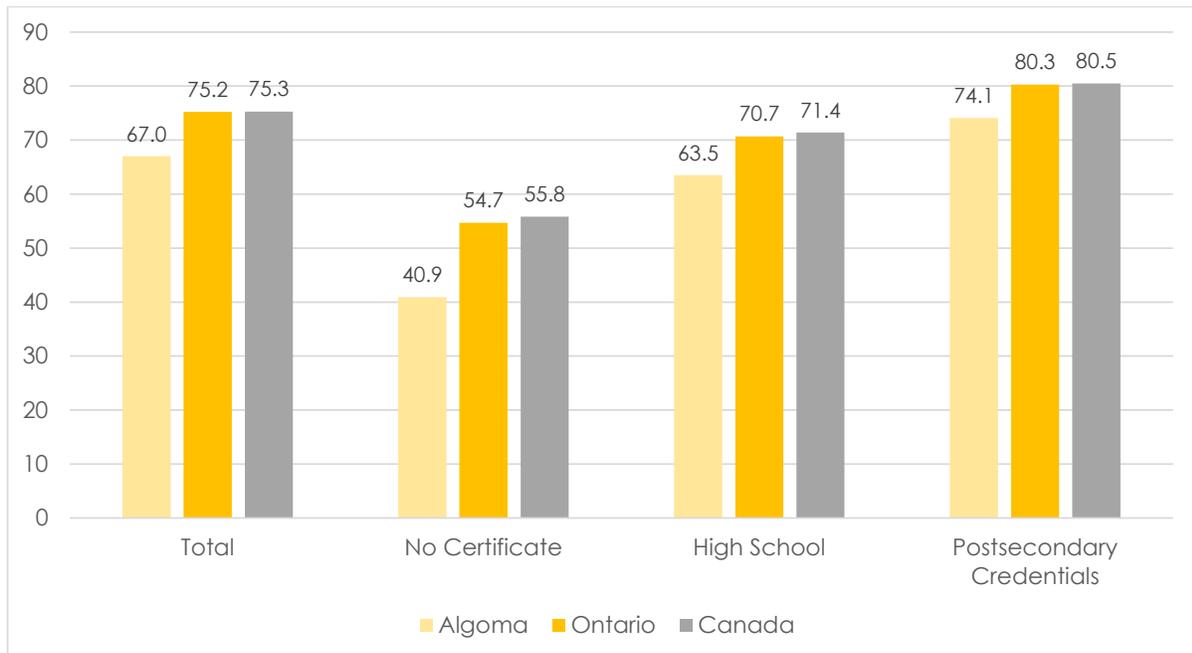
Source: Author's calculations based on Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Figure 18: Likelihood of Unemployment by Highest Level of Schooling (%), Canada, Ontario and Algoma District, 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 (%), Canada, Ontario and Algoma District, 2011



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

Recently, 50 companies in advanced manufacturing, manufacturing, mining and professional and scientific services were surveyed in Northern Ontario.¹² Of these, 22 had operations in Northern Ontario and other jurisdictions (multi-locational) and 28 were multinationals operating in Northern Ontario. Fifteen had their headquarters in Northern Ontario, 11 were located in Northwestern Ontario and 39 were located in Northeastern Ontario.

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 skill level of the workforce is below the estimated requirement needed for emerging occupations, the district 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 Jobs, Jobs without People." Even if markets adjust to bring labour demand and supply into balance, the social impact of having many unemployable people in the area will be enormous.

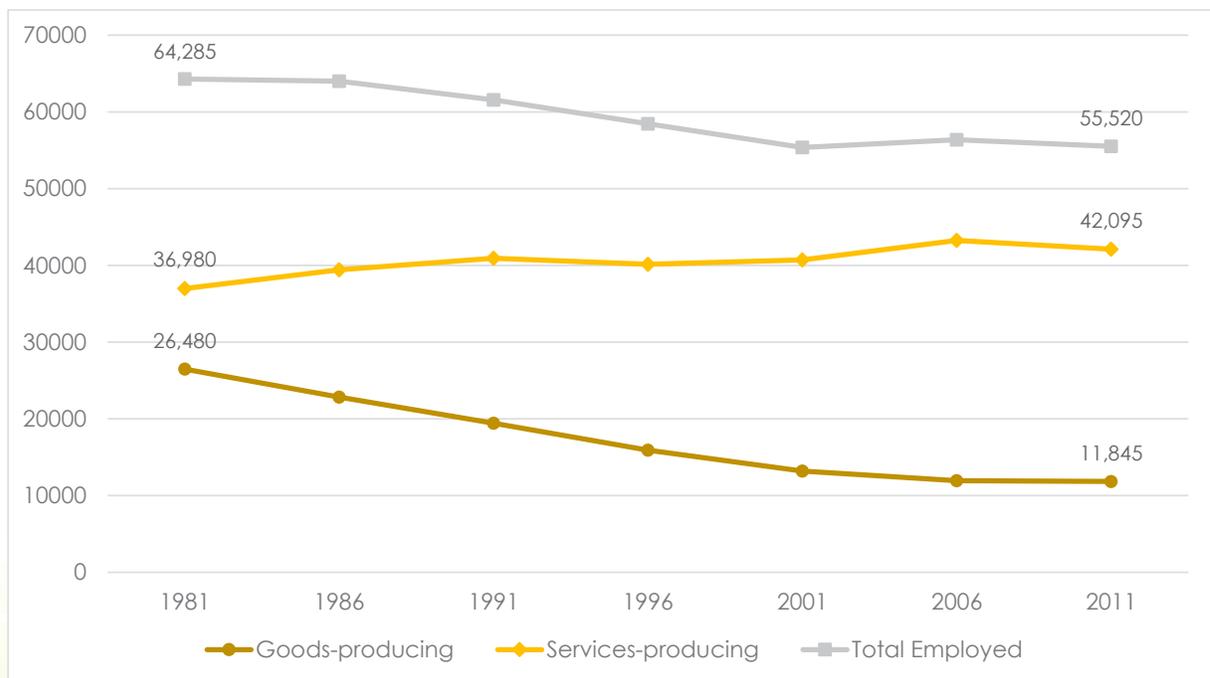
The above evidence suggests that one potential solution to the district's declining workforce size and productivity is to promote higher education through increased access to services, especially for the Indigenous population who experience lower levels of educational achievement. One of the benefits of investing in education is a lower likelihood of unemployment and dependency on government transfer payments. Additionally, regardless of what occurs with agreements such as the Trans-Pacific Partnership, labour will continue to be more mobile among various countries, increasing the importance of achieving higher levels of education. In this case, workers in Northern Ontario will not only be competing with other workers in Ontario and Canada, but will be facing competition from other countries as well. To the extent that the skill level of the workforce in the district is below the estimated skill requirement needed for the emerging occupations, the district will face workers whose qualifications do not match the existing jobs and jobs that cannot find qualified workers.

12 B. Moazzami, HDR Decision Economics Inc. and Oraclepoll Research Limited, "Multinational and Multi-locational Enterprise Initiative, Survey of Northern Ontario Companies", 2012.

The Consequences of Shifting the Composition of the Employed Labour Force in Algoma District

The structure of this district'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 the Algoma district.

Figure 20: Employment in the Goods- and Services-Producing Industries, Algoma District, 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 14,600 jobs in the sector since the early-1980s. From 2001 to 2011, total employment in manufacturing declined by 26 percent, while agriculture, forestry, fishing and hunting declined by 52 percent. On the other hand, mining, quarrying, and oil and gas extraction increased by 69 percent during this period, and employment in the utilities and construction increased by 39 and 35 percent, respectively. 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 1.87¹³,

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 roughly 19 percent since the early-1980s. Since 2001, service-producing industries that experienced notable growth included public administration (33 percent), health care and social assistance (22 percent), and administrative and support services (28 percent). On the other hand, industries that experienced a decline during this period included management of companies and enterprises (63 percent), information and cultural industries (23 percent), and accommodation and food services (22 percent). The growth of health care and public administration, 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.

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

	2001	2006	2011	Employment change from 2001 to 2011	
	(number)			(number)	(percent)
Total	55,365	56,380	55,520	155	0.28
Industry - not applicable	1,450	1,170	1,570	120	8.28
All industries	53,915	55,210	53,955	40	0.07
Goods-producing sector	13,210	11,940	11,845	-1,365	-10.33
Agriculture, forestry, fishing and hunting	1,575	1,345	755	-820	-52.06
Mining, quarrying, and oil and gas extraction	485	445	820	335	69.07
Utilities	385	360	535	150	38.96
Construction	2,925	3,045	3,935	1,010	34.53
Manufacturing	7,840	6,745	5,800	-2,040	-26.02
Services-producing sector	40,710	43,250	42,095	1,385	3.40
Wholesale trade	980	915	1,015	35	3.57
Retail trade	6,890	6,850	6,705	-185	-2.69
Transportation and warehousing	2,570	2,695	2,115	-455	-17.70
Information and cultural industries	755	790	585	-170	-22.52
Finance and insurance	1,280	1,085	1,285	5	0.39
Real estate and rental and leasing	770	825	745	-25	-3.25
Professional, scientific and technical services	1,795	1,765	1,875	80	4.46
Management of companies and enterprises	40	35	15	-25	-62.50
Administrative and support, waste management and remediation services	2,175	3,675	2,790	615	28.28
Educational services	4,005	4,275	4,335	330	8.24
Health care and social assistance	6,260	6,900	7,620	1,360	21.73
Arts, entertainment and recreation	1,480	1,705	1,625	145	9.80
Accommodation and food services	5,075	4,550	3,950	-1,125	-22.17
Other services (except public administration)	3,005	3,205	2,605	-400	-13.31
Public administration	3,630	3,980	4,830	1,200	33.06

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

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 (55 percent), health occupations (22 percent), and natural and applied sciences (13 percent). On the other hand, occupations that experienced declines included natural resources, agriculture and related production occupations (33 percent), occupations in manufacturing and utilities (28 percent), and sales and service occupations (11 percent).

Table 6: Employed Workforce by Occupation, Algoma District, 1996–2011

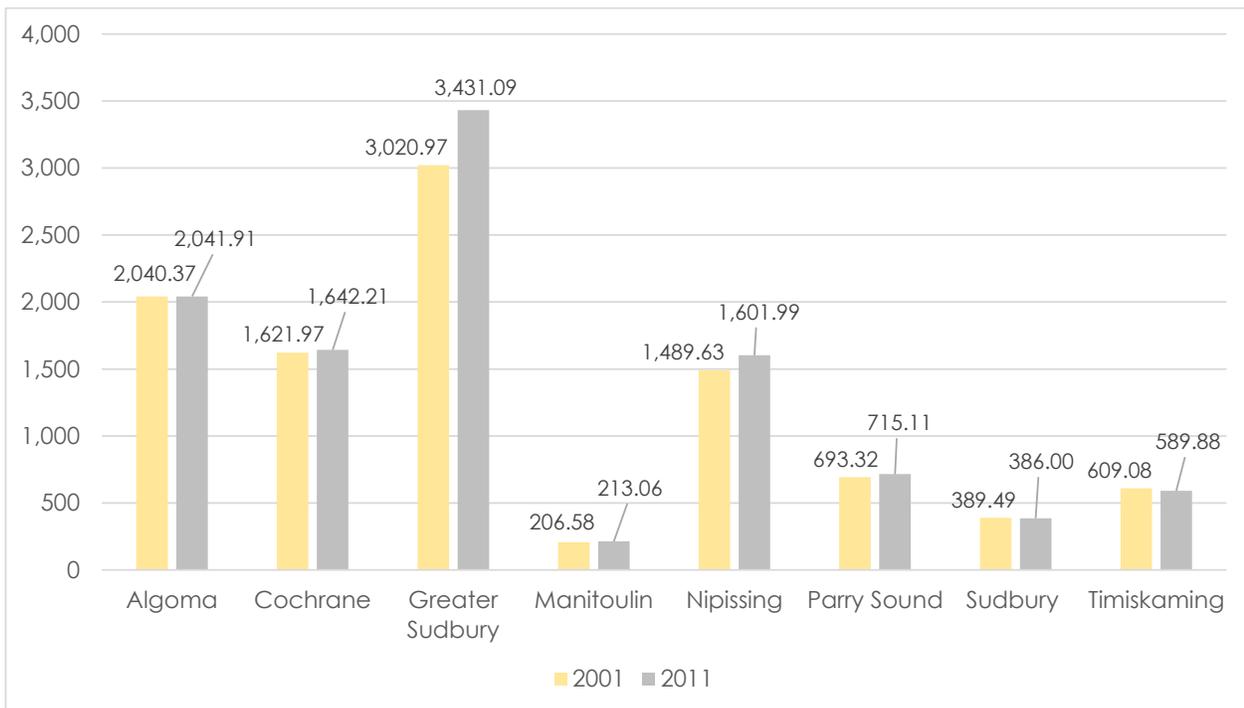
	1996	2001	2006	2011	Employment change from 2001 to 2011	
	(number)				(number)	(percent)
Total	58,440	55,360	56,380	55,520	160	0.29
Occupation - not applicable	2,395	1,450	1,170	1,570	120	8.28
All occupations	56,045	53,915	55,210	53,950	35	0.06
Management occupations	3,930	4,385	4,435	4,540	155	3.53
Business, finance and administration occupations	8,430	7,680	8,225	7,785	105	1.37
Natural and applied sciences and related occupations	2,460	2,620	3,340	2,965	345	13.17
Health occupations	2,900	3,370	3,755	4,055	685	20.33
Occupations in education, law and social, community and government services	4,275	4,545	4,885	7,060	2,515	55.34
Occupations in art, culture, recreation and sport	1,180	900	1,110	955	55	6.11
Sales and service occupations	16,555	15,555	15,635	13,790	-1,765	-11.35
Trades, transport and equipment operators and related occupations	9,955	9,515	9,515	9,070	-445	-4.68
Natural resources, agriculture and related production occupations	2,105	1,900	1,770	1,265	-635	-33.42
Occupations in manufacturing and utilities	4,250	3,440	2,545	2,465	-975	-28.34

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

Labour Income and Gross Domestic Product in Algoma District

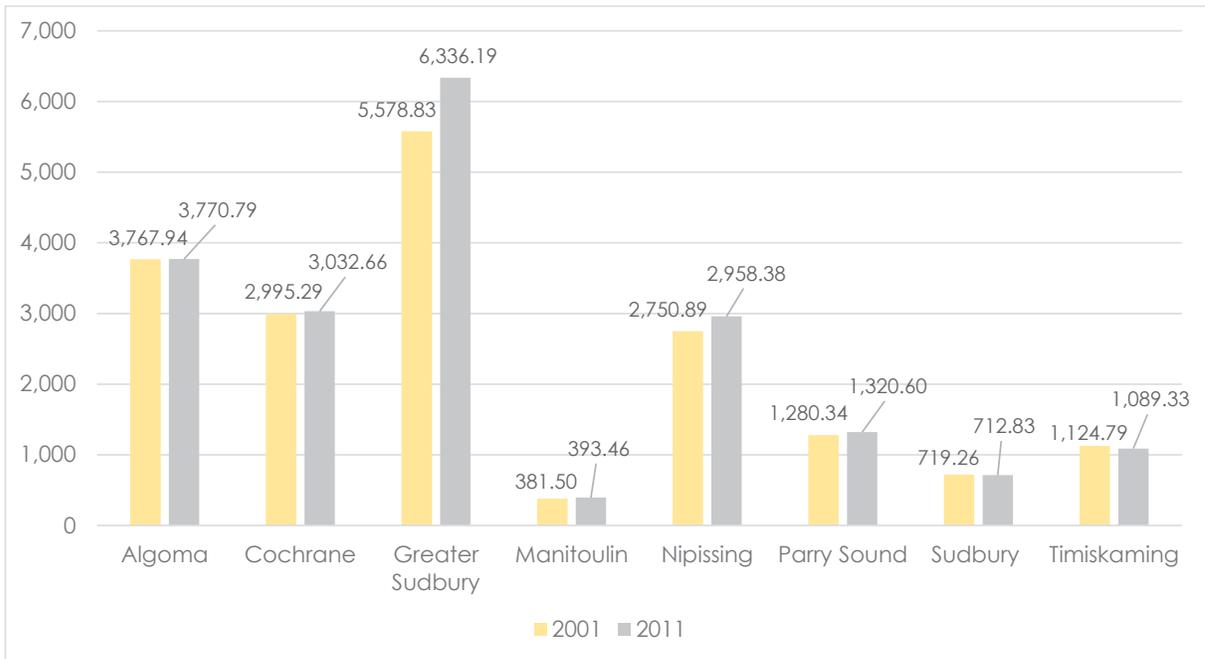
The changing size and composition of the district's employed workforce has also impacted total labour income and output. Using detailed employment by occupation and industry data along with average employment earnings by industry and occupation, this study estimated trends in total labour income in 2010 dollars in the district, 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 the Algoma district increased only marginally from \$2.040 billion to \$2.041 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 from 2001 to 2011, it is evident that the Algoma district also experienced negligible growth in GDP during this period, as shown in Figure 22.

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. Implement a well-rounded migration strategy

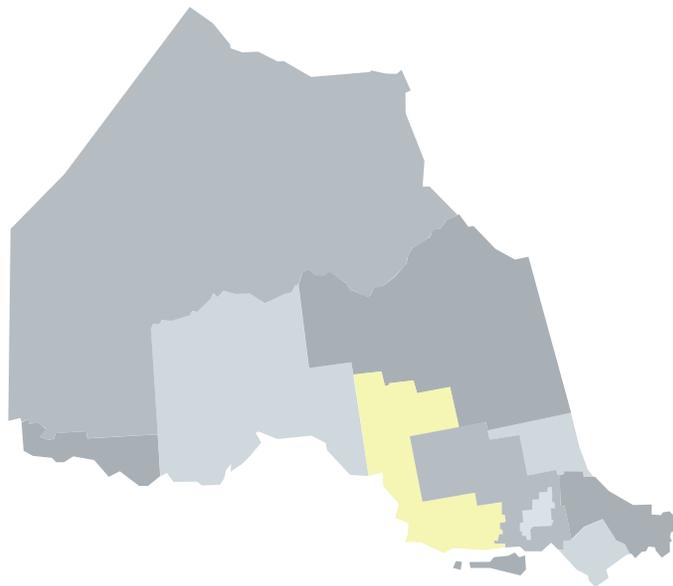
Algoma District should confront its demographic challenges by implementing a well-rounded migration strategy. Similar to other regions in Northern Ontario, a declining and aging population is one of the most fundamental challenges moving forward. These trends are a result in part to out-migration among younger cohorts, and low and declining levels of immigration. In fact, total net domestic out-migration from 2014 to 2015 equaled nearly 480 individuals who moved out of the region, while in 2015, the district attracted only 76 immigrants, which is equivalent to roughly 10 times less immigrants per capita across Ontario. It is imperative that the region seeks to enhance its population levels by implementing strong immigration strategies, in combination with strategies to attract domestic in-migrants.

2. Respond to the needs of the Indigenous population

The human capital indexes for the Indigenous labour force in this district, while below the rest of the population, are higher than in Canada. Given that the Indigenous share of the population is increasing, and given that their human capital composition is lower than total working-age population in the Algoma District as a whole, future labour productivity will decrease if education levels do not rise among this segment of the population. There is strong evidence showing that higher skill levels increase the likelihood of participation in the workforce and reduce unemployment rates in the district and addressing these issues for the Indigenous population will have positive benefits for the entire region.

3. Continue to build on the regional growth in workforce participation of women

The shift in the economy from manufacturing and resource related jobs to service and knowledge based jobs has had a positive impact for the female population in the Algoma district. With a declining population and the need for greater participation and higher levels of education, this trend should be sustained and expanded upon where possible. Ongoing efforts to knock down traditional barriers to education for this group should continue. These interventions have usually included: family supports, child care, transportation and housing investments, as well as high quality primary and secondary education.



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, and Sault Ste. Marie. 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 - Greater Sudbury

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