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## Northern Projections Human Capital Series - COCHRANE 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).



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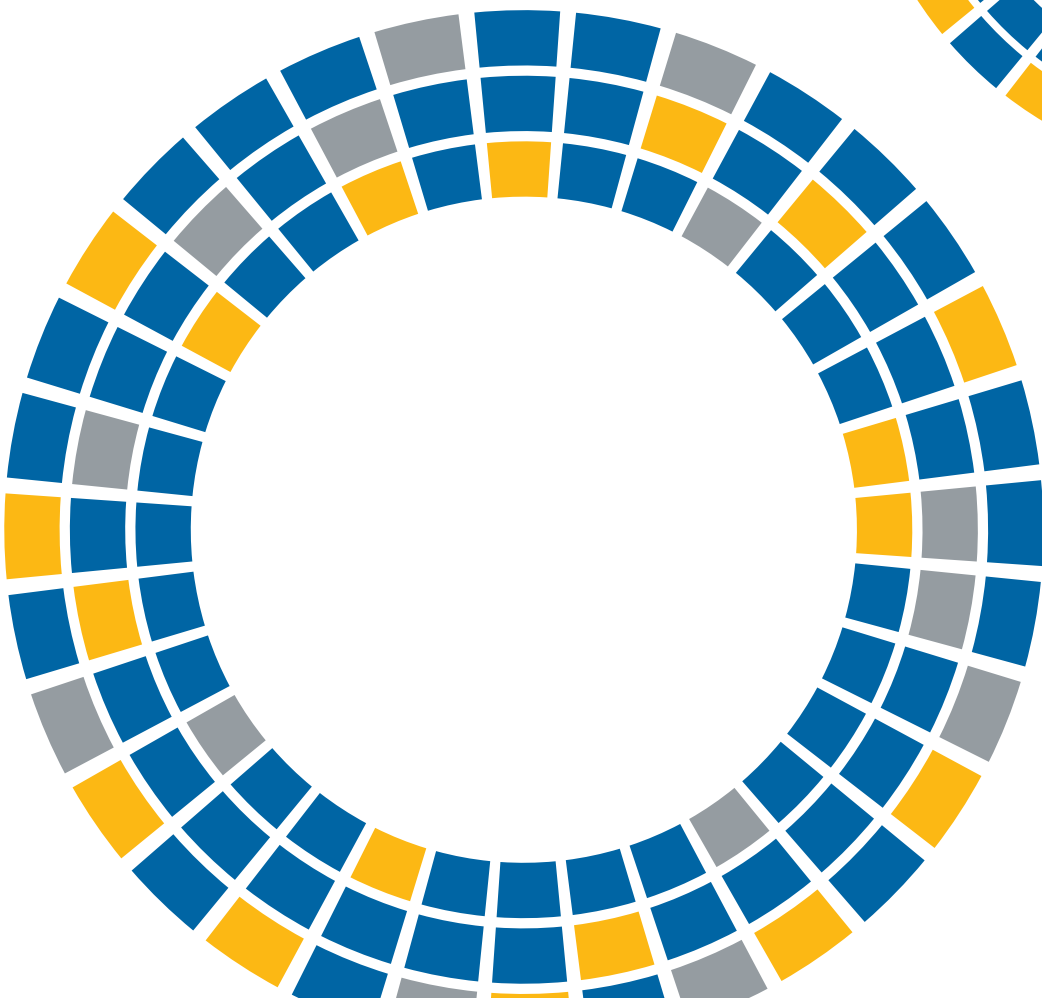
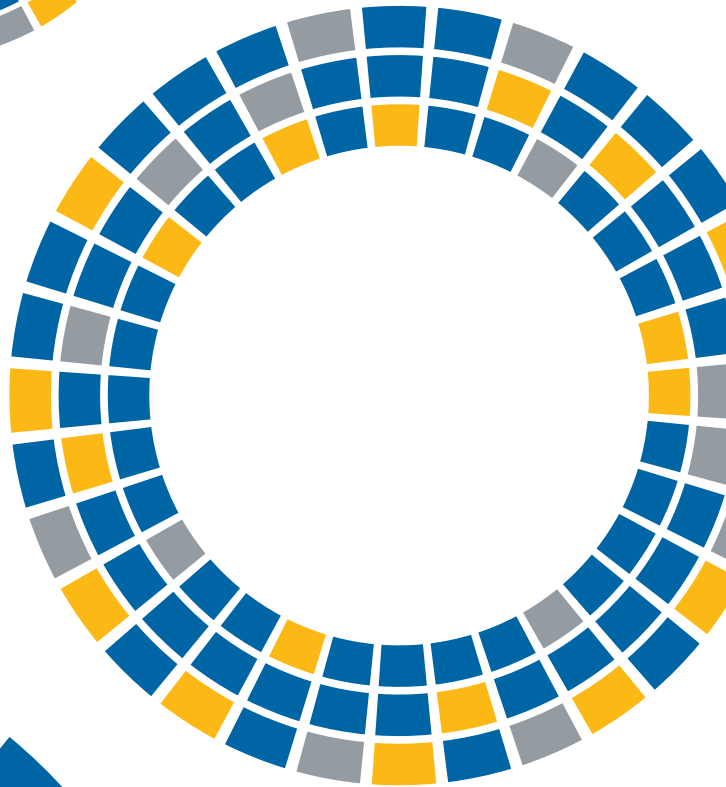
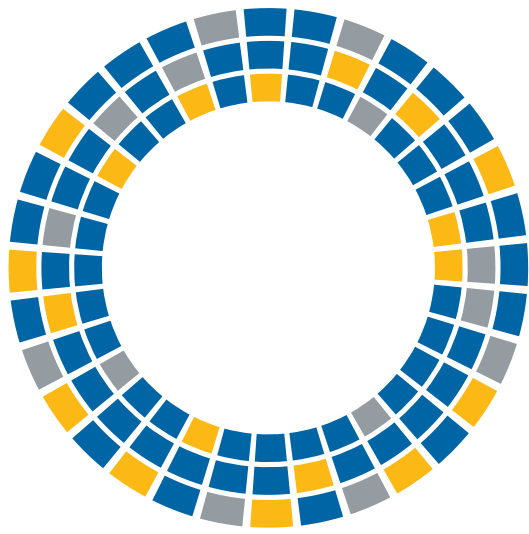


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The Northern Ontario Workforce Planning Boards and *Employment Ontario* project are funded by the Ontario government.

*The views expressed in this document do not necessarily reflect those of Employment Ontario.*



# Who We Are

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

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**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.

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

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## About the Authors

### James Cuddy



James Cuddy is Northern Policy Institute's in-house Economist. 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. As a skilled leader with a strong communications background, he helps to expand and implement the Institute's 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.

## Executive Summary

The objective of this report is to analyze, explain and forecast economic behaviour and trends in Cochrane district. The authors find that there are several trends unfolding that will have an adverse impact on Cochrane's competitive position and the standard of living of residents if it is not addressed immediately. At the same time, there are some signs of growth in the region that should continue to be supported. The authors recommend that Cochrane district should: 1) implement a well-rounded migration strategy, 2) enhance Aboriginal labour market participation, and 3) leverage industrial clusters to identify new opportunities.

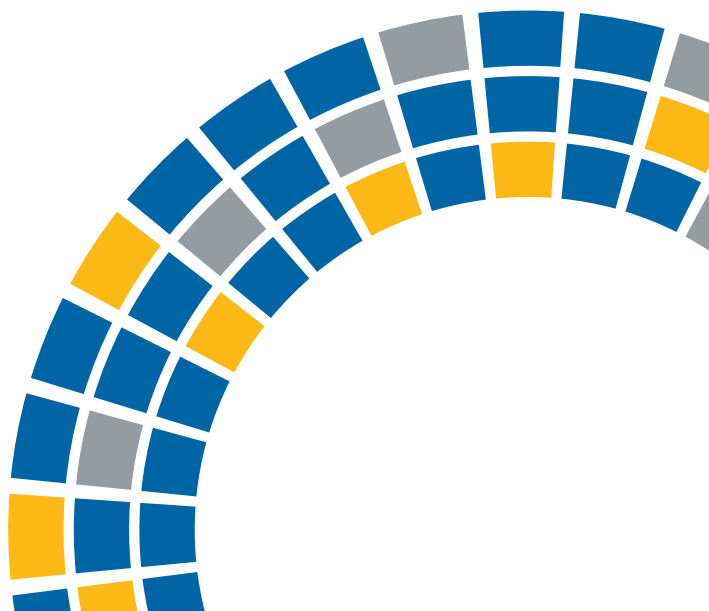
The human capital composition – defined as the region's earnings potential given the level of skills and education – of the working-age population in Cochrane district is lower than regional, provincial and national levels, and is projected to continue declining if educational attainment remains at current levels. This familiar outlook across Northern Ontario is being driven by a declining and aging population, as well as from low levels of educational attainment, particularly among the Aboriginal population, which represents a growing segment of the population. In addition, these trends are being exacerbated by recent technological changes and the emergence of the knowledge economy, which continues to increase the number of jobs that require post-secondary credentials. Given these structural challenges, the authors offer three recommendations that can set the region on a new path forward.

First, Cochrane 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 facing the region. These trends are due in part to out-migration among younger cohorts, and low and declining levels of immigration. In fact, total net domestic out-migration from 2002 to 2015 equaled nearly 11,000 individuals who moved out of the region, while in 2015, the district attracted only 33 immigrants, which is equivalent to roughly 16 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.

Second, enhancing participation rates among the Aboriginal labour force, especially among the on-reserve population, will be a key component in strengthening the local economy in Cochrane district. While the total population and labour force is expected to decline in the region, the Aboriginal population and labour force is expected to increase by 34 percent and 26 percent, respectively. At the same time, the Aboriginal population, especially on reserves, is notably more discouraged to participate in the labour market.

Since this segment of the population is expected to represent 20 percent of the labour force in 2041, an increase from 12 percent in 2013, enhancing their participation levels will be a key determinant of productivity and economic growth in the region. This can be achieved by enhancing collaboration between municipalities, Aboriginal communities and industry; increasing education levels and access in rural areas; and connecting the population with important local services and programs that are available.

Third, Cochrane district has many opportunities and signs of growth linked to natural resources in the region. For example, there is a large amount of arable land as well as a number of operational gold mines that remain a key source of employment and economic growth in the region. In fact, from 2001 to 2011, the mining and oil and gas extraction industries grew by nearly 40 percent. The region should continue to build on its natural resource clusters, but at the same time, recognize the importance of economic diversification for smoothing out the cyclical nature of these industries. Since 2001, there is some evidence of growth in private sector industries outside of the primary industries including construction; professional, scientific, and technical services; administrative and support, waste management and remediation services; and arts, entertainment and recreation. While growth in these industries are likely tied in part to the primary industries, the region should seek to determine whether some of these growth areas could be developed into long-term and self-sufficient industries.





## Introduction

The objective of this report is to examine past and present trends and characteristics in Cochrane district's (hereafter also referred to as Cochrane) 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 Cochrane district.

The report begins by examining demographic change in Cochrane 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 Aboriginal populations of Cochrane district 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 Cochrane 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 Cochrane district.

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

## Data Sources

Most of the data used in this report is based on detailed information regarding individual census subdivisions (CSDs) in Cochrane district and Northeastern Ontario obtained through special tabulations from Statistics Canada. Except for the population data, the 2011 data is 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 Aboriginal population, defined by Statistics Canada as persons who reported identifying with at least one Aboriginal 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
- Immigrant population defined as persons who are, or have ever been, landed immigrants in Canada.

## The Geographical Specification of Northern Ontario

Northern Ontario is subdivided into the Northwest and Northeast. 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 includes 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. However, 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<sup>1</sup>.

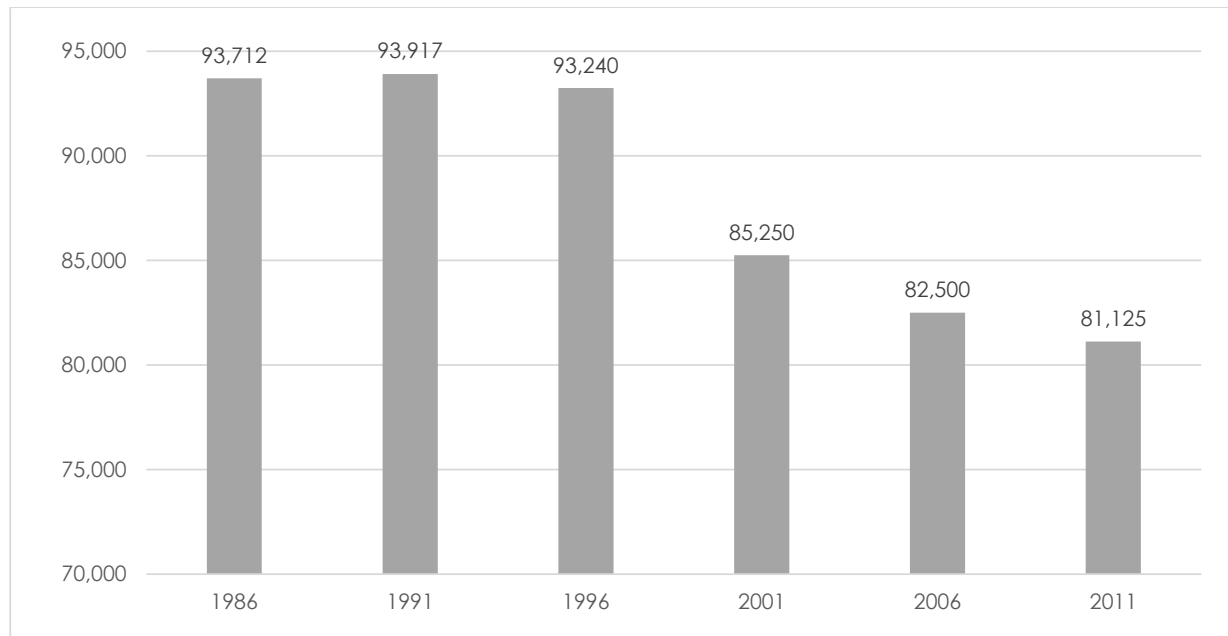
<sup>1</sup> The analysis in this study is based on these jurisdictional and geographic patterns.

## Demographic Change in Cochrane District: The Past Three Decades

Cochrane district covers 141,270 square kilometers and recorded a population of 81,122 in 2011. It has a population density of 0.6 persons per square kilometer, which is well below that of Ontario (14.1). According to Statistics Canada's census of population, Cochrane's population was relatively steady from 1986 to 1996, but declined from 93,240 in 1996 to 81,125 in 2011, which translated into a 13 percent decline over this period (Figure 1).

In terms of net migration flows, Cochrane district experienced significant intraprovincial out-migration throughout 2001-02–2014-15. Intraprovincial out-migration refers to the movement of individuals to another region within the province. Interprovincial migration, known as the movement of individuals from one province to another, was also negative during this period, which therefore increased the total net domestic out-migration to nearly 11,000 in the district from 2001-02 to 2014-15 (Figure 2). The largest portion of individuals who out-migrate are between the ages of 20–24 years old. Also contributing to declining population levels is low and declining population in the Cochrane district (Figure 2). As of 2015, the district attracted 33 immigrants, which is equivalent to roughly 16 times less immigrants per capita compared to Ontario as a whole. In addition to out-migration of youth and low levels of immigration in the region, rising life expectancy and lower fertility rates have resulted in the aging of Cochrane'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 district below the age of 20 has declined from 32 percent in 1991 to 24 percent in 2011 while the share of seniors rose from 9 percent in 1991 to 15 percent in 2011 (Figure 3). During the same period, the share of individuals between the ages of 20 to 34 declined from 25 to 17 percent, while individuals aged 35 to 64 increased from 34 to 44 percent.

Figure 1: Population, Cochrane District, 1986–2011



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

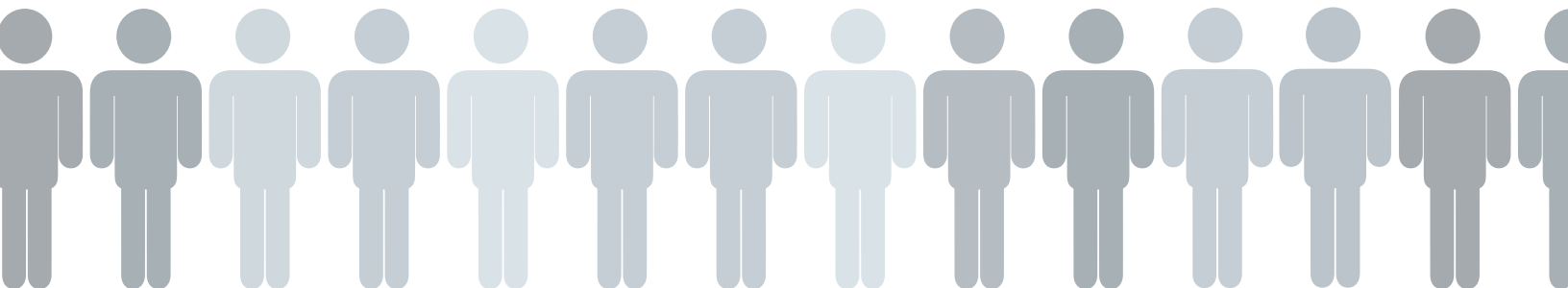
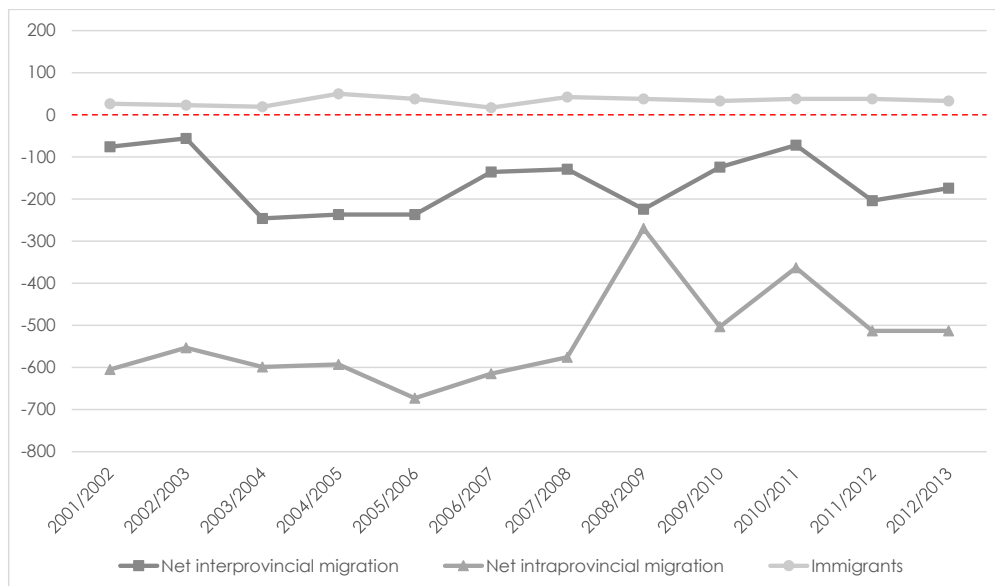


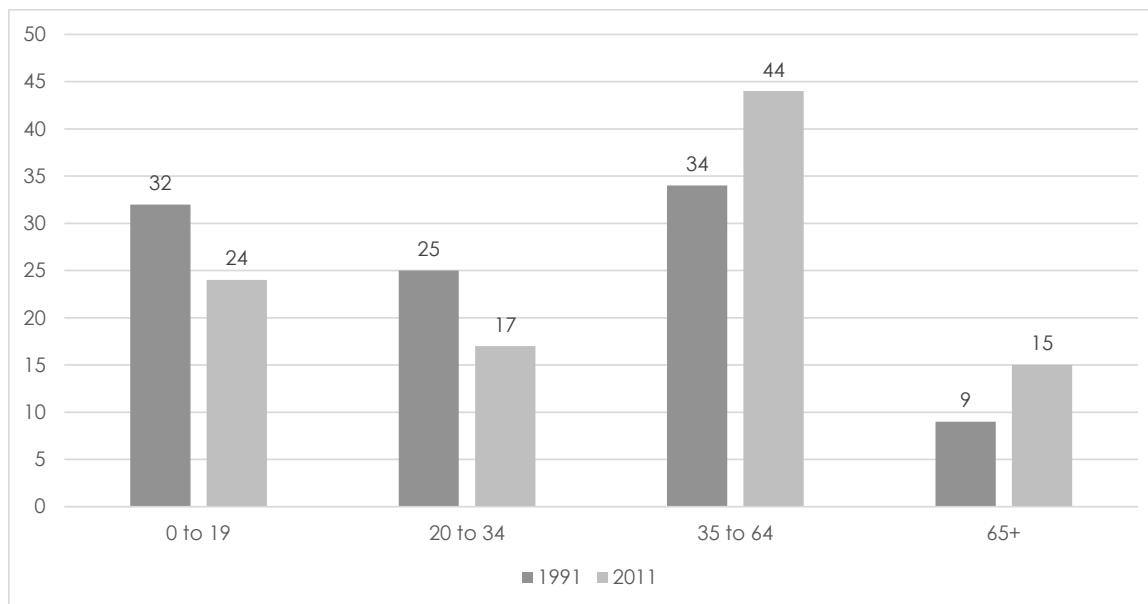


Figure 2. Net Domestic Migration and Immigration, Cochrane District, 2001/2002–2014/2015

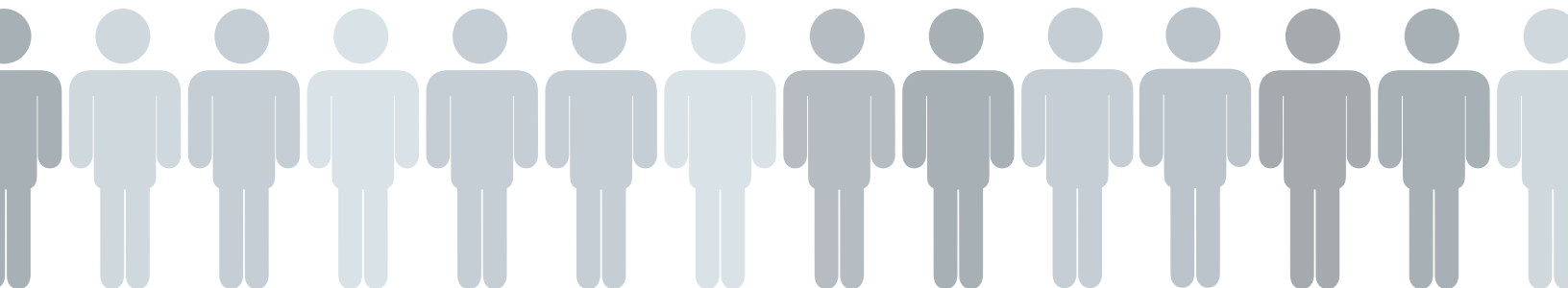


Source: Author's calculations based on Statistics Canada, CANSIM database, table 051-0063.

Figure 3: Age Distribution of Population, Cochrane 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 the 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 Cochrane 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 4 shows that, in Cochrane district, the youth dependency ratio declined from 54 persons per every 100 working- These demographic changes have had a significant impact on the 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 Cochrane 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.

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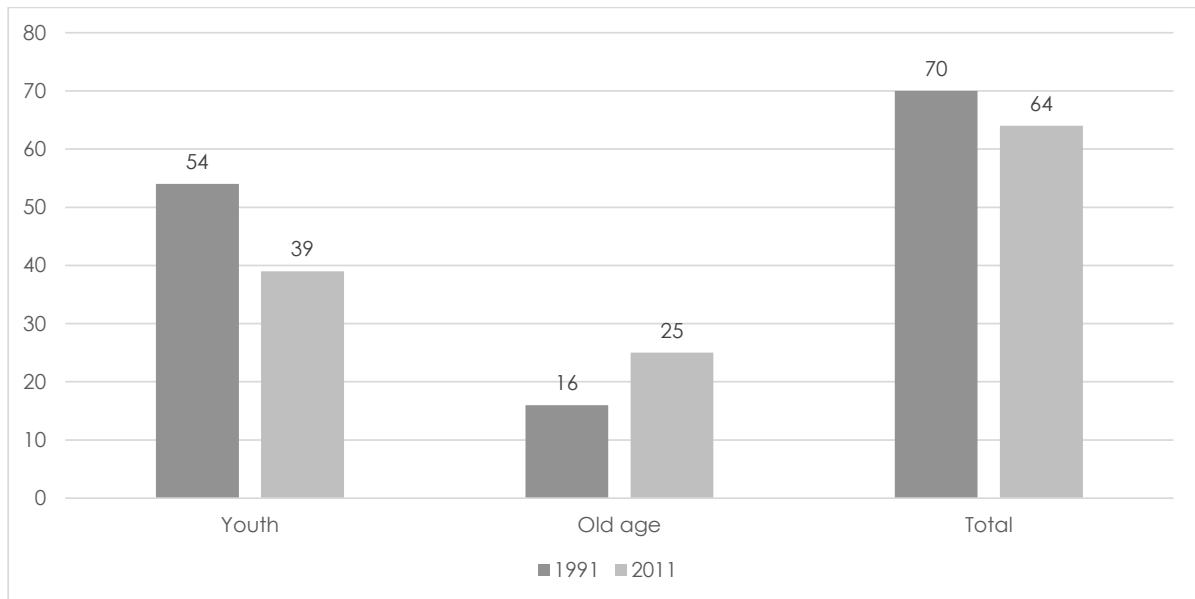
years and younger to the working-age population; and total dependency ratio, defined as the ratio of the total dependent population, which is essentially the number of mouths to feed, to the working-age population. This last ratio is a crude measure of the burden or cost associated with demographic change 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 4 shows that, in Cochrane district, the youth dependency ratio declined from 54 persons per every 100 working- age persons in 1991 to 39 in 2011 due to the fact that the number of youth declined much faster than the number of working age persons during this period. 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 16 to every 100 working age individuals in 1991 to 25 in 2011 due to an increasing number of seniors relative to the working age population. In other words, there were 6.3 working persons in 1991 per each senior, but only 4 working persons per senior in 2011. The ratio of seniors to working age population in Cochrane (25) is slightly 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 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.

Overall, the total dependency rate – the number of youths and seniors relative to those of working age – declined from 70 in 1991 to 64 in 2011, suggesting the district increased its capacity to support its non-working population over the period, although this rate was still 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 Cochrane district and those of the province as a whole could be a goal the region might strive to achieve in the long term.

Figure 4: Ratio of the Working-Age Population to Other Age Groups, Cochrane District, 1991–2011



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

## Demographic Change in Cochrane District: The Next Three Decades

This part of the study provides population projections for Cochrane district, both for the total population and for the Aboriginal 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 2,178 greater than those reported by the 2011 census, having been adjusted for net undercoverage by the census, especially of the region's Aboriginal population in Cochrane district and Northeastern Ontario.

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.

Third, 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<sup>2</sup>.

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

## Population Projections

Cochrane district's total population is expected to decline from 82,289 in 2013 to 73,065 in 2041 (Table 1). The continuing aging of Cochrane's population is also evident from the Ministry of Finance's projections (Table 2), with the share of individuals under age 20 expected to decline from 23 percent in 2013 to 21 percent in 2041. The share of working-age people (ages 20 to 64) is projected to decline from 61 percent in 2013 to 49 percent in 2041<sup>3</sup>, and the share of seniors is expected to rise from 16 percent in 2013 to 30 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 district.

Table 1: Population Projections by Age Group, Cochrane District, 2013–2041

<b>Cochrane</b>	<b>0 to 19</b>	<b>20 to 44</b>	<b>45 to 64</b>	<b>65+</b>	<b>Total</b>
2013	18,898	24,877	25,530	12,984	82,289
2020	17,600	22,795	23,209	16,130	79,734
2030	16,673	20,614	18,138	21,209	76,634
2041	15,385	18,946	17,069	21,665	73,065

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

Table 2: Population Projections by Age Distribution, Cochrane District, 2013–2041

<b>Cochrane</b>	<b>0 to 19</b>	<b>20 to 64</b>	<b>65+</b>
2013	22.97	61.26	15.78
2020	22.07	57.70	20.23
2030	21.76	50.57	27.68
2041	21.06	49.29	29.65

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

## Aboriginal Population Projections

In making projections for the Aboriginal population in Cochrane out to 2041, this study employs Northern Ontario's Demographic Forecasting Model, which is based on the Cohort Component method<sup>4</sup>. The base year data for the projection is from Statistics Canada's National Household Survey for 2011. In projecting the future Aboriginal population, this study does not adjust for the undercoverage of Aboriginal people in the region — as mentioned above, there were 2,178 omitted persons in Cochrane district alone — so the projections should be considered conservative. This study also assumes zero net migration of Aboriginal people over the forecast period, since the existing evidence suggests there is relatively low mobility among the Aboriginal population in the region. The fertility rate for the Aboriginal 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.

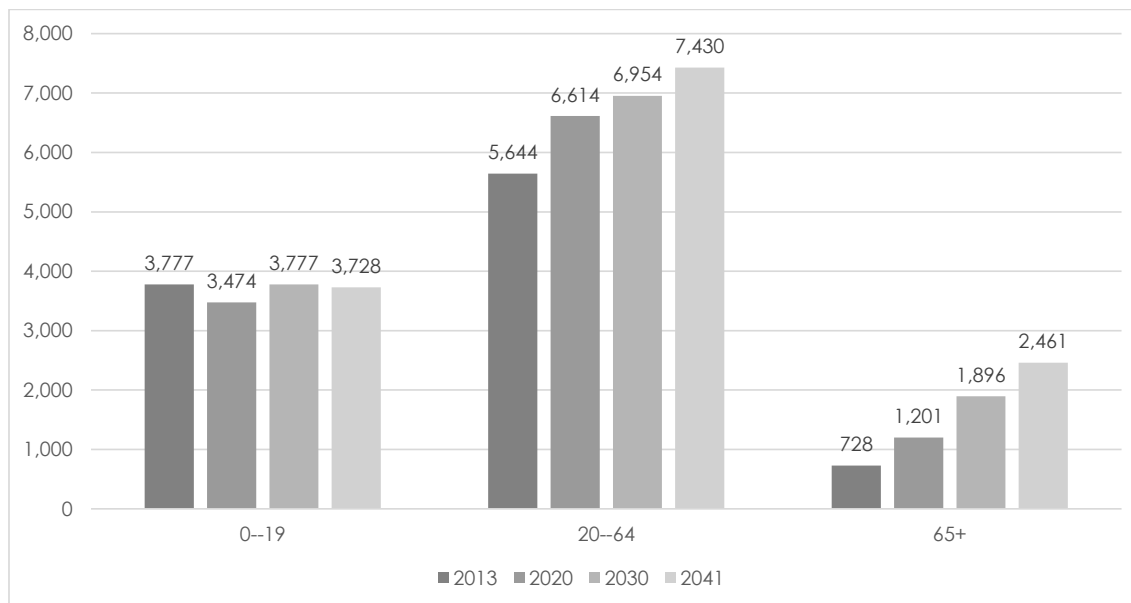
Based on these assumptions, Figure 5 shows that the Aboriginal population in Cochrane is expected to increase from 10,149 in 2013 to 13,619 in 2041, a growth rate of about 34.2 percent. The number of individuals under age 20 are expected to stay relatively constant during this period, while working-age Aboriginals are expected to rise from 5,644 in 2013 to 7,430 in 2041, an increase of about 32.0 percent. The number of individuals aged 65 and over are expected to rise from 728 in 2013 to 2,461 in 2041.

The Aboriginal population's share of total district's population is expected to increase from 12.3 percent in 2013 to 18.6 percent in 2041 (Figure 6). The share of prime-working-age (those ages 20 to 44) is expected to increase from 13.5 percent in 2013 to 24.0 percent in 2041. Similarly, the share of working-age Aboriginals (those ages 20 to 64) is expected to increase from 11.2 percent in 2013 to 20.6 percent in 2041. The share of Aboriginal seniors is expected to rise from 5.6 percent in 2013 to 11.4 percent in 2041.

<sup>3</sup> 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.

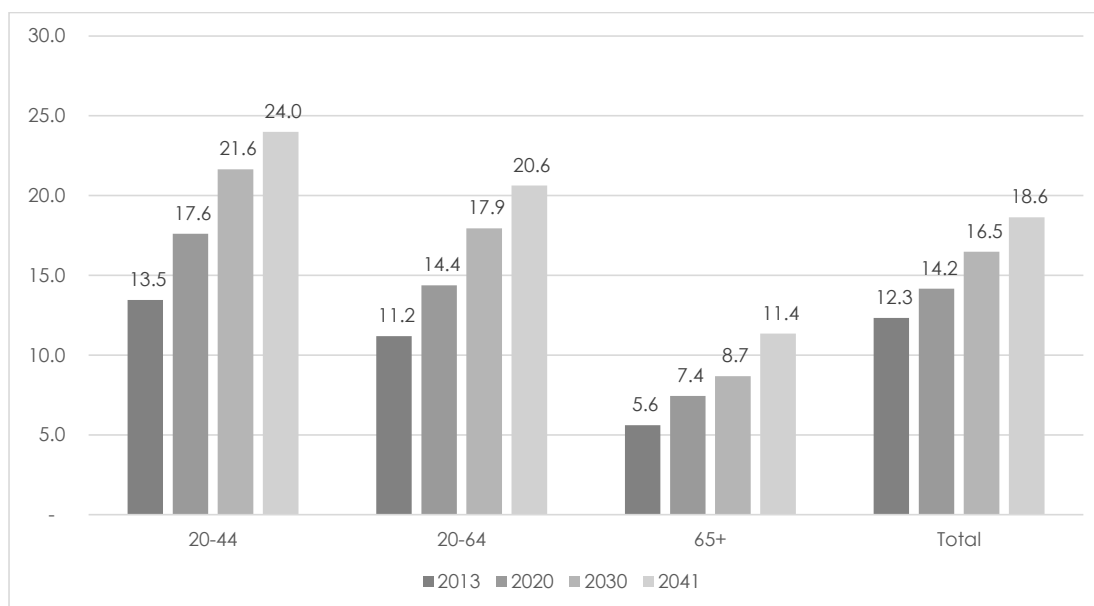
<sup>4</sup> For a complete discussion of this model, see B. Moazzami, "It's What You Know (and Where You Can Go): Human Capital and Agglomeration Effects on Demographic Trends in Northern Ontario" (Thunder Bay, ON: Northern Policy Institute, 2015).

Figure 5: Aboriginal Population Projections by Age Group, Cochrane District, 2013–2041



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

Figure 6: Projections of the Share of the Aboriginal Population, Cochrane District, 2013–2041



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

## Cochrane 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. 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 Aboriginal population represents a growing segment of Cochrane district's total population and its working-age population. A significant gap exists, however, between the level of educational achievement of Aboriginal individuals and that of the general population, resulting in a severe labour market outcome disparity that affects the current and future productive capacity of Cochrane's labour force.

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. Meanwhile, the francophone and immigrant population both declined during this period while the Aboriginal population grew. During the same period, 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."<sup>5</sup> 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 Aboriginal men declined from 70.3 percent in 2001 to 66.6 percent in 2011. On the other hand, the participation rate among Aboriginal women increased from 49.2 percent in 2001 to 55.1 percent in 2011. The unemployment rate among Aboriginal 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 Aboriginal women also declined from 16.5 percent in 2001 to 11.0 percent in 2011. The labour market outcome for Aboriginals 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 terms of Cochrane district, unemployment rates for both men and women were lower than in Northeastern Ontario, while, at the same time, participation rates for men in Cochrane were higher than regional levels and slightly lower for women (Figure 7).

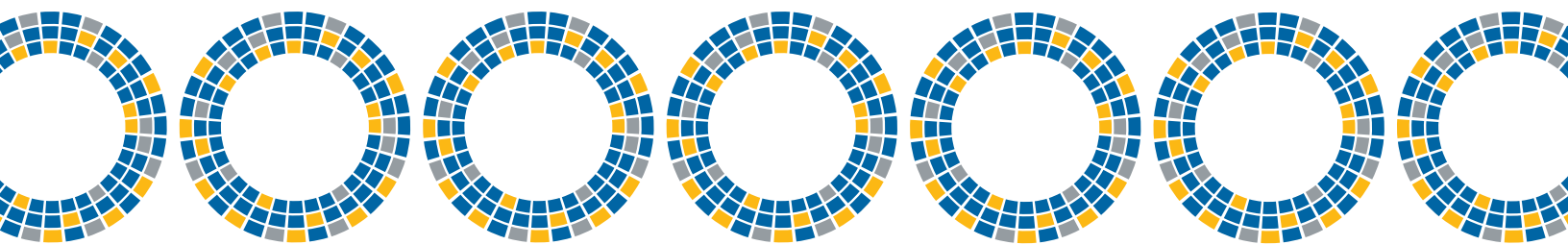


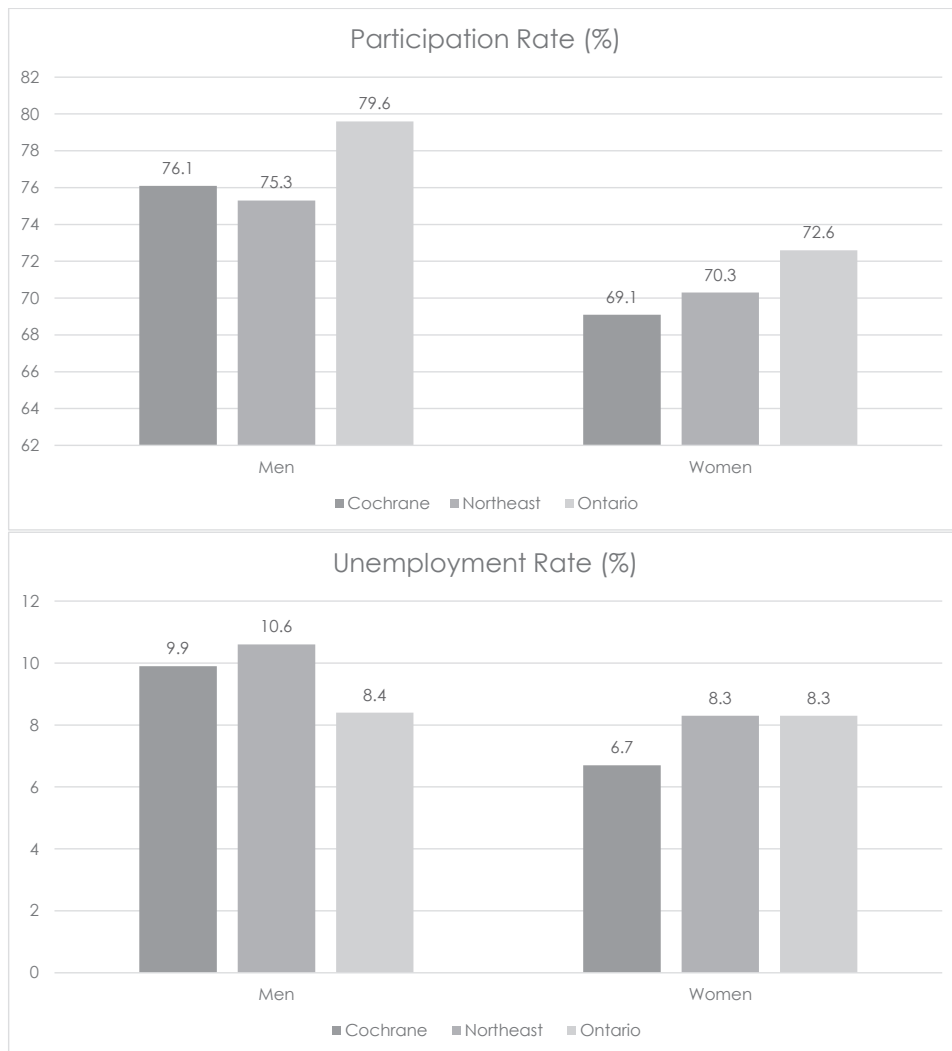
Table 3: Labour Market Trends, Northeastern Ontario, 2001 and 2011

Labour Market Outcome	Men		Women	
	2001	2011	2001	2011
<b>Total Regional Population</b>				
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
<b>Francophones</b>				
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
<b>Immigrants</b>				
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
<b>Aboriginals</b>				
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 7: Labour Force Participation and Unemployment Rates, Cochrane District and Northeastern Ontario, 2011

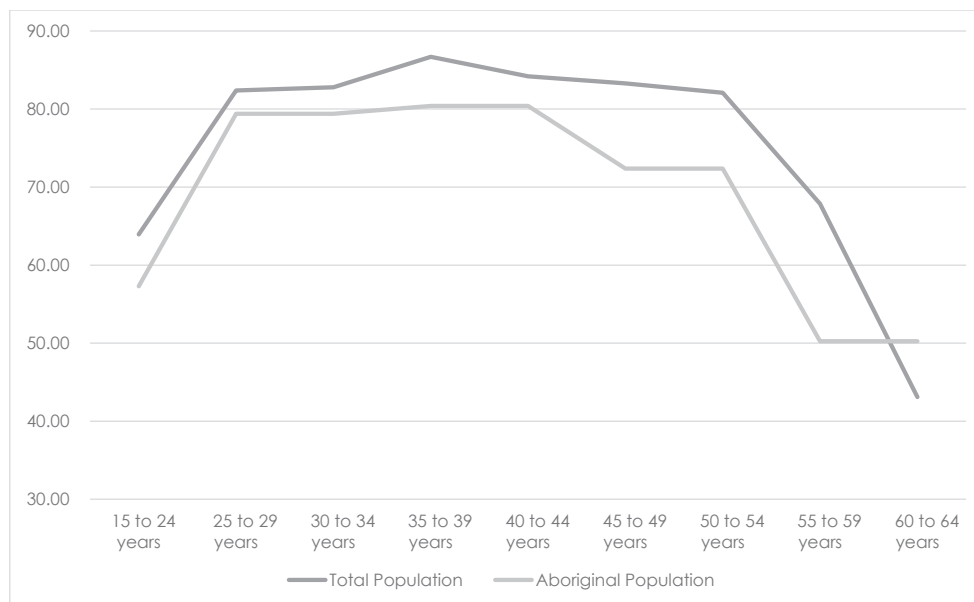


Sources: Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.



In general, Aboriginals tend to participate in the labour force less than that of the total population. As Figure 8 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 Aboriginal workforce and partly related to the fact that their level of educational attainment is below the regional average.

Figure 8: Labour Force Participation Rates (%), Total and Aboriginal Population, by Age Group, Northeastern Ontario, 2011



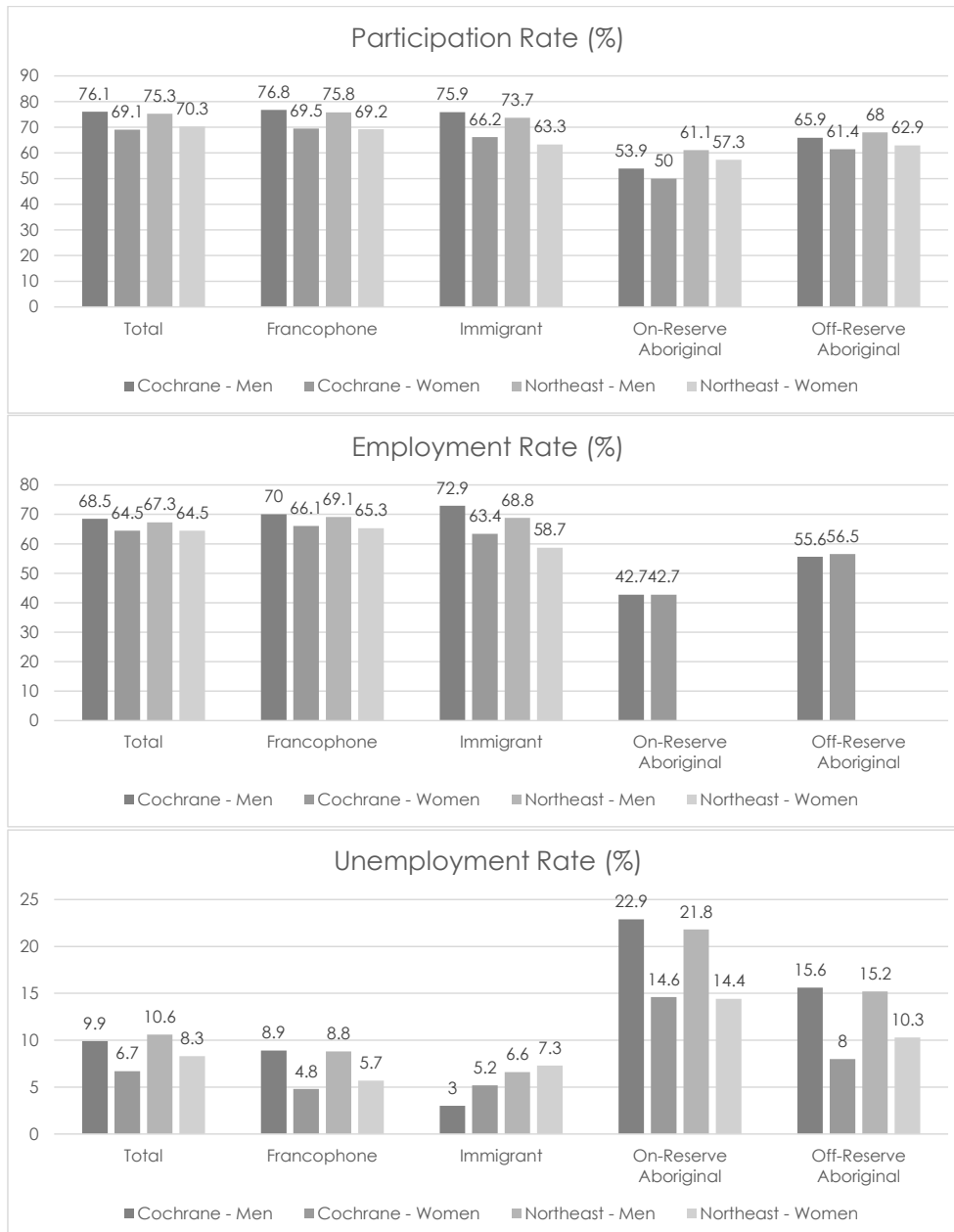
Sources: Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Figure 9 compares labour force characteristics among various demographics of the population in Cochrane district and Northeast Ontario. Note that the indicators for population groups with fewer than 500 individuals are not very reliable. The labour force participation rate among men is 76.1 percent in Cochrane compared to 75.3 percent in Northeastern Ontario and 76.0 percent in Ontario in 2011. The Aboriginal populations living on-reserve have the lowest participation rate, followed by those living off-reserve in both Cochrane district and the Northeast as a whole. The participation rate among women is 69.1 percent in Cochrane compared to 70.3 in Northeastern Ontario and 72.6 in Ontario. The participation rate among Aboriginal women in the district is generally lower than levels across Northeastern Ontario.

The unemployment rate among men in Cochrane was 9.9 percent compared to 10.6 and 8.4 in Northeastern Ontario and Ontario, respectively. The unemployment rate among women in Cochrane is 6.7 percent compared to 8.3 percent in both Northeastern Ontario and the province as a whole. The unemployment rate among on-reserve Aboriginal men and women are the highest in Cochrane at 22.9 percent and 14.6 percent, respectively.

The employment rate which represents the share of the working-age population who were employed was 68.5 percent for men in Cochrane district compared to 67.3 percent in Northeastern Ontario in 2011. Again, the employment rates are generally lower for the Aboriginal population. The employment rate among the working age women is 64.5 percent in both Cochrane and the Northeast as a whole.

Figure 9: Labour Force Participation, Employment and Unemployment Rates (%), Ages 15 to 64 years, Cochrane 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 Cochrane 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 10 provide labour supply projections for Cochrane district and Northeastern Ontario for the period from 2013 to 2041. The district's labour force is expected to decline by about 28 percent over the period, while the Aboriginal labour force is expected to increase by about 26 percent. As a result, the share of Aboriginals in the total regional labour force is expected to increase from 11.7 percent in 2013 to 20.5 percent in 2041.

Table 4: Projected Labour Supply, Total and Aboriginal, Cochrane District and Northeastern Ontario, 2013–2041

Year	Cochrane District			Northeast Ontario		
	Total Labour Force	Aboriginal Labour Force	Aboriginal Share (%)	Total Labour Force	Aboriginal Labour Force	Aboriginal Share (%)
2013	39,589	4,635	11.71	264,860	27,372	10.33
2014	38,976	4,729	12.13	261,674	27,632	10.56
2015	38,354	4,795	12.5	258,626	27,751	10.73
2016	37,762	4,866	12.89	255,558	27,874	10.91
2017	37,101	4,912	13.24	252,470	28,059	11.11
2018	36,473	4,949	13.57	249,289	28,142	11.29
2019	35,862	4,970	13.86	246,155	28,200	11.46
2020	35,240	5,027	14.26	242,891	28,327	11.66
2021	34,692	5,105	14.72	239,896	28,554	11.9
2022	34,114	5,132	15.04	236,948	28,590	12.07
2023	33,554	5,160	15.38	234,070	28,611	12.22
2024	33,021	5,186	15.71	231,333	28,627	12.37
2025	32,518	5,226	16.07	228,687	28,737	12.57
2026	32,065	5,226	16.3	226,057	28,594	12.65
2027	31,625	5,262	16.64	223,711	28,695	12.83
2028	31,237	5,290	16.94	221,550	28,741	12.97
2029	30,865	5,326	17.25	219,616	28,813	13.12
2030	30,535	5,368	17.58	217,788	28,885	13.26
2031	30,266	5,424	17.92	216,402	29,033	13.42
2032	30,033	5,449	18.14	215,433	29,087	13.5
2033	29,821	5,504	18.46	214,669	29,304	13.65
2034	29,635	5,534	18.67	213,998	29,374	13.73
2035	29,433	5,588	18.99	213,288	29,586	13.87
2036	29,242	5,619	19.22	212,569	29,671	13.96
2037	29,065	5,665	19.49	211,992	29,880	14.09
2038	28,911	5,704	19.73	211,538	30,067	14.21
2039	28,779	5,744	19.96	211,198	30,240	14.32
2040	28,635	5,791	20.22	210,792	30,497	14.47
2041	28,500	5,827	20.45	210,397	30,706	14.59

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

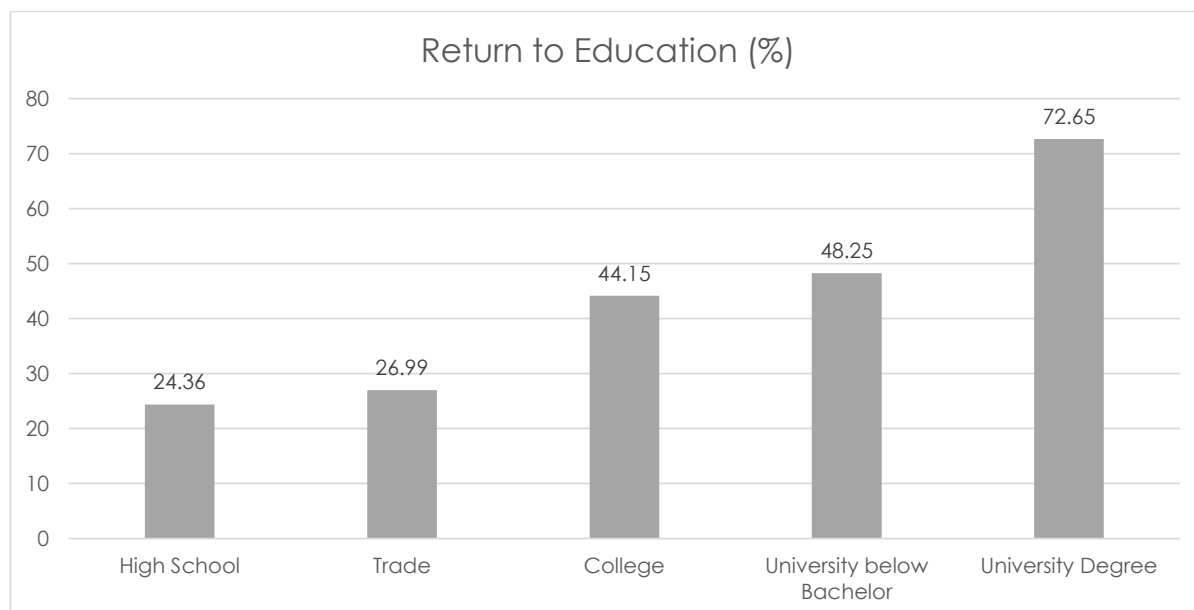
## Productivity and the Human Capital Composition of the Workforce in Cochrane District and Northeastern Ontario

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 Cochrane 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 Cochrane and Northeastern Ontario. To obtain such an index, this study first estimated a standard earnings model using the 2006 census micro-data file<sup>6</sup>. 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 are those with less than a high school diploma.

The estimated return-to-schooling coefficients (Figure 11) 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 11. 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.

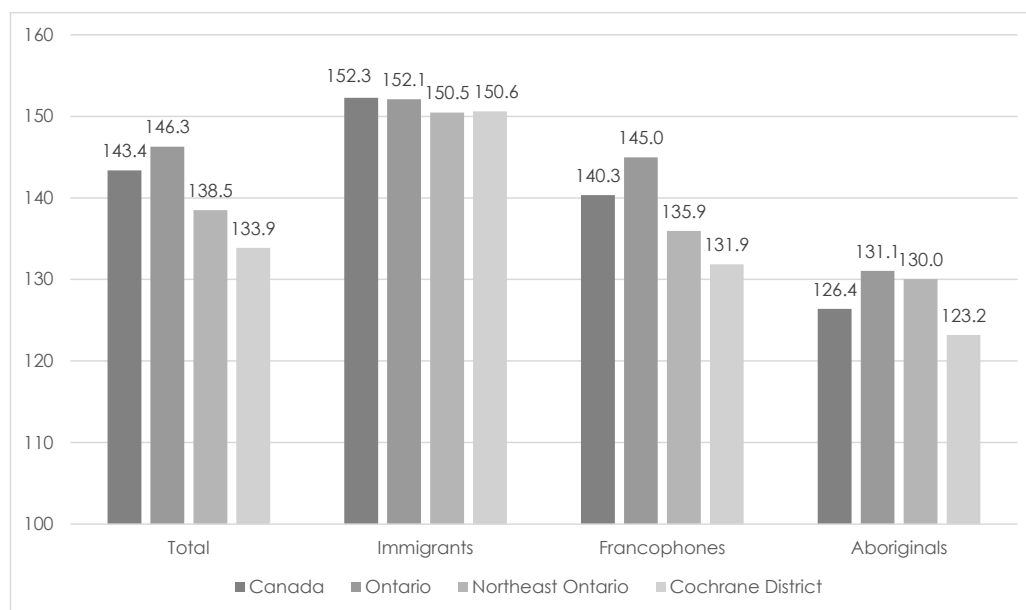
Source: Author's estimates based on Statistics Canada's 2006 Census Microdata file.

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

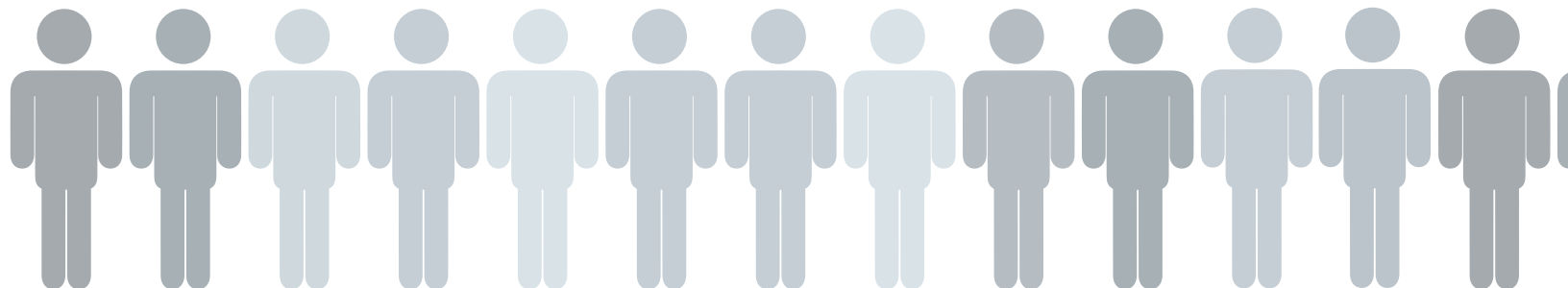
This study then used the estimated return-to-schooling coefficients as weights to calculate a weighted average index of the share of individuals aged 15 to 64 with different levels of schooling for each of the districts in Northeastern Ontario<sup>7</sup>. Figure 12 shows estimated human capital indices for working-age Aboriginals, immigrants, francophones and the total population in Canada, Ontario, Northeastern Ontario and Cochrane<sup>8</sup>. 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 12 shows, the human capital composition of the working-age population in Cochrane is below that in Northeastern Ontario, Ontario and Canada. The human capital indexes for immigrants in Cochrane and Northeastern Ontario are higher than the total working-age population at the national, provincial and regional levels, while indexes for the Aboriginal labour force are significantly below the total working-age population.

Figure 12. Human Capital Index for the Working-Age Population, Canada, Ontario, Northeastern Ontario and Cochrane District, 2011



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



<sup>7</sup>  $HCI = \exp\{\sum \beta_j \cdot S_j \text{ shares}\}$ , where HCI stands for Human Capital Index, exp stands for exponential, and  $S_j$  shares are the share of the population ages 15 to 64 with  $S_j$  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.

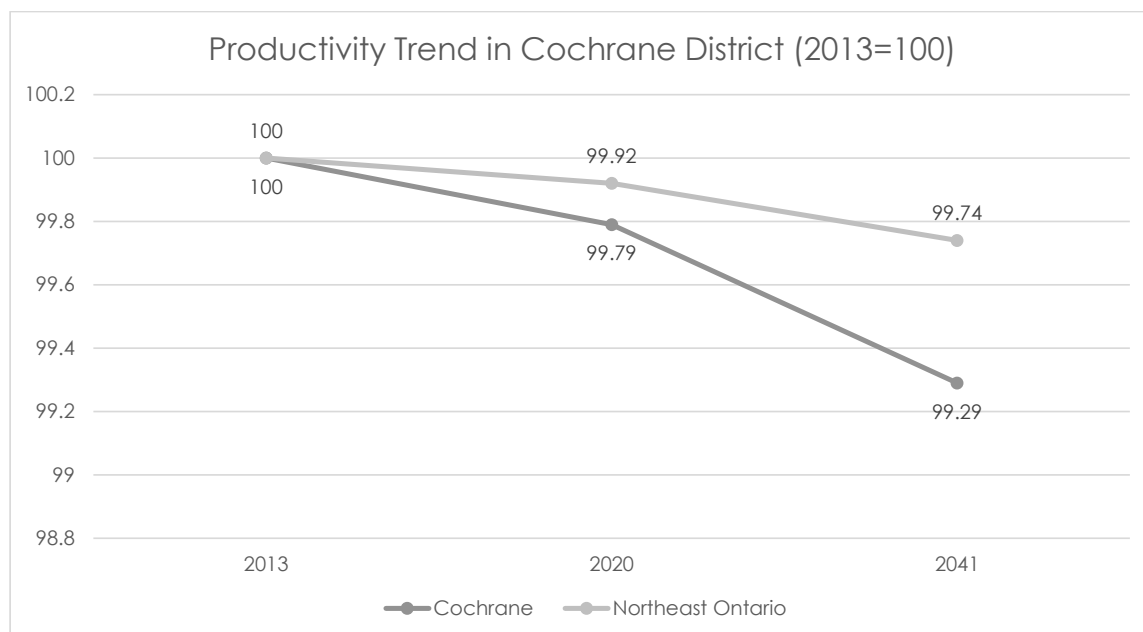
<sup>8</sup> Note that the human capital indexes reported here are numerically different from the ones reported in my previous report since I have used return to education or productivity measure in Canada as a benchmark in calculating the above indexes where Ontario was the benchmark in my previous 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 Cochrane District

Earlier, this study identified two important demographic trends in Cochrane. 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 Aboriginal labour force could potentially offset that trend, but the human capital composition of the Aboriginal workforce is lower than regional and provincial levels, 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 13 shows, that if the current level of educational achievement continues, the human capital composition of the workforce will decline in the coming years in both Cochrane district and Northeast Ontario, however Cochrane is expected to decline at a faster rate. This index is positively correlated with labour productivity, labour income and output in the region.

Figure 13. Human Capital Composition of the Workforce in Cochrane District and Northeastern Ontario, 2013–2041

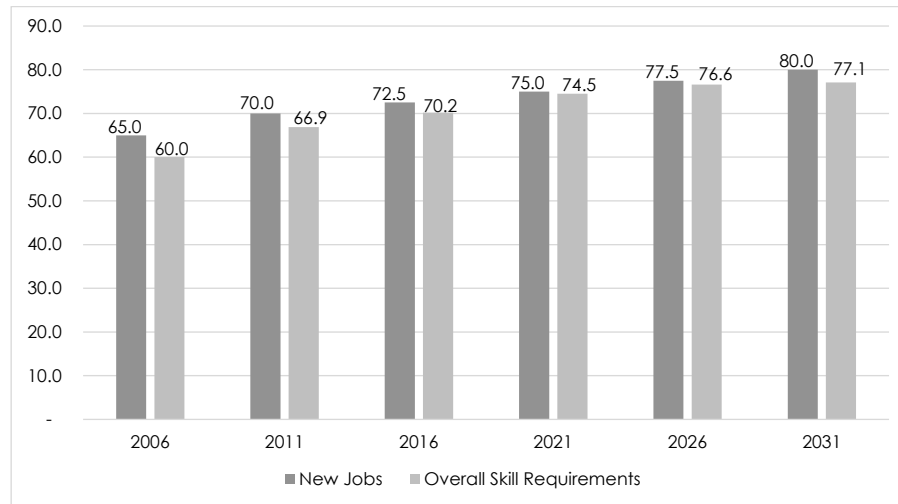


Source: Author's estimates based on Ontario, Ministry of Finance, "Ontario Population Projections, 2013-2041" (Toronto, 2014).

The declining supply of labour and declining labour productivity in Cochrane District is only half of the bad news. 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<sup>9</sup>. 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 14). Yet, as Figure 15 shows, the skill levels of the prime-working-age population in Cochrane district is lower than the skill levels in Ontario and Canada for both the total population and the Aboriginal population. More importantly, the present skill level in Cochrane is significantly below the current estimated skill requirements by about 63.4.

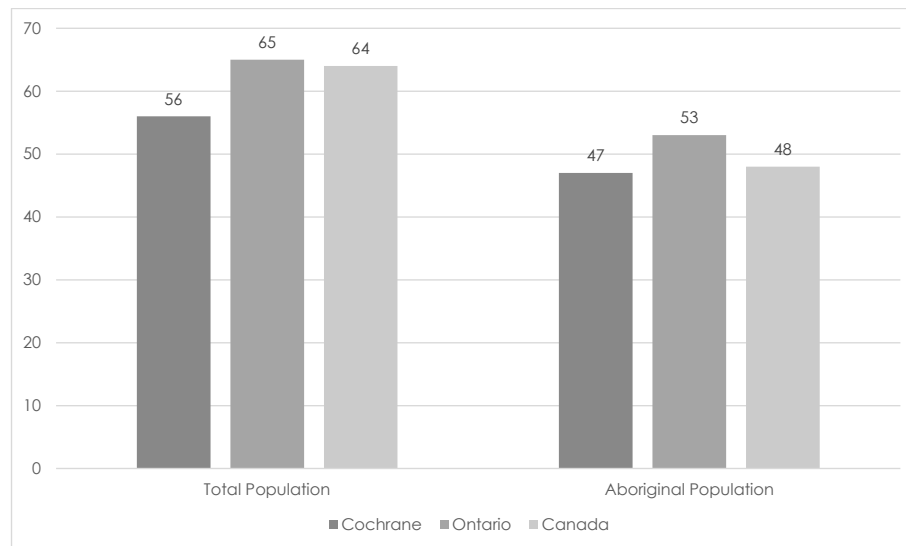


Figure 14. Percentage of Jobs Requiring Post-Secondary Education, Canada, 2006–2031



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

Figure 15: Percentage of the Labour Force Ages 25–64 with Postsecondary Credentials, Cochrane District, Ontario and Canada, 2011



Source: Estimated by the author based on NHS

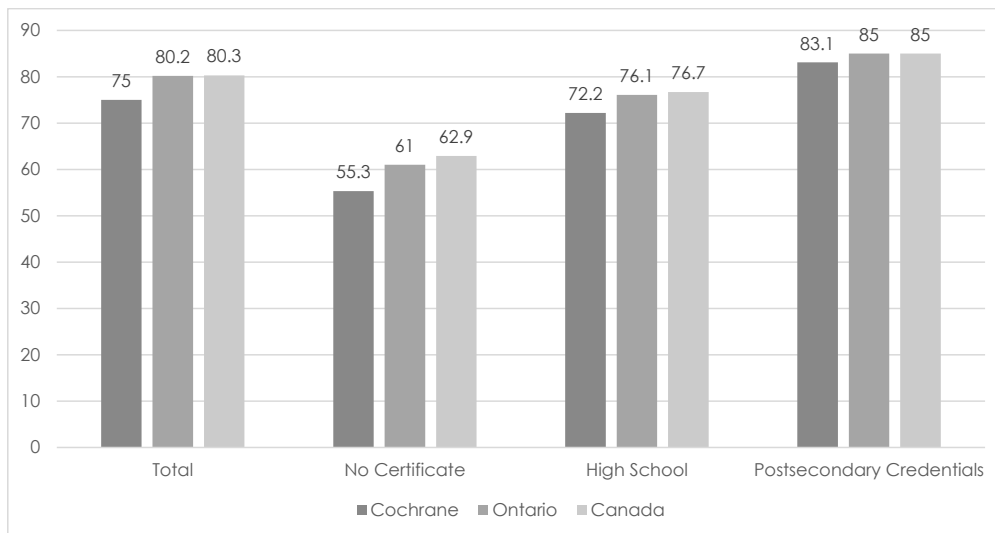
Since the Aboriginal labour force will account for a significant and growing share of Cochrane district's future workforce, it is vital for the social and economic viability of the region to adopt education policies that enable this segment of the labour force to meet the requirements of the future labour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

Does the level of skills affect labour market performance – that is, the likelihood of employment, labour force participation and unemployment rates? Figure 16 shows that a higher skill level increases the likelihood of participation in the workforce. In Cochrane district in 2011, the participation rate of the prime working age population (25–64) without a high school diploma was 55.3 percent compared to 72.2 percent for those with a high school diploma and 83.1 percent for those with a postsecondary credentials. Figure 16 also shows that total labour force participation rates in Cochrane district lag behind the provincial and national averages.

Similarly, as shown in Figure 17, the average unemployment rate among those without a high school diploma was 10.4 percent compared to 7 percent for those with a high school diploma and 5.1 percent for those with a postsecondary credentials. Overall, the total unemployment rate in Cochrane district of 6.3 percent is at roughly the same level as the Ontario and Canada.

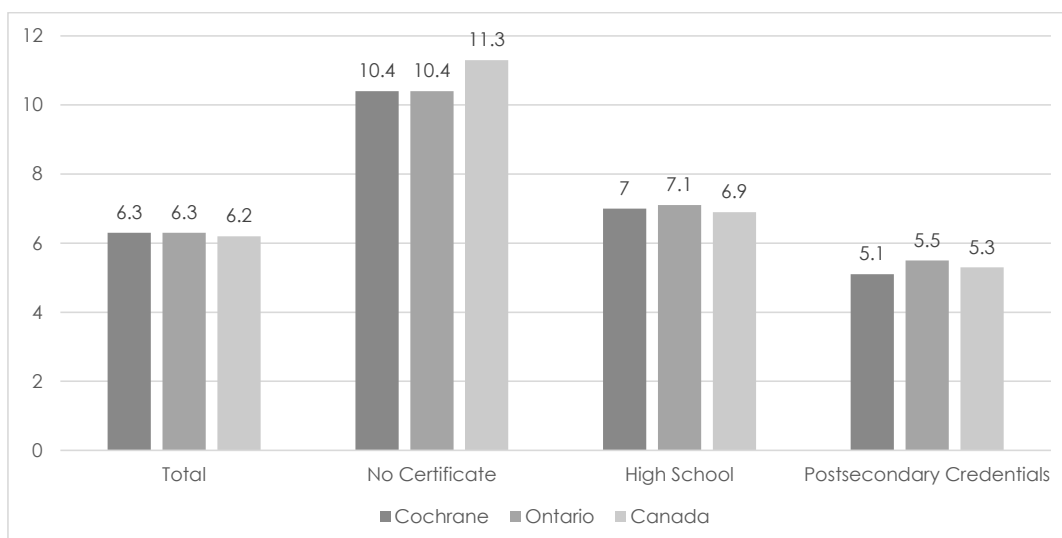
The employment rate – defined as the percentage of the prime working age population who are employed – was 49.6 percent for those without a high school diploma, which increases to 67.1 percent for those with a high school diploma and 78.8 percent for those with a postsecondary credential (Figure 18). Again, the employment rates in Cochrane lag behind provincial and national averages.

Figure 16: Labour Force Participation Rate by Level of Educational Attainment (%), Canada, Ontario and Cochrane District, 2011



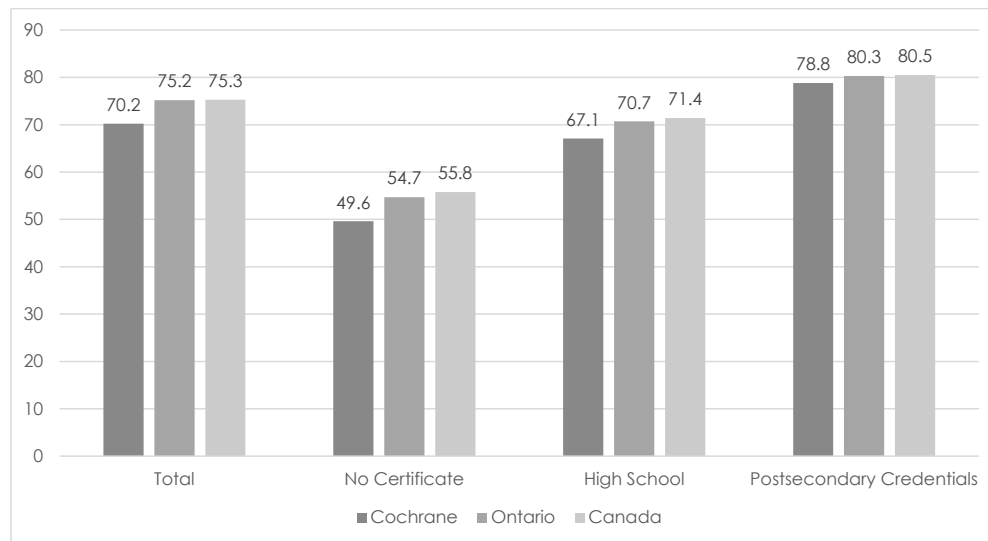
Source: Author's calculations based on Statistics Canada, Census of Canada 2011, and National Household Survey 2011, custom tabulation.

Figure 17: Likelihood of Unemployment by Highest Level of Schooling (%), Canada, Ontario and Cochrane District, 2011



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

Figure 18: Labour Force Employment Rate by Level of Educational Attainment (%), Canada, Ontario and Cochrane 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<sup>10</sup>. Of these, 22 had operations in Northern Ontario and other jurisdictions (multilocal) 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 the 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 in Cochrane district is below 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 — essentially 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 region will be enormous.

The above evidence suggests that one potential solution to Cochrane's declining workforce size and productivity is to promote higher education through increased access to services, especially for the Aboriginal 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, agreements such as the Trans-Pacific Partnership will continue to make labour 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 Cochrane district is below the estimated skill requirement needed for the emerging occupations, the region will face workers whose qualifications do not match the existing jobs and jobs that cannot find qualified workers.

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

## The Consequences of Shifting the Composition of the Employed Labour Force in Cochrane District

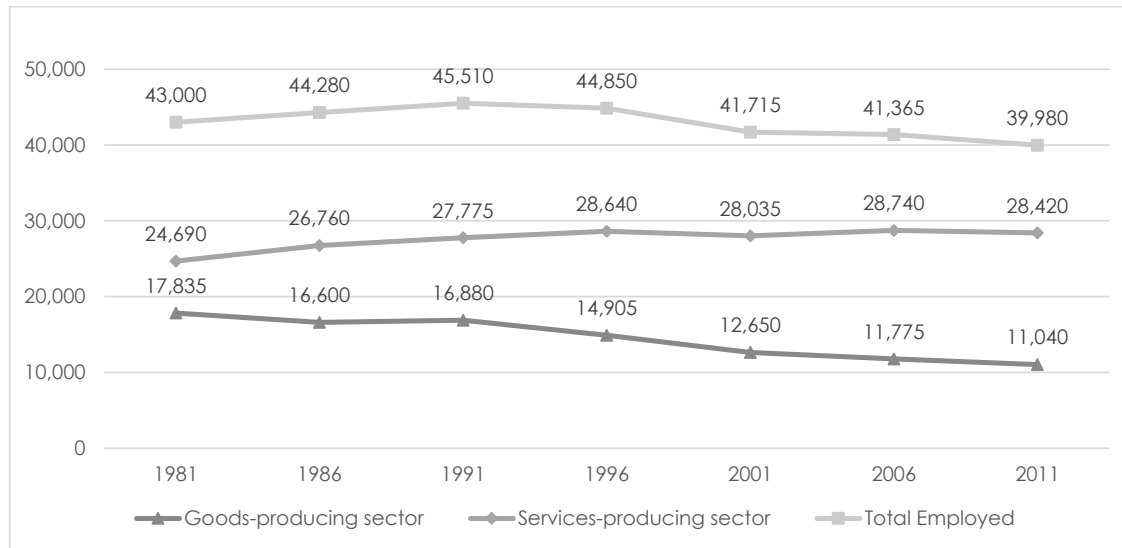
The structure of Cochrane district's workforce has been changing due to a population that is simultaneously declining and aging. At the same time, the industrial and occupational composition of the employed workforce is shifting due to changing market conditions. As a result, the size and industrial 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, Table 5 and Figure 19 show the changing industrial composition of the employed workforce in Cochrane.

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

	2001	2006	2011	Employment change from 2001 to 2011	
	(number)			(number)	(percent)
Total	41,715	41,365	39,980	-1,735	-4.16
Industry - Not applicable	1,035	830	515	-520	-50.24
All industries	40,680	40,535	39,465	-1,215	-2.99
<b>Goods-producing sector</b>	<b>12,650</b>	<b>11,775</b>	<b>11,040</b>	<b>-1,610</b>	<b>-12.73</b>
Agriculture, forestry, fishing and hunting	1,760	1,625	1,060	-700	-39.77
Mining and oil and gas extraction	2,915	2,830	4,020	1,105	37.91
Utilities	530	630	575	45	8.49
Construction	2,640	2,615	3,090	450	17.05
Manufacturing	4,805	4,075	2,295	-2,510	-52.24
<b>Services-producing sector</b>	<b>28,035</b>	<b>28,740</b>	<b>28,420</b>	<b>385</b>	<b>1.37</b>
Wholesale trade	1,020	980	810	-210	-20.59
Retail trade	5,405	5,315	4,990	-415	-7.68
Transportation and warehousing	2,340	2,485	2,135	-205	-8.76
Information and cultural industries	685	510	530	-155	-22.63
Finance and insurance	920	835	765	-155	-16.85
Real estate and rental and leasing	400	405	395	-5	-1.25
Professional, scientific and technical services	1,125	1,065	1,235	110	9.78
Management of companies and enterprises	10	10	0	-10	-100.00
Administrative and support, waste management and remediation services	1,180	1,765	1,475	295	25.00
Educational services	3,050	3,125	3,320	270	8.85
Health care and social assistance	4,545	4,840	5,355	810	17.82
Arts, entertainment and recreation	370	430	410	40	10.81
Accommodation and food services	2,940	2,690	2,505	-435	-14.80
Other services (except public administration)	1,880	1,935	1,685	-195	-10.37
Public administration	2,165	2,350	2,810	645	29.79

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

Figure 19: Employment in the Goods- and Services-Producing Industries, Cochrane 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 6,800 or 38 percent since the early-1980s. Total employment in agriculture, forestry, fishing and hunting sector declined by 40 percent, while manufacturing employment declined by 52 percent from 2001 to 2011. On the other hand, employment in the mining and oil and gas sector increased by 38 percent and construction employment increased by 17 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.

The growth of the services-producing sector has experienced modest growth since the early-1990s. Since 2001, declining growth was spread across many industries, most notably in information and cultural industries (23 percent), wholesale trade (21 percent), finance and insurance (17 percent), and accommodation and food services (15 percent). However, any employment declines during this period in the services-producing sector have been more than offset by increased employment in public administration (30 percent), administrative services (25 percent), health care and social assistance (18 percent), professional, scientific and technical services (10 percent), and educational services (9 percent). In fact, the growth of education, 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 (i.e., manufacturing and primary industries).

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 declines, including occupations in manufacturing and utilities (39 percent), sales and service occupations (14 percent) and natural resources, agriculture and related production occupations (12 percent). On the other hand, growth in several occupational categories helped to offset some of these declines, such as occupations in education, law and social, community and government services (48 percent), occupations in art, culture, recreation and sport (33 percent), health occupations (29 percent), natural and applied sciences and related occupations (30 percent), and management occupations (5 percent).

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

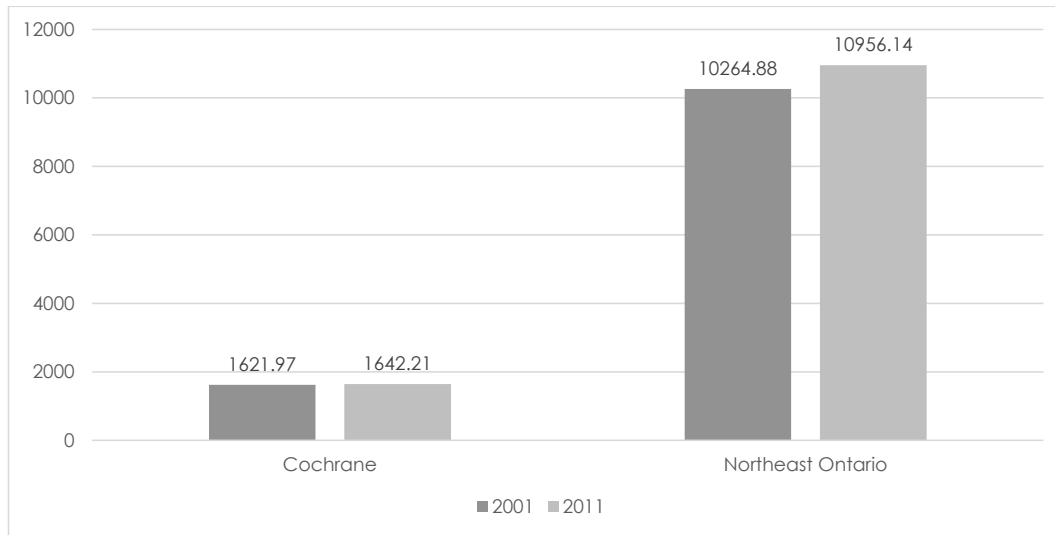
Occupations	2001	2006	2011	Employment change from 2001 to 2011	
	(number)			(number)	(percent)
Total	41,715	41,365	39,980	-1,735	-4.16
Occupation not applicable	1,035	830	510	-525	-50.72
All occupations	40,680	40,535	39,470	-1,210	-2.97
Management occupations	3,020	3,005	3,180	160	5.30
Business, finance and administration occupations	5,570	6,250	5,220	-350	-6.28
Natural and applied sciences and related occupations	1,795	1,745	2,045	250	13.93
Health occupations	2,130	2,320	2,765	635	29.81
Occupations in education, law and social, community and government services	3,260	3,455	4,830	1,570	48.16
Occupations in art, culture, recreation and sport	450	540	600	150	33.33
Sales and service occupations	10,515	10,095	9,010	-1,505	-14.31
Trades, transport and equipment operators and related occupations	8,320	8,400	7,670	-650	-7.81
Natural resources, agriculture and related production occupations	2,635	2,465	2,325	-310	-11.76
Occupations in manufacturing and utilities	3,000	2,260	1,820	-1,180	-39.33

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

## Labour Income and Gross Domestic Product

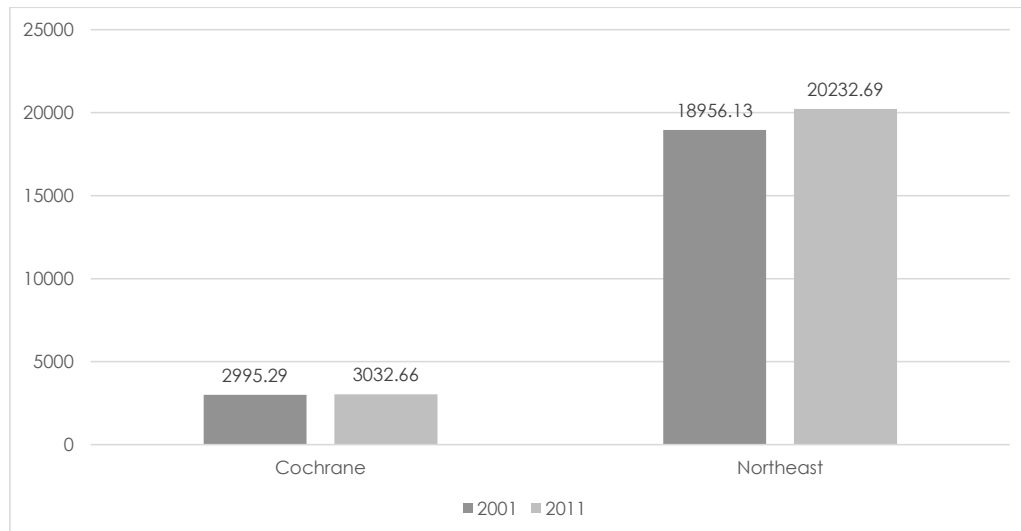
The changing size and composition of Cochrane's employed workforce has also impacted total labour income and output in district. Using detailed employment by occupation and industry data along with average employment earnings by industry and occupation, this study estimated trends in total labour income in 2010 dollars in Cochrane, shown in Figure 20. Labour income is influenced by size, productivity and the occupational composition of the employed workforce. From 2001 to 2011, labour income in Cochrane district increased by 1.2 percent from \$1.62 billion to \$1.64 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 Cochrane District experienced only marginally positive growth from \$3.00 to \$3.03 billion in GDP, as shown in Figure 21.

Figure 20: Total Labour Income (millions of 2010 dollars), Cochrane District, 2001–2011



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

Figure 21: Regional Gross Domestic Product (millions of 2010 dollars), Cochrane District, 2001–2011



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

Overall, between 1986 and 2011, major changes occurred in the structure of Cochrane district's economy, population and workforce. An aging and declining population and rising Aboriginal workforce resulted in a declining supply of labour and a lower level of human capital than will be necessary for the jobs of the future. In the past, the region's economic prosperity has been based on a staples economy that relied on the export of natural resources. In other words, regional economic development was dependent on the growth of the goods-producing sectors of the economy. These sectors formed a major component of the region's economic base and had a very high value-added and multiplier effect. To a large extent, however, the recent growth of the education, healthcare and public sectors has mitigated the declining economic base and have stabilized the regional economy.

In short, recent structural changes have shifted the regional economic focus from predominantly producing for export markets to mostly producing for domestic consumption. The share of the private sector and private investment in the regional economy has declined and the public sector's share has increased significantly.



## Concluding Remarks

Cochrane's economy has undergone a significant transformation over the past three decades. Its traditional resource-based industries have declined, while the economy's dependence on government-funded programs, such as healthcare, education and public administration, has risen significantly. The resource-based sectors have always been subject to cyclical fluctuations and boom and bust cycles with forestry cycles being about twice as long as mining cycles since the regeneration of forests takes much longer. While the mining sector appears to be benefiting some from the low Canadian dollar, the renewal of the forestry industry is not expected to happen until around 2025. In addition to these regional trends and characteristics, this study reports several other fundamental trends that will continue to negatively impact Cochrane district's competitive position and the standard of living of residents if not addressed immediately.

### Aging and Declining Population

Cochrane district's population has declined by 13 percent over the period from 1986 to 2011. Many factors explain the declining population. First, Cochrane has experienced notable out-migration throughout 2002-2014, particularly among younger cohorts. Second, the region has been receiving disproportionately low rates of immigration which impacts population growth in Cochrane. Third, the total fertility rate in Northeastern Ontario (1.60) has been significantly below the generational replacement rate of 2.1. This has meant that the baby boomers are followed by much smaller generations.

In addition to youth out-migration, the rising life expectancy – which, in Canada, increased from 71.13 years in 1960 to 81.24 years in 2012 – has resulted in the aging of Cochrane district's population. As a result, the share of individuals in Cochrane district below the age of 20 has declined from 32 percent in 1991 to 24 percent in 2011, while the share of seniors rose from 9 percent in 1991 to 15 percent in 2011. During the same period, the share of individuals aged 20 to 34 has declined from 25 percent to 17 percent.

### Declining Human Capital Content of the Labour Force

This study projects that the total labour force in the Cochrane district will decline by 28 percent over the period from 2013 to 2041, while the Aboriginal labour force will increase by about 26 percent, from making up 12 percent of the total labour force in

2013 to 20 percent in 2041. At the same time, the human capital composition of the working-age population in Cochrane is below that in Northeastern Ontario, Ontario and Canada, while the human capital composition of the Aboriginal labour force is significantly below that of the total working-age population. Findings show that if the current level of educational achievement continues, the human capital composition of the workforce in Cochrane district will decline in the coming years, therefore having an adverse effect on labour productivity, labour income and output in the region. Importantly, however, the immigrant population in Cochrane district have relatively high levels of human capital compared to the total work-age population in Ontario and Canada.

### People Without Jobs and Jobs Without People

The declining supply of labour and declining labour productivity in Cochrane district 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. Yet, the skill levels of the prime-working-age population in Cochrane district is lower than the skill levels in Ontario and Canada for both the total population and the Aboriginal population, and more importantly, the present skill level in Cochrane is significantly below the current estimated skill requirements.

Individuals who do not have post-secondary credentials have a higher likelihood of non-participation in the 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 in Cochrane district is below 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 Jobs, Jobs without People." Even if markets adjust to bring labour demand and supply into balance, the social impact of having many unemployed people in the region will be enormous.

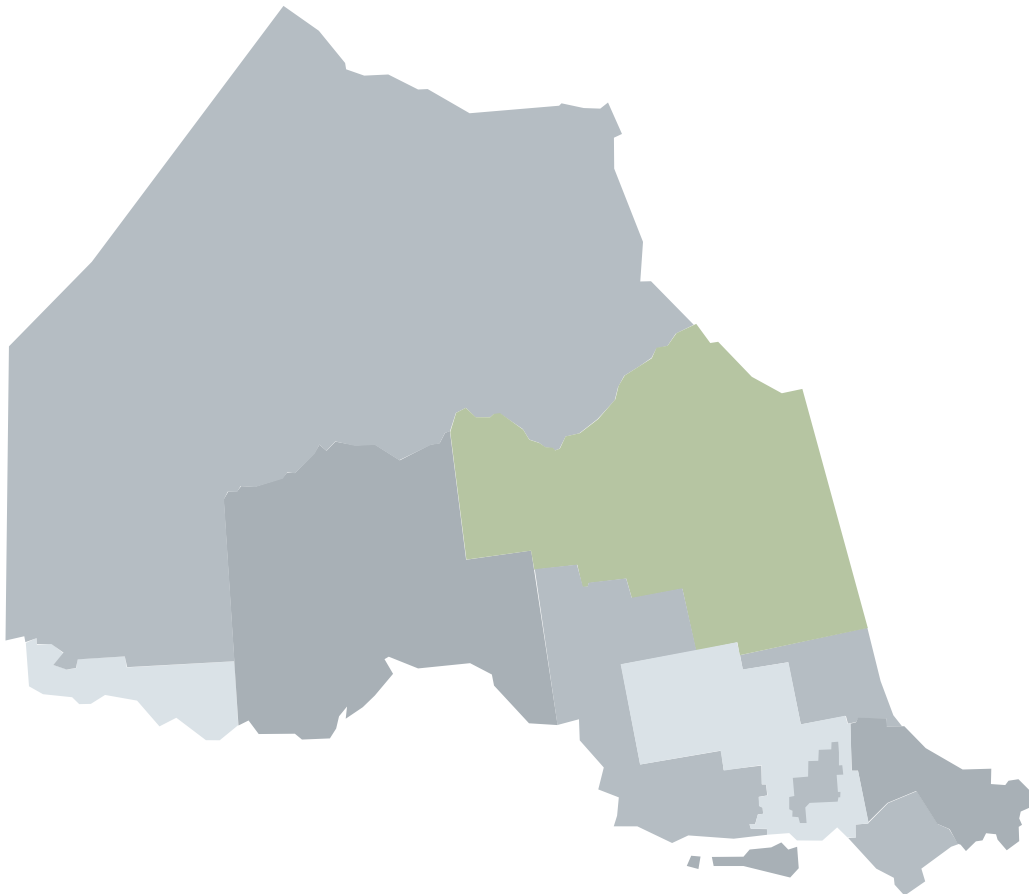
## Changing Industrial Composition of the Workforce

The structure of Cochrane 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 has been altered, resulting in a shift away from the goods-producing sector dominated by private businesses towards the service-producing sector, a large portion of which is publicly funded.

## Lack of Growth in Regional Income and GDP

The changing size and composition of the regional employed workforce has resulted in stagnant labour income and GDP growth in Cochrane district from 2001 to 2011. Regional income and GDP are highly correlated with employment as well as labour productivity in various industries, suggesting that Cochrane's economy experienced negligible growth from 2001 to 2011.

While many of the demographic and economic trends affecting Cochrane district are foreboding, the region can mitigate some these issues by investing in its human capital and immigration and population retention strategies. Given that the Aboriginal population will comprise a larger share of the future workforce, more investment in rural education is needed to reverse the declining human capital composition of the future labour force. Emphasis should not only be put on increased investment, but also on improving the quality of education delivered in urban as well as rural areas. Cochrane district's long-term prosperity lies in its ability to develop a comprehensive plan that addresses these fundamental labour market and socioeconomic challenges.



## Recommendations

### *Recommendation 1: Implement a well-rounded migration strategy*

Cochrane 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 due in part to out-migration among younger cohorts, and low and declining levels of immigration. In fact, total net domestic out-migration from 2002 to 2015 equaled nearly 11,000 individuals who moved out of the region, while in 2015, the district attracted only 33 immigrants, which is equivalent to roughly 16 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.

### *Recommendation 2: Enhance Aboriginal labour market participation*

Cochrane district should seek to enhance participation rates among the Aboriginal labour force, especially among the on-reserve population. While the total population and labour force is expected to decline in the region, the Aboriginal population and labour force is expected to grow considerably. At the same time, however, the Aboriginal population, especially on reserves, has notably lower labour market participation rates. Since the Aboriginal population is expected to grow from 12 percent of the workforce in 2013 to 20 percent in 2041, enhancing their participation

levels will be a key determinant of productivity and economic growth in the region. This can be achieved by enhancing collaboration between municipalities, Aboriginal communities and industry; increasing education levels and access in rural areas; and connecting the population with important local services and programs that are available.

### *Recommendation 3: Leverage industrial clusters to identify new opportunities*

Cochrane district should leverage its competitive advantages to build new opportunities. The region has many opportunities and signs of growth linked to natural resources in the region. For example, there is a large amount of arable land as well as a number of operational gold mines that remain a key source of employment and economic growth in the region. In fact, from 2001 to 2011, the mining and oil and gas extraction industries grew by nearly 40 percent. The region should continue to build on its natural resource clusters, but at the same time, recognize the importance of economic diversification for smoothing out the cyclical nature of these industries. Since 2001, there is evidence of growth in private sector industries outside of the primary industries including construction; professional, scientific, and technical services; administrative and support, waste management and remediation services; and arts, entertainment and recreation. While employment in these industries are likely tied in part to the primary industries, the region should seek to determine whether some of these growth areas could be developed into long-term and self-sufficient industries.



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## 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.*

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