

STRENGTHENING  
RURAL  
CANADA



RENFORCER LES  
COMMUNAUTÉS  
RURALES DU CANADA

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# **STRENGTHENING RURAL CANADA:**

## **Fewer & Older: The Coming Demographic Crisis in Rural Ontario**

A paper prepared for the Strengthening Rural Canada initiative by:  
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**Dr. Bakhtiar Moazzami**  
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## EXECUTIVE SUMMARY

The province of Ontario has experienced considerable demographic changes over the past 40 years. The provincial population grew from 7.85 million in 1971 to 12.85 million in 2011, a growth rate of about 1.55 percent per year. However, its growth rate has declined from the high of 1.68 percent per year during the 1980s to a historical low of about 1.04 percent per year during 2001-2011.

Declining fertility rate is one of the main reasons for declining population growth rate in Ontario. In Canada, the total fertility rate reached 3.94 in 1959. It declined below the generational replacement rate of 2.1 in 1972 and reached its historical low of 1.49 in 2000. It stands at 1.61 children per woman in 2011. In Ontario, the total fertility rate reached its historical record low of 1.47 in 2002. It stands at 1.52 children per woman in 2011. This is less than half of the rate seen at the 1960 peak of the baby boom when Ontario's total fertility rate reached a record high of 3.80 children per woman.

The low fertility rate and rising life expectancy have resulted in the aging of Ontario's population. The baby boomers were followed by much smaller generations in number primarily due to a declining fertility rate. As a result, the share of seniors has increased from 8.3 percent in 1971 to 14.2 percent in 2011. Aging of the population is also reflected in rising median age of Ontarians from 27.1 years in 1971 to 39.8 years in 2011.

The gap between the total fertility rate in Canada and Ontario has also been growing. The implication of the declining fertility rate is that the natural increase (births minus deaths) has become a less important factor in provincial population growth. Conversely, dependence on immigration has become an increasingly significant factor.

The cultural and linguistic make-up of Ontario's population has also changed over time. The share of the Francophone population declined from 4.3 percent in 2001 to 3.8 percent in 2011. This is in spite of the fact that the Francophone population grew by 2.3 percent during that period. The share of the Aboriginal population increased from 1.6 percent to 2.3 percent during 2001-2011. Similarly, immigrants comprised 26.9 percent of Ontario's population in 2001. Their share increased to 28.1 percent in 2011.

The study focuses mainly on rural-urban demographics and examines how demographic changes have impacted four population groups, namely total provincial population, Francophone, Aboriginal and immigrant population.

Ontario's total population increased by 12.6 percent during 2001-2011. The urban population grew by 15.1 percent while the rural and small town population declined by 7.3 percent during 2001-2011. In fact, the population living in rural and small towns has declined both in absolute and relative terms. The share of Ontario's population living in rural and small towns declined from 10.7 percent in 2001 to 8.8 percent in 2011.



The distribution of rural population has also changed over time. The rural population living in areas designated as strong Metropolitan Influenced Zone (MIZ) increased during 2001-2011 primarily due to relocation of ex-urbanites to the countryside. The rural areas designated as moderate MIZ lost population. The rural areas designated as weak MIZ experienced slight growth while those designated as no MIZ lost population during 2001-2011.

The study also examines various socio-economic characteristics of rural and urban Ontario in 2011 and pays special attention to the degree of rurality. It is found that the average labour force participation rate is highest in urban areas and declines as the degree of rurality rises. The difference between the participation rate in urban and remote regions is 14.0 percent. On the other hand, the unemployment rate is lowest in urban areas and increases as the degree of rurality rises. The unemployment rate in remote rural Ontario averaged about 16.8 percent in 2011 and reached as high as 66.0 percent in some Aboriginal communities.

In terms of dependency on government transfer payments, the study finds that an average of 9.2 percent of individuals in Ontario's urban areas receive transfer payments. The dependency rate increases as the degree of rurality rises. The dependency rate in remote areas of Ontario is about 2.8 times greater than that in urban regions.

As expected, the level of educational achievement in urban areas is much higher than that in rural regions. The level of schooling declines as the distance between rural areas and population centres increases. Almost half of the remote rural population do not have a high school diploma.

The average earnings in remote areas is about 65.8 percent of earnings in urban regions. The earnings of those who worked full-time and full-year decline as one moves towards more rural areas. Again, the average earnings of full-time workers in remote regions is about 67.8 percent of their counterparts in urban areas. It appears that human capital rather than distance, population size or economies of agglomeration is the main factor explaining earnings differential between rural and urban regions.

Focussing on various population groups, the study finds that the Francophone population in Ontario increased from 482,340 in 2001 to 493,295 in 2011, a rise of about 2.8 percent. Ontario's Francophone population is aging rapidly. Overall, the average age of the Francophone population increased from 40.9 in 2001 to 43.9 in 2011. The median age increased from 42 years in 2001 to 47 years in 2011. The majority or 79.9 percent of the Francophone people live in urban areas. About 19.9 percent live in rural areas with a weak to strong link with urban centres. Only 0.3 percent live in remote rural communities.

Concentrating on the Aboriginal population, we find that the on-reserve population has declined slightly during 2001-2011. This is primarily due to the migration of Aboriginal individuals from reserves to off-reserve areas. During the same period, the off-reserve Aboriginal population increased by 72.2 percent. Overall, the total Aboriginal population increased from 184,555 in 2001 to 290,795 in 2011, a growth rate of about 57.6 percent. Various factors explaining the significant growth of Ontario's Aboriginal population are examined in the study.



The majority or 78.3 percent of the off-reserve Aboriginal population live in urban areas. About 15.6 percent of the Aboriginal people live in urban reserves. The majority or 65.9 percent of the reserve population live in relatively remote rural areas with a weak or no link to urban centres. These are areas with potentially significant mineral resources development requiring a skilled labour force and developed infrastructure which are both absent at the present time.

Turning attention to the immigrant population, the study finds that it has increased by more than 124.0 percent during 2001-2011. This amounts to a growth rate of 12.4 percent per year. The number of immigrants has increased in all age categories. However, like the overall population, the average age of immigrants has increased from 45.9 years in 2001 to 47.0 years in 2011. Similarly, the median age of immigrants has risen from 46.2 years in 2001 to 47.4 years in 2011.

Part II of the study also examines factors explaining the earnings gap between rural and urban regions. There are at least two competing explanations for the observed earnings gap. One relates the earnings gap to the differences in human capital composition in rural and urban regions. The other relates the earnings gap to the presence of agglomeration economies resulting from the concentration of workers and proximity of firms in larger urban areas. The study finds that a significantly larger share of the earnings gap is explained by the differences between the stock of human capital in rural and urban areas. More specifically, the study finds that 100 percent of the earnings gap between rural areas with a strong MIZ and urban regions are accounted for by differences in the human capital composition of their employed workforce. The effect of agglomeration economies is almost nil.

Similarly, about 66.7 percent of the earnings gap is attributed to the differences in the human capital composition of the employed people in moderate MIZ areas and urban regions. The rest or 33.3 percent of the gap is likely due to agglomeration economies. Also, 82.4 percent of the earnings gap between urban and rural areas with a weak MIZ is accounted for by differences in their human capital composition. Again, the rest or 17.6 percent is likely to be explained by agglomeration economies. Finally, about 96.0 percent of the earnings gap between remote areas and urban areas is due to differences in their human capital composition. The rest is due to agglomeration economies.

Part III of the report looks into the crystal ball and makes projections of the rural and urban population from the base year of 2011 to 2025. The study shows that the fertility rates in rural Ontario have been higher than those in urban regions for women aged 15 to 30 and lower for women older than 30 years of age. Overall, the total fertility rate for women in rural Ontario equals 1.83 compared to 1.53 for women in urban Ontario.

The study projects that Ontario's urban population will grow from 11.6 million in 2011 to 13.3 million in 2025, a growth rate of about 1.0 percent per year. A significant factor responsible for this growth relates to a substantial net in-migration that urban Ontario has been experiencing in the past. The newcomers come from other provinces, rural areas and other countries. On the other hand, Ontario's rural population is expected to decline from 1,118,065 in 2011 to 925,299 in

2025, a decline of about 1.15 percent per year during the above period. The main factor responsible for declining rural population appears to be a significant out-migration of youth between the ages of 20 and 30 years old. This process leaves rural areas without the necessary human capital that is required if rural areas are to remain productive and vibrant. This is important since most of the untapped resources in Ontario are located in rural areas. In addition to the youth, the report shows a significant out-migration of seniors who are likely seeking better medical services in urban regions.

# INTRODUCTION

The provincial population is fluid, changing continuously. It is renewed by births and augmented by immigration while declining due to deaths as well as emigration. Demographic changes have significant impact on social and economic conditions in the province. Naturally, individuals grow older as they move through the life cycle. The baby boomers, born in the two decades following World War II, are aging and the first group of them are retiring now. The younger generation that came after the boomers is much smaller in number. As a result, the overall provincial population is aging slowly and this process will continue into the foreseeable future.

An aging population impacts the labour force and hence a region's ability to generate output and income. It also affects other aspects of the economy such as a household's consumption expenditure patterns, saving rates and investments. An aging population also affects the tax base and therefore provincial revenue. It also influences demand for public services such as health care, education and pensions which are the main budgetary components sensitive to an aging population. One important aspect of this aging population relates to the relationship between economically active and economically dependent age groups, i.e. between the working population on the one hand and the young and elderly on the other.

The study focuses mainly on rural-urban demographics and examines how demographic changes have impacted four population groups, namely total provincial population, Francophone, Aboriginal and immigrant population. The study also examines various socio-economic characteristics of rural and urban Ontario and pays special attention to the degree of rurality. The role of education and investment in human capital in explaining rural-urban labour market outcome as well as earnings differential is also investigated.

The study is organized into four parts. Part I analyzes demographic change in the province of Ontario. In general, the provincial population is aging slowly. Rising average life expectancy combined with a low fertility rate have resulted in the aging of Ontario's population. The baby boomers were followed by much smaller generations in number primarily due to a declining fertility rate. As a result, the share of seniors has increased from 8.3 percent in 1971 to 14.2 percent in 2011. Aging of the population is also reflected in rising median age of Ontarians from 27.1 years in 1971 to 39.8 years in 2011.

Part II of the report examines demographic trends in rural and urban Ontario with a special focus on the degree of rurality. It is found that the urban population has been rising while the rural population has been declining due primarily to an out-migration of youth ages 20 to 30 from rural areas. This process has serious socio-economic impacts on the ability of rural areas to stay vibrant and economically viable. This is especially important since most of the untapped natural resources in Ontario are located in rural areas. Development of those resources requires human capital as well as developed infrastructure both of which are currently lacking in Ontario's rural areas.

Part III attempts to ascertain how rural and urban populations will change by making projections of future rural and urban population trends in Ontario. It is shown that if current trends continue, urban population will continue to grow while rural areas continue to decline in the coming years. In addition, both the urban and rural population are aging slowly. This affects demand for various publicly funded programs such as health care.

The last part of the report presents a summary and statement of conclusions.

## **Sources of Data Used in this Study**

The data used in this study are based on custom tabulations obtained from Statistics Canada pertaining to various Censuses of Canada as well as the 2011 National Household Survey (NHS). The 2011 Census of Population and the 2011 NHS both provide information on the Canadian population for various levels of geography and for numerous common topics. However, the NHS estimates are derived from a sample survey and therefore are subject to sampling error amplified by a relatively high non-response error due to the survey's voluntary nature. As a result, in some cases, there is a discrepancy between the 2011 NHS data and the 2011 Census data. The discrepancy is more evident when one aggregates Census Subdivision figures based on the 2011 NHS to arrive at aggregate rural or urban statistics. For the sake of consistency, we have tried to use Census data wherever possible.

In estimating returns to investment in education, we have used the 2006 Census Public Use Micro-data File (PUMF) that contains 844,476 records on the Canadian population. These records are drawn from a 20 percent sample of the Canadian population, excluding institutional residents. PUMF includes 123 variables and 324,973 records on the population living in the province of Ontario. It provides the best source of information on individual Canadians that can be used to examine the effect of schooling on earnings capacity and other socio-economic indicators of well-being. The 2011 Census micro-data files were not available at the time of writing this report.

## **Population Groups Studies in this Report**

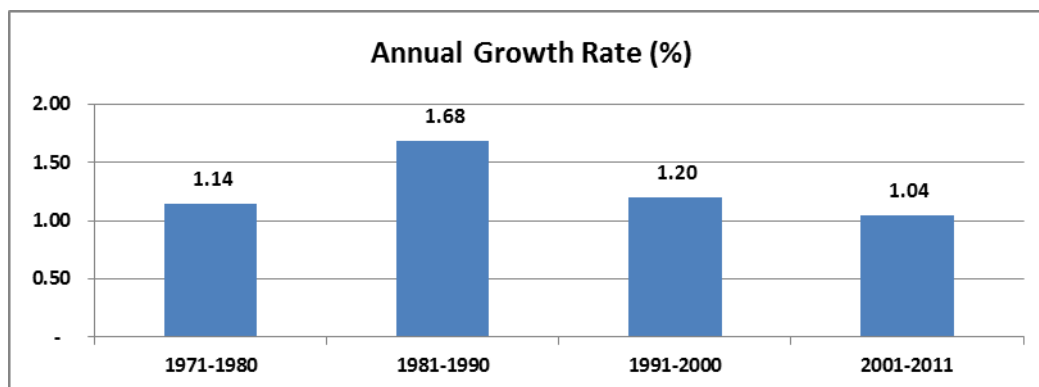
The focus of the report is on the following four population groups:

1. Total population;
2. Francophone population defined as individuals whose mother tongue is French;
3. 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 of Canada, and/or those who reported they were members of an Indian band or First Nation;
4. Immigrant population defined as persons who are, or have ever been, landed immigrants in Canada.

## PART I: POPULATION TRENDS IN ONTARIO ■ ■ ■

Ontario's population grew from 7.85 million in 1971 to 12.85 million in 2011, a growth rate of about 1.55 percent per year. However, the population growth has not been uniform during these years. Ontario's population grew at an annual rate of 1.14 percent during the 1970s (Figure 1.1). The growth rate increased sharply to 1.68 percent per year during the 1980s. This is partly due to the abnormally large inflows from Quebec recorded in the years following the 1980 referendum. The growth rate has declined steadily since the 1980s.

**Figure 1.1: Annual Percentage Growth Rate of Population in Ontario**



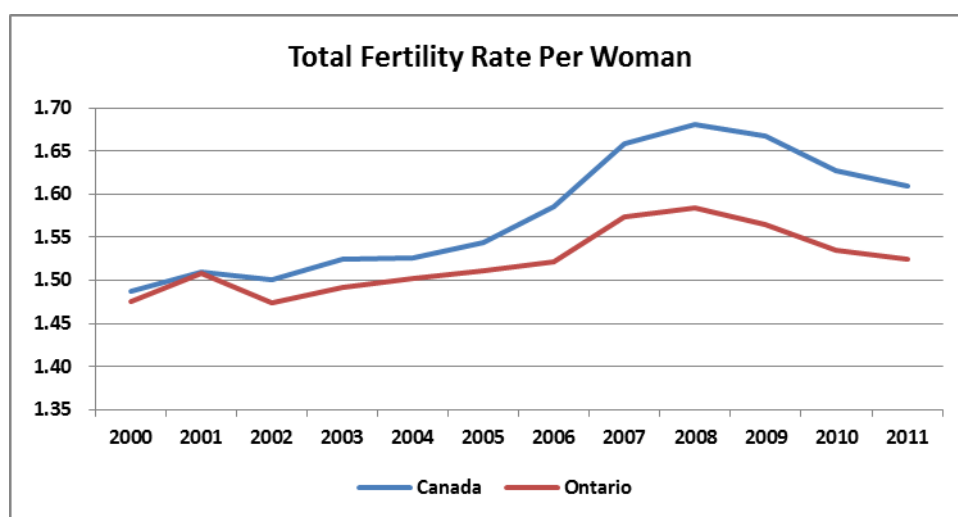
Ontario's share of the Canadian population stood at 35.7 percent in 1971. It rose to 42.8 percent in 2001, but declined to 38.6 percent in 2011. The above trend is partly explained by the changing fertility rate in Ontario and Canada. The total fertility rate is defined as the average number of children that a woman will have over the course of her life. In Canada, the total fertility rate reached 3.94 in 1959. It declined below the generational replacement rate of 2.1 in 1972 and reached its historical low to that point in time of 1.49 in 2000. As Figure 1.2 shows, it increased to a high of 1.68 in 2008, but declined to 1.61 in 2011.

After about half a century of continuous decline, the fertility rate in Ontario reached a historical record low of 1.47 in 2002. The total fertility rate rose during the 2002-2008 period reaching a recent high of 1.58 in 2008, but has continued to decline ever since (Figure 1.2). It stands at 1.52 children per woman in 2011. This is less than half of the rate seen at the 1960 peak of the baby boom when Ontario's total fertility rate reached a record high of 3.8 children per woman.

The gap between the total fertility rate in Canada and Ontario has also been growing. Overall, as we will see later, not only are women having fewer children, but they are having them later in life as well. The implication of the declining fertility rate is that the natural increase (births minus deaths) has become a less important factor in provincial population growth. Conversely, dependence on immigration has become an increasingly significant factor.

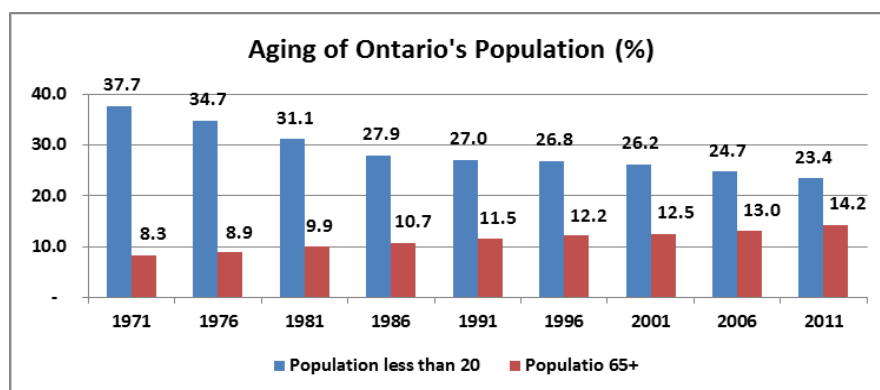
The federal government sets the target levels of immigration to Canada. For example, the target level is set at 240,000 to 265,000 during 2013-2015. The target range has increased over the past 20 years and is presently about 0.75 percent of population each year.<sup>1</sup> According to Census data, about 1.4 million immigrants came to Canada during 2001-2011. About 43.8 percent of the new immigrants chose Ontario as their place of residence.

**Figure 1.2: Fertility Rates in Canada and Ontario during 2000-2011**



The low fertility rate and rising life expectancy have resulted in growth in the aging of Ontario's population. The baby boomers were followed by much smaller generations in number primarily due to a declining fertility rate. During the same period, average life expectancy at birth increased from 71.13 years in 1960 to 81.24 years in 2012. As a result the share of individuals below the age of 20 has declined from 37.7 percent in 1971 to 23.4 percent in 2011 while the share of seniors rose from 8.3 percent in 1971 to 14.2 percent in 2011 (Figure 1.3).

**Figure 1.3: Changing Composition of Ontario's Population**

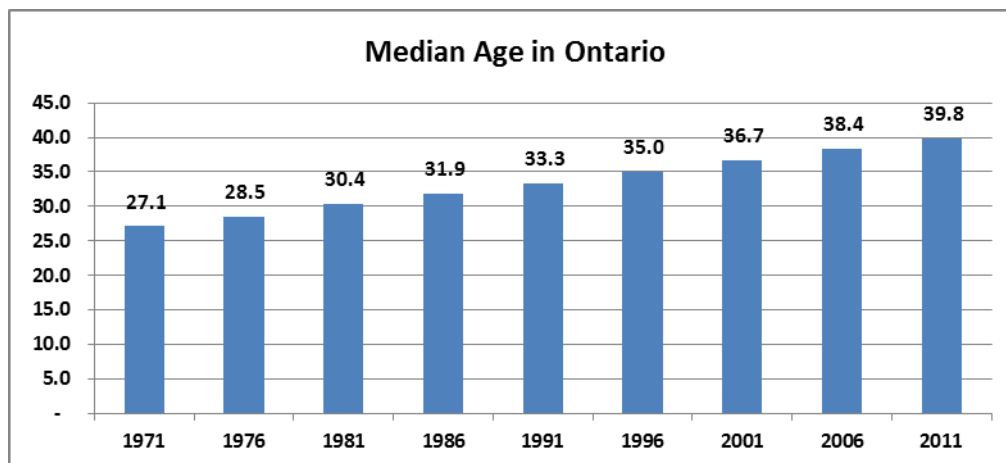


<sup>1</sup> Ministry of Finance, *Ontario Population Projections Update 2012-2036*, Spring 2013.



Aging of the population is also reflected in rising median age of Ontarians from 27.1 years in 1971 to 39.8 years in 2011 (Figure 1.4).

**Figure 1.4: Rising Median Age of Ontarians**



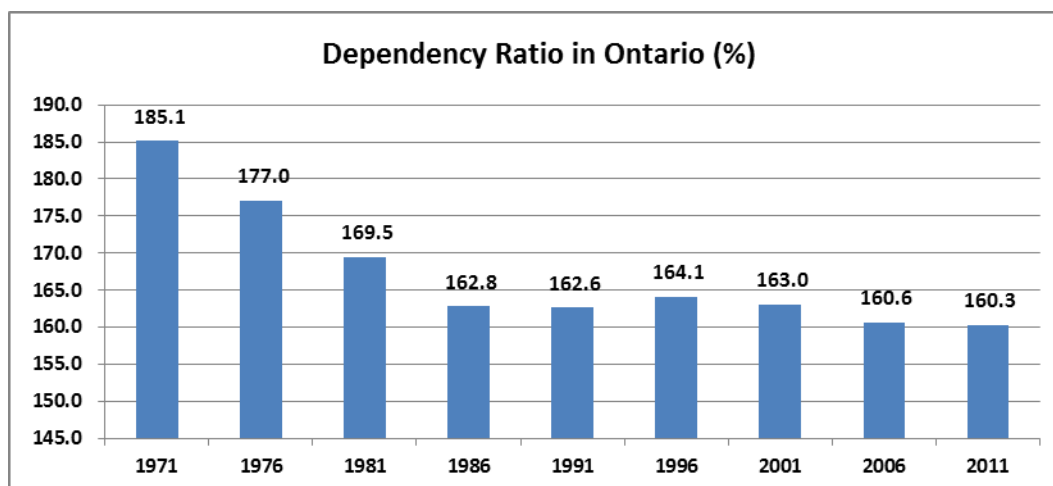
Slower growth and aging of the population affect the labour force and hence Ontario's ability to generate output and income. In fact, an aging population affects virtually all other aspects of the economy too. It affects patterns of saving and household consumption. It influences sales, production, and investment levels. Furthermore, its impact falls unevenly on different industries and sectors of the economy. An aging population also affects the tax bases from which the provincial government draws revenue and influences demand for government program expenditures such as health care. What healthcare related services will be essential to meet the requirements of a rapidly aging provincial population? How many doctors, nurses and other types of healthcare providers do we need to train to replace the aging healthcare providers while satisfying the growing demand for healthcare services? How much of specific types of services and facilities do we require? These are important questions that policy makers need to address in the coming years.

The relationship between the working and non-working components of the population is usually captured by a dependency ratio. This is defined as the ratio of the total population, which is essentially the number of mouths to feed, to the working age population, i.e., population 20 to 64 years of age. This 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.

Figure 1.5 shows that the dependency rate in Ontario declined from a high of 185.1 percent in 1971 to 160.2 percent in 2011. The ratio was high during the 1960s and 1970s reflecting the high fertility levels and large numbers of children born in that period. The ratio then fell as fertility rates dropped sharply and as the baby boomers came of working age. Thereby their status changed from dependents to providers. The decline in the ratio has continued for four

decades. However, as the baby boom generation moves into old age, the ratio will once again start to increase.

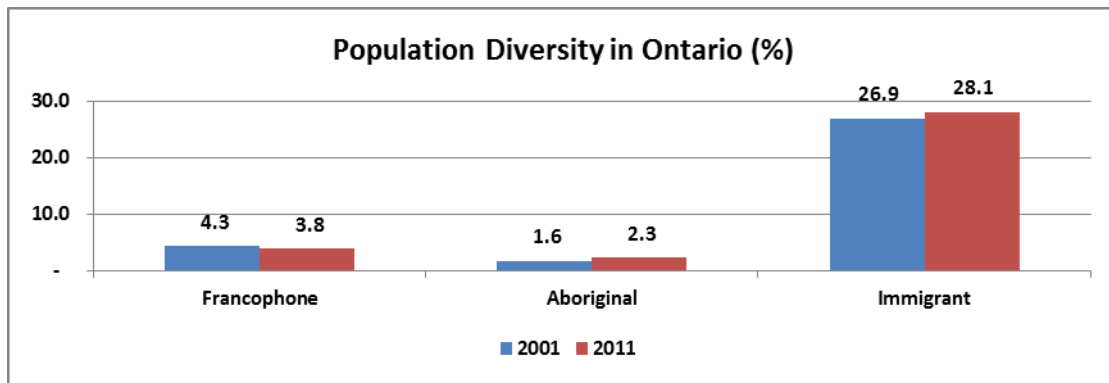
**Figure 1.5: Ratio of Total to Working-Age Population in Ontario**



The make-up of Ontario's population has changed significantly during 1971-2011. The composition of the dependent population has changed dramatically as well. During the 1970s, it was largely younger people who dominated the dependent population. As shown in Figure 1.3, about 37.7 percent of the dependent population were children below the age of 20 and only 8.3 percent were seniors in 1971. In 2011, 23.4 percent of the dependent population were children below the age of 20 while 14.2 percent were seniors. This trend will continue. The dependent population will be comprised largely of older rather than younger people.

Another aspect of demographic change in Ontario relates to the linguistic and cultural diversity of the population (Figure 1.6). The share of the Francophone population declined from 4.3 percent in 2001 to 3.8 percent in 2011. This is in spite of the fact that the Francophone population grew by 2.3 percent during that period. But the growth rate was smaller than that of the overall population in Ontario. The share of the Aboriginal population increased from 1.6 percent to 2.3 percent during 2001-2011. Similarly, immigrants comprised 26.9 percent of Ontario's population in 2001. Their share increased to 28.1 percent in 2011.

**Figure 1.6: Francophone, Aboriginal and Immigrant Population in Ontario**



The share of the Aboriginal population living on reserves declined from 20.3 percent in 2001 to 12.9 percent in 2011. The Aboriginal population is younger and has a higher fertility rate than the rest of the population. In addition, as we will see later, a higher percentage of Aboriginals live in rural areas compared to other visible minorities.

During 2001-2011, the immigrant population increased in numbers as well as taking a larger proportionate share of the total population. However, where the immigrants came from has changed significantly. The proportion of European-born immigrants declined from 67.0 percent to 37.0 percent during 1981-2006, while that of Asian-born immigrants rose from 14.0 percent to 41.0 percent during the same period.<sup>2</sup>

<sup>2</sup> Andre Leonard, "Demographic Change in Canada", Parliamentary Information and Research Services, Publication No. 2011-63-E. May 18, 2011.

## **PART II: DEMOGRAPHIC AND SOCIO-ECONOMIC TRENDS IN RURAL AND URBAN ONTARIO**

Demographic changes have not been uniform across rural and urban Ontario. Ontario's urban population has experienced growth while its rural population has declined between 2001-2011. The objective of this part of the report is to examine population trends in rural and urban Ontario during 2001-2011. Various socio-economic characteristics of the rural and urban population are analyzed. The earnings gap between rural and urban population has been widening. We examine whether this gap is associated with agglomeration economies (geographic concentration of economic activity) or human capital composition

In analyzing demographic changes in Ontario, we pay special attention to four population groups, namely total provincial population, Francophone, Aboriginal and immigrant population. How have the recent demographic changes affected these four population groups? Has the impact been the same for rural as for urban Ontario? How many people live in rural and urban areas in the province? What are the main socio-economic characteristics of these population groups? Is the population growing or declining in these regions? Have demographic changes been similar in rural and urban areas? These are questions we seek to explore in this part of the study.

Changing demographics and fluctuating populations in rural areas have important implications for resource development. Canada's economic prosperity has been based on a staples economy relying on the export of natural resources. The staple theory is one model commonly used to explain economic development of Canada's peripheral and rural regions.

Most of the mineral resources are located in rural and peripheral regions. For example, Northern Ontario accounts for all the metals and about 20 percent of the non-metals produced in Ontario and has consistently produced between 67 and 79 percent of the value of all provincial minerals production since 2006. Currently, all the potential mineral resources are located in the north of 50<sup>th</sup> parallel region and their development necessarily involves Aboriginal and non-Aboriginal collaboration. Many of Ontario's resource-based areas are characterized as single-industry communities. Historically, population changes impacted the ability of those communities to participate in resource development which ultimately benefited greater provincial and national economies.

Before examining demographic changes in rural and urban Ontario, we need to define the term 'rural'. There has been an age-old debate regarding whether rural is a geographical concept or a social representation or a culture and a way of life. This report focuses on the geographical classifications of rural regions. There are at least six different definitions of rural areas each emphasizing different criteria such as population size, population density and labour market context. Different definitions result in different estimates of the rural and urban population. Statistics Canada suggests that "the appropriate definition should be determined by the question being addressed; however, if we were to recommend one definition as a starting-point or benchmark for understanding Canada's rural population, it would be the "rural and small town"

definition. This is the population living in towns and municipalities outside the commuting zone of larger urban centres (i.e. outside the commuting zone of centres with a population of 10,000 or more).”<sup>3</sup>

Based on the above information, we define rural and small town (RST) to refer to the population living outside Census Metropolitan Areas (CMAs) and Census Agglomerations (CAs). A CMA has an urban core population of at least 100,000 and includes all neighbouring Census Sub-Divisions (CSDs) where:

1. 50% or more of the employed labour force living in the CSD commutes to work in the urban core, or
2. 25% or more of the employed labour force working in the CSD commutes to work from the urban core.
3. A CA has an urban core population between 10,000 and 99,999 people. The same commuting flow thresholds also apply in the description of CAs.

Therefore, rural population is defined to refer to the non-CMA/CA population. Using recently developed metropolitan influenced zones (MIZ) indicators by Statistics Canada, one can disaggregate the effect of metropolitan accessibility on rural and small towns. This classification disaggregates rural areas into four types of zones based on the degree of metropolitan influence as indicated by the degree of commuting to any CMA or CA. These are defined as follows:

1. Strong MIZ includes CSDs with a commuting flow of 30 percent or more. In other words, at least 30 percent of the total employed labour force living in the CSD works in any CMA/CA urban core;
2. Moderate MIZ includes CSDs with a commuting flow of between 5 and 30 percent. This means that at least 5 percent, but less than 30 percent of the total employed labour force living in the municipality works in any CMA/CA urban core;
3. Weak MIZ includes CSDs with a commuting flow of more than 0 percent, but less than 5 percent suggesting that more than 0 percent, but less than 5 percent of the total employed labour force living in the municipality works in any CMA/CA urban core;
4. No MIZ includes CSDs with either fewer than 40 people in the resident labour force or where no people commute to the urban core of any CMA or CA.

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<sup>3</sup> Pleassis, V.D., R. Badhiri, R.D. Bollman and H. Clemenson, *Definitions of “Rural”*, Statistics Canada, Agriculture Division, December 2002, Catalogue NO. 21-601-MIE – No. 061.

## Demographic Trends in Urban and Rural Ontario

The data used in this part of the study is based on detailed socio-economic information on all census sub-divisions in Ontario obtained from 2001 and 2011 census custom tabulations and NHS. The data set includes information on average socio-economic characteristics such as average employment earnings, average full-time earnings, population by highest level of educational attainment, employment by industry and occupation, population by ethnicity, employed labour force and the participation and unemployment rates for each CSD. It also shows the statistical area classification for each CSD which allows us to designate a CSD as urban or rural along with its degree of rurality.

Based on the above classification, one can classify all 574 CSDs in the province of Ontario into 92 CMAs and 56 CAs which are considered as urban areas. The other 426 CSDs are classified as rural areas with different degrees of rurality. Using the above classification, Table 2.1 shows the population change in urban and rural Ontario during 2001-2011.

**Table 2.1: Urban and Rural Population in Ontario**

<b>Ontario</b>	<b>2001</b>	<b>%</b>	<b>2011</b>	<b>%</b>	<b>Percentage Change 2001-2011</b>
Urban	10,078,965	89.31	11,604,035	91.21	15.13
Rural	1,206,570	10.69	1,118,025	8.79	- 7.34
<b>Total</b>	<b>11,285,555</b>	<b>100.00</b>	<b>12,722,070</b>	<b>100.00</b>	<b>12.73</b>

We note that the sum of individual CSD population data shown in Table 2.1 is slightly different from the total Ontario population based on 2001 and 2011 census reports. However, for the sake of consistency, we use population statistics based on the aggregation of individual CSD data to analyze urban-rural population changes in this part of the study.

Table 2.1 shows that Ontario's population increased by 12.7 percent during 2001-2011. The urban population grew by 15.1 percent or 1.5 percent per year while the rural and small town population declined by 7.3 percent during 2001-2011. Some of the above rural and urban population changes may be due to the reclassification of boundaries.<sup>4</sup> In their analysis of rural and small town Canada, Mendelson and Bollman also found that when the reclassification of boundaries is taken into account, Canada's RST population was 18.0 percent smaller in 1996 compared with 1976.<sup>5</sup>

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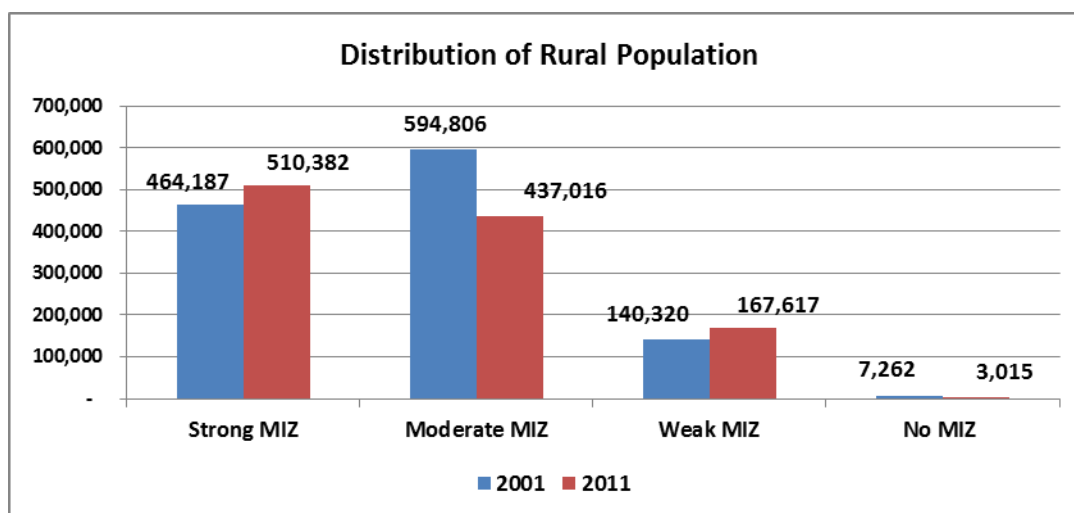
<sup>4</sup> The reclassification of boundaries from rural and small towns to urban areas are likely to affect CSDs that are in the commuting zone of CMAs and CAs and not those that are farther away from urban areas, i.e., those with zero, weak or moderate MIZ classification. Mitchell attributes the growth of rural areas close to metropolitan regions to the decision of urban residents to combine an urban workforce with the benefits of rural living. She states that as a greater number of ex-urbanites relocate to the countryside, "municipalities formerly classified as rural and small town soon became engulfed by the expanding sphere of urban influence." See Mitchell Clare J.A., *Population Growth in Rural and Small Town Ontario: Metropolitan Decentralization or Deconcentration?*, Canadian Journal of Regional Science, 2009, 377-392.

<sup>5</sup> Mendelson Robert and Ray D. Bollman (1998), *Rural and Small Town Canada Analysis Bulletin*, Vol. 1, No. 1, Cat. No. 21-006-XIE.

Table 2.1 also shows that Ontario's population living in rural and small towns has declined both in absolute and relative terms. The share of Ontario's population living in RST areas declined from 10.7 percent in 2001 to 8.8 percent in 2011. Mendelson and Bollman also found that the share of Canada's population living in RST areas declined from 34.0 percent in 1976 to 22.0 percent in 1996.<sup>6</sup> Mitchell also reports that between 1971 and 2001, the percentage of the population residing in rural and small towns declined by about one fifth, to only 20.3 percent.<sup>7</sup> She also finds that during the last census period of the millennium (1996-2001), more than 50 percent of the country's smallest settlements lost residents.<sup>8</sup>

Figure 2.1 shows the distribution of the rural population in Ontario by degree of rurality. It shows that the rural population living in areas designated as strong MIZ increased during 2001-2011. This is likely due to relocation of ex-urbanites to the countryside. The rural areas designated as moderate MIZ experienced population decline during 2001-2011. The rural areas designated as having weak MIZ show slight increase in their population. Finally, areas designated as no metropolitan influence zones lost population during 2001-2011.

**Figure 2.1: Ontario Rural Population by Degree of Rurality**



In relative terms, the share of rural population living in CSDs with a strong urban influence increased from 38.5 percent in 2001 to 45.6 percent in 2011. The share of rural population in CSDs with a moderate metropolitan influence declined from 49.3 percent in 2001 to 39.1 percent in 2011. The share of rural population living in areas with a weak link increased by 3.4 percent. The share of population in remote rural areas declined from 0.6 percent to about 0.3 percent during 2001-2011.

<sup>6</sup> Ibid, p. 7.

<sup>7</sup> Mitchell Clare J.A., *Population Growth in Rural and Small Town Ontario: Metropolitan Decentralization or Deconcentration?*, Canadian Journal of Regional Science, 2009, 377-392.

<sup>8</sup> Ibid, p. 377.



## Age Distribution of Population in Ontario

Table 2.2 and Figure 2.2 show the percentage age distribution of the total population in Ontario during 2001-2011.<sup>9</sup> Table 2 shows that while the provincial population has increased by 12.7 percent during 2001-2011, it has been gradually aging during the same period. The percentage of the population below the age of 65 has declined from 87.7 percent in 2001 to 85.9 percent in 2011. During the same period, the percentage of the population aged 65 and over has increased from 12.2 percent to 14.1 percent.

Figure 2.2 shows that the share of the population under 19 years of age has declined from 26.6 percent in 2001 to 23.9 percent in 2011. Similarly, the share of the population in prime working age has declined from 37.4 percent in 2001 to 33.2 percent in 2011. During the same period, the share of the population between the ages of 50 and 64 increased by 4.4 percent. The share of seniors 65 years and over increased by 1.8 percent during the above period.

An aging population increases demand for the services catered to the needs of the elderly such as health care. It has important implications for the labour force and the ability of Ontario to generate output and income. It also affects other aspects of the economy such as a household's income, spending, savings and investment behaviour. Lower household income also results in lower provincial tax revenue. This happens while demand for public services such as health care is rising.

**Table 2.2: Age Distribution of the Total Population**

Age Distribution	2001	%	2011	%	Percentage Change 2001-2011
0 to 4 years	670,715	5.94	703,620	5.53	4.91
5 to 9 years	772,165	6.84	712,315	5.60	-7.75
10 to 14 years	787,555	6.98	762,850	6.00	-3.14
15 to 19 years	766,595	6.79	861,085	6.77	12.33
20 to 24 years	715,905	6.34	850,135	6.68	18.75
25 to 29 years	727,055	6.44	812,200	6.38	11.71
30 to 34 years	825,505	7.31	797,410	6.27	-3.40
35 to 39 years	985,570	8.73	841,220	6.61	-14.65
40 to 44 years	965,530	8.56	920,270	7.23	-4.69
45 to 49 years	855,295	7.58	1,050,955	8.26	22.88
50 to 54 years	772,815	6.85	1,001,005	7.87	29.53
55 to 59 years	581,595	5.15	859,565	6.76	47.79
60 to 64 years	476,550	4.22	760,840	5.98	59.66
65 to 69 years	426,735	3.78	558,920	4.39	30.98
70 to 74 years	379,825	3.37	434,690	3.42	14.44
75 to 79 years	300,215	2.66	345,615	2.72	15.12
80 to 99 years	275,460	2.44	448,460	3.53	62.80
100 years +	470	0.00	915	0.01	94.68
0 to 19	2,997,030	26.56	3,039,870	23.89	1.43
20 to 44	4,219,565	37.39	4,221,235	33.18	0.04
0 to 64	9,902,850	87.75	10,933,470	85.94	10.41
65+	1,382,705	12.25	1,788,600	14.06	29.36
<b>Total</b>	<b>11,285,555</b>	<b>100.00</b>	<b>12,722,070</b>	<b>100.00</b>	<b>12.73</b>

<sup>9</sup> Age distribution of the population is based on population data by single year of age obtained through census custom tabulations.

**Figure 2.2: Aging Population in Ontario**

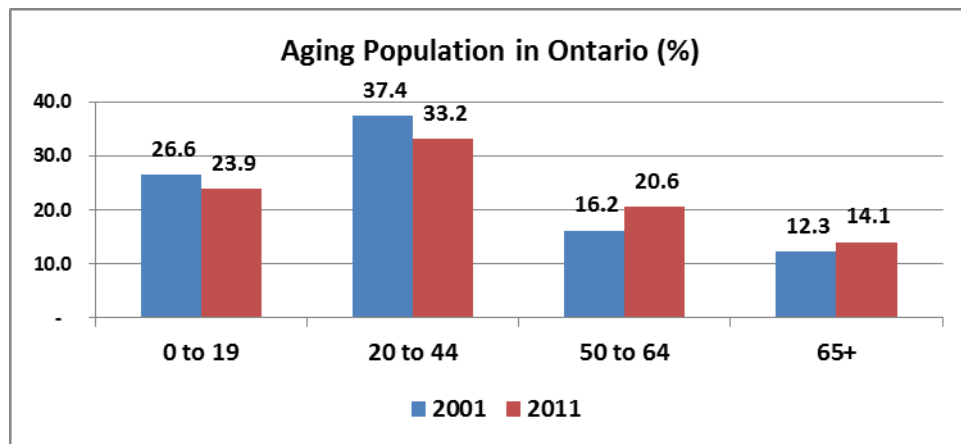


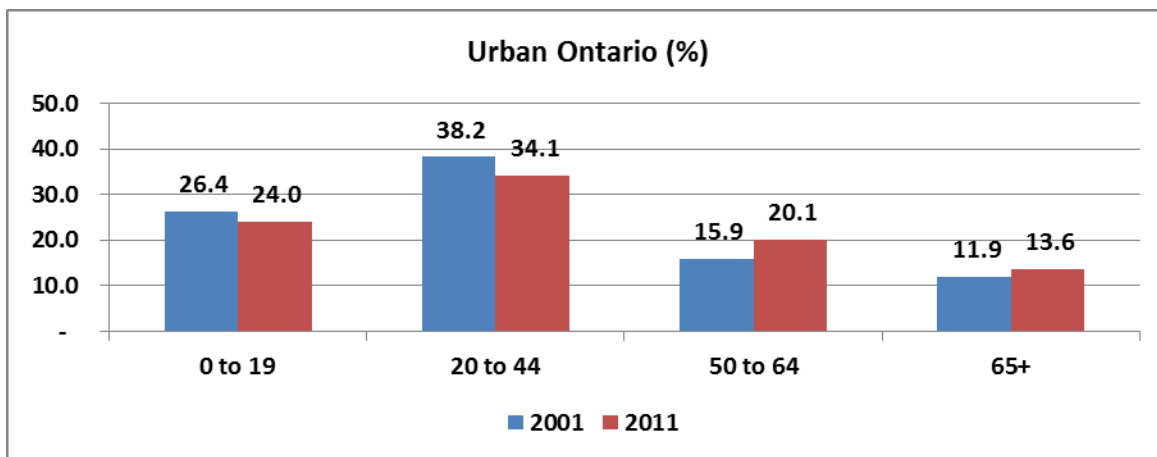
Table 2.3 and Figure 2.3 show the percentage age distribution of the population in urban Ontario. They show that the urban population in Ontario increased by 15.1 percent during 2001-2011. As is the case for the total population, the urban population is also aging. Even though the population size has increased in most age categories, the percentage share of younger people has declined. For example, the share of individuals under 19 years of age has declined from 26.38 percent in 2001 to 23.98 percent in 2011, a decline of 2.4 percent. The share of the prime working age population aged 20 to 44 has declined by 4.1 percent. On the other hand, the share of population aged 50 to 64 has increased by 4.2 percent. The share of seniors 65 years and over increased by 1.7 percent.

Table 2.4 and Figure 2.4 show the percentage age distribution of the rural population in Ontario. The size and share of the population under the age of 19 have declined significantly during 2001-2011. The percentage decline ranges from 16.6 percent for those between the ages of 15 to 19 to 29.3 percent for those between the ages of 5 to 9 years. The reason for the decline of individuals in the younger age categories is the apparent outmigration of their parents. The size and share of the population aged 25 to 49 declined during 2001-2011. The percentage decline ranges from 9.8 percent for those aged 25 to 29 to 41.0 percent for those between the ages of 35 and 39. On the other hand, the size and share of the population aged 50 and over increased during the above period. The share of seniors aged 65 years and over increased by 3.8 percent during 2001-2011. This is much greater than the growth rate of seniors in urban Ontario (1.7%) and total Ontario (1.8%). In other words, the rural population is aging much faster than the urban and total population in Ontario. The share of seniors in rural Ontario equals 19.3 percent compared to 13.6 percent in urban Ontario and 14.1 percent in Ontario.

**Table 2.3: Age Distribution of Population in Urban Ontario**

<b>Age Distribution</b>	<b>2001</b>	<b>%</b>	<b>2011</b>	<b>%</b>	<b>Percentage Change 2001-2011</b>
0 to 4 years	603,435	5.99	650,075	5.60	7.73
5 to 9 years	688,470	6.83	653,170	5.63	-5.13
10 to 14 years	691,770	6.86	694,225	5.98	0.35
15 to 19 years	674,940	6.70	784,650	6.76	16.25
20 to 24 years	658,295	6.53	792,390	6.83	20.37
25 to 29 years	676,040	6.71	766,190	6.60	13.34
30 to 34 years	760,820	7.55	751,970	6.48	-1.16
35 to 39 years	893,245	8.86	786,760	6.78	-11.92
40 to 44 years	866,535	8.60	853,895	7.36	-1.46
45 to 49 years	763,600	7.58	960,360	8.28	25.77
50 to 54 years	685,280	6.80	903,670	7.79	31.87
55 to 59 years	508,585	5.05	765,695	6.60	50.55
60 to 64 years	411,680	4.08	668,305	5.76	62.34
65 to 69 years	367,075	3.64	486,925	4.20	32.65
70 to 74 years	328,205	3.26	379,510	3.27	15.63
75 to 79 years	261,710	2.60	304,640	2.63	16.40
80 to 99 years	238,885	2.37	400,785	3.45	67.77
100 years +	395	0.00	820	0.01	107.59
<b>Total</b>	<b>10,078,965</b>	<b>100.00</b>	<b>11,604,035</b>	<b>100.00</b>	<b>15.13</b>
0 to 19	2,658,615	26.38	2,782,120	23.98	4.65
20 to 44	3,854,935	38.25	3,951,205	34.05	2.50
0 to 64	8,882,695	88.13	10,031,355	86.45	12.93
65+	1,196,270	11.87	1,572,680	13.55	31.47

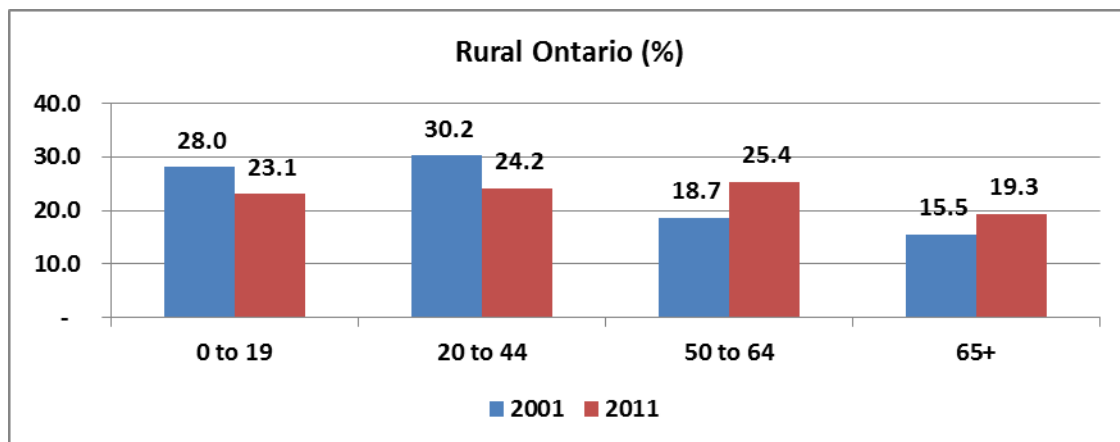
**Figure 2.3: Aging Urban Population in Ontario**



**Table 2.4: Age Distribution of Population in Rural Ontario**

<b>Age Distribution</b>	<b>2001</b>	<b>%</b>	<b>2011</b>	<b>%</b>	<b>Percentage Change 2001-2011</b>
0 to 4 years	67,280	5.58	53,545	4.79	-20.41
5 to 9 years	83,695	6.94	59,145	5.29	-29.33
10 to 14 years	95,785	7.94	68,625	6.14	-28.36
15 to 19 years	91,655	7.60	76,435	6.84	-16.61
20 to 24 years	57,610	4.77	57,745	5.16	0.23
25 to 29 years	51,015	4.23	46,010	4.12	-9.81
30 to 34 years	64,685	5.36	45,440	4.06	-29.75
35 to 39 years	92,325	7.65	54,460	4.87	-41.01
40 to 44 years	98,995	8.20	66,375	5.94	-32.95
45 to 49 years	91,695	7.60	90,595	8.10	-1.20
50 to 54 years	87,535	7.25	97,335	8.71	11.20
55 to 59 years	73,010	6.05	93,870	8.40	28.57
60 to 64 years	64,870	5.38	92,535	8.28	42.65
65 to 69 years	59,660	4.94	71,995	6.44	20.68
70 to 74 years	51,620	4.28	55,180	4.94	6.90
75 to 79 years	38,505	3.19	40,975	3.66	6.41
80 to 99 years	36,575	3.03	47,675	4.26	30.35
100 years +	75	0.01	95	0.01	26.67
<b>Total</b>	<b>1,206,590</b>	<b>100.00</b>	<b>1,118,035</b>	<b>100.00</b>	<b>-7.34</b>
0 to 19	338,415	28.05	257,750	23.05	-23.84
20 to 44	364,630	30.22	270,030	24.15	-25.94
0 to 64	1,020,155	85.00	902,115	81.00	-11.57
65+	186,435	15.00	215,920	19.00	15.82

**Figure 2.4: Aging Rural Population in Ontario**



## Socio-Economic Characteristics of Rural and Urban Population in Ontario

Demographic change and economic change are inextricably linked. Individuals migrate from economically depressed areas to those with favorable economic conditions. At the same time, lack of a qualified labour force reduces the ability of residents to participate in the benefits of economic development in their regions. Lack of a qualified labour force can also represent a barrier to economic development in remote regions. This is especially true in resource-based communities.

This part of the study examines various socio-economic characteristics of rural and urban Ontario. We pay special attention to the degree of rurality. We note that the average statistics reported in this part is the average over all CSDs and not that of the individuals living in those regions. In other words, each CSD gets an equal weight in the calculation of the average statistics irrespective of the number of residents in the CSD. Therefore, the averages reported in this part may be slightly different from those reported by Statistics Canada which are based on individuals rather than areas.

Figure 2.5 shows the average labour force participation and unemployment rates among individuals between the ages of 15 and 64 in urban and rural Ontario.

**Figure 2.5: Participation and Unemployment Rates in Urban & Rural Ontario**

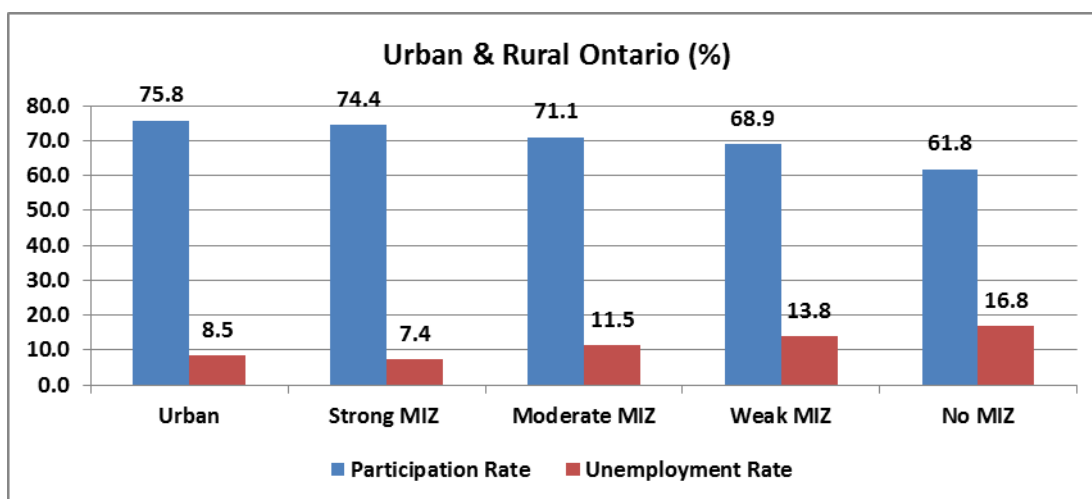


Figure 2.5 shows that the average labour force participation rate is highest in urban areas and declines as the degree of rurality rises. The difference between the participation rate in urban and remote regions is 14.0 percent. On the other hand, the unemployment rate is lowest in urban areas and increases as the degree of rurality rises. Figure 2.5 shows that the unemployment rate is generally higher in rural areas and is about twice greater in remote regions compared to urban centres.

Figure 2.6 shows the percentage of population aged 15 to 64 who received government transfer payments in 2011.

**Figure 2.6: Dependency Rate on Government Transfer Payments**

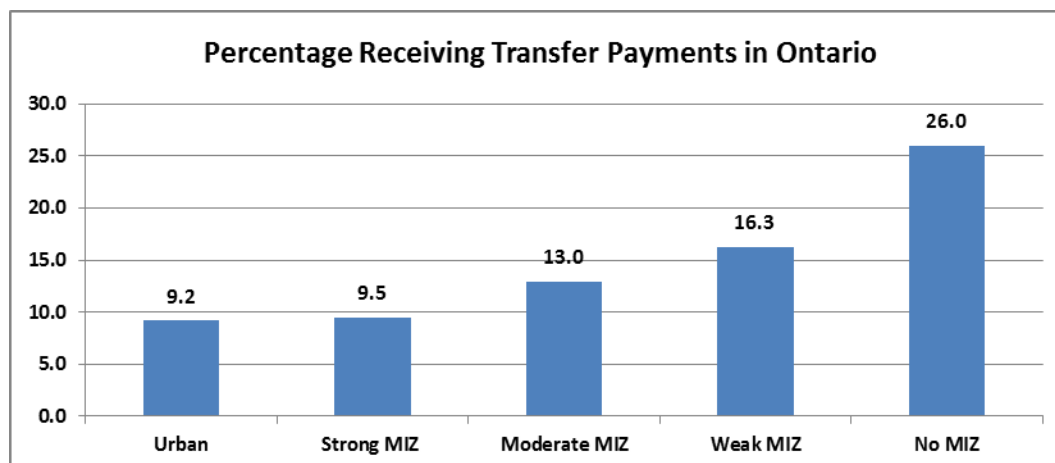


Figure 2.6 shows that an average of 9.2 percent of individuals in Ontario's urban areas receive transfer payments. The dependency rate increases as the degree of rurality rises. Figure 2.6 shows that the dependency rate in remote areas of Ontario is about 2.8 times greater than that in urban regions.

Table 2.5 shows the share of individuals aged 15 to 64 with their highest level of schooling in various regions in Ontario in 2011.

**Table 2.5: Ontario Regions by Highest Level of Schooling (%)**

Highest Level of Schooling	Urban	Strong MIZ	Moderate MIZ	Weak MIZ	No MIZ
Less than HS	17.71	20.10	22.87	30.00	49.25
High School	29.57	28.76	30.23	25.89	19.88
Trade	9.00	10.51	11.29	10.85	7.58
College	24.34	24.77	22.91	21.64	14.06
University	19.37	13.62	11.40	10.53	2.43

Table 2.5 shows that the level of educational achievement in urban areas is much higher than that in rural regions. The level of schooling declines as the distance between rural areas and population centres increases. Almost half of the remote rural population do not have a high school diploma. Similarly, the percentage of individuals with a high school diploma declined from 28.8 percent for rural areas with a strong link to urban regions to 19.9 percent for remote rural areas. The percentage of individuals with a college or university degree also declines as we move away

from urban centres. For example, 43.7 percent of the urban population have a college or university degree compared to 32.2 percent in rural areas with a weak link to urban centres and only 16.5 percent of the population in remote areas. The percentage of individuals with a trade certificate is relatively constant in all areas.

Figure 2.7 shows the percentage of individuals aged 15 to 64 with employment income in rural and urban Ontario in 2011.

**Figure 2.7: Population 15 to 64 Years of Age with Employment Income**

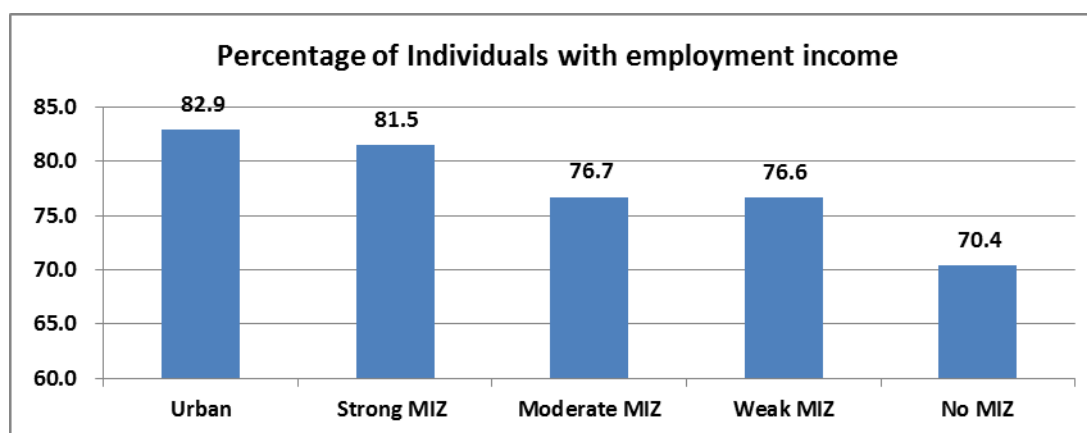


Figure 2.7 shows that 82.9 percent of individuals in urban areas work and earn employment income. The percentage of the population having employment income declines as we move away from population centres. On average, only 70.4 percent of individuals aged 15 to 64 in remote areas reported any employment income compared to 81.5 percent in rural areas with a strong link to population centres.

Comparing Table 2.5 and Figure 2.7 reveals a correlation between the highest level of schooling and percentage of individuals with employment income. It appears that areas with a lower level of educational achievement have a lower share of their residents working and earning income.

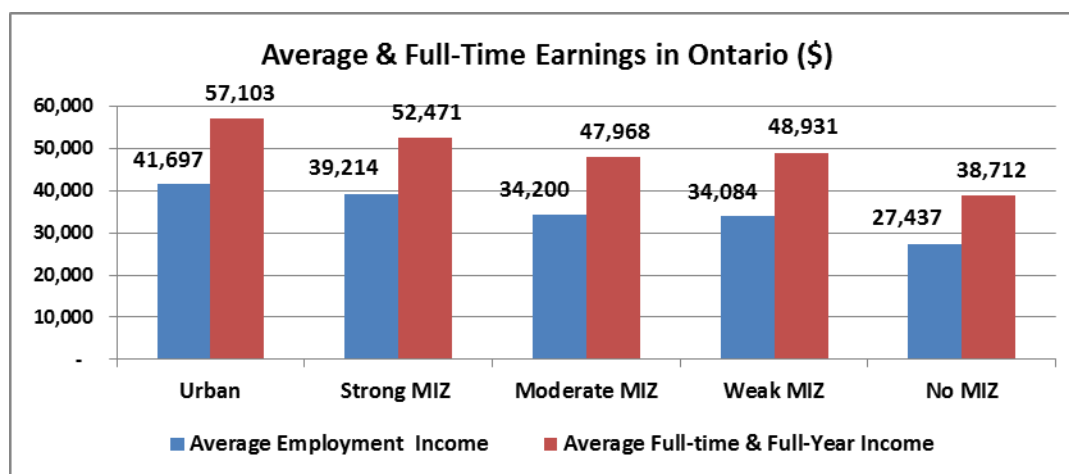
Figure 2.8 shows the average earnings of all who worked as well as those who worked full-time and full-year in 2011. It shows that the average earnings in urban areas equaled \$41,697 which is much higher than earnings in rural areas. Note that this average earnings includes all those who worked full-time, full-year, part-time or part-year. Figure 2.8 shows that the average earnings declines as the degree of rurality rises.

The average earnings in remote areas is about 65.8 percent of earnings in urban regions. This can be due to lower number of hours worked per year or lower level of human capital in remote regions. To control for the number of hours worked, we also present average earnings of those who worked full-time and full-year in Figure 2.8. It shows that the earnings of those who worked full-time and full-year also declines as one moves towards more rural areas. Again, the average



earnings of full-time workers in remote regions is about 67.8 percent of their counterparts in urban areas. It appears that human capital is probably the factor playing a greater role in determining earnings in rural and urban regions. We will explore this hypothesis later in this report.

**Figure 2.8: Earnings of Employed Persons in Ontario**



## Demographic Trends among the Francophone Population in Ontario

Table 2.6 shows the age distribution of the Francophone population in Ontario during 2001 - 2011.

**Table 2.6: Age Distribution of Francophone Population in Ontario**

Age Category	2001	2011	Percentage Change
0 to 14 years	64,515	58,430	- 9.43
15 to 24 years	51,570	50,065	- 2.92
24 to 44 years	152,905	119,610	- 21.77
45 to 64 years	143,320	172,865	20.61
65 to 74 years	43,300	53,975	24.65
75 years and over	26,730	38,350	43.47
<b>Total</b>	<b>482,340</b>	<b>493,295</b>	<b>2.27</b>
0 to 44	268,990	228,105	-15.20
45 to 64	143,320	172,865	20.61
65 and over	70,030	92,325	31.84
Average Age	40.9	43.9	7.33
Median Age	42.0	47.0	11.90

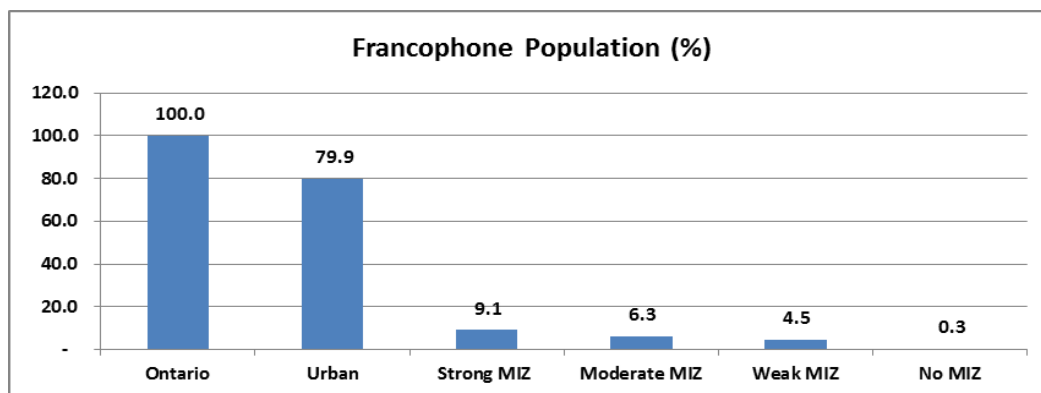
We note that there is a discrepancy between the Francophone population reported by the 2011 Census and the one based on the 2011 National Household Survey (NHS). According to the NHS, the total Francophone population in Ontario equaled 473,325 in 2011. However, the 2011 Census reports a total Francophone population of 493,295 in Ontario in 2011.<sup>10</sup> For consistency, we have used data from the 2001 and 2011 Censuses of Canada.

Table 2.6 shows that the total Francophone population in Ontario increased from 482,340 in 2001 to 493,295 in 2011, a rise of about 2.8 percent. The total population in age categories between 0 and 44 experienced decline during 2001-2011. The total number of people in that category declined from 268,990 in 2001 to 228,105 in 2011, a decline of about 15.2 percent. During the same period, the number of people aged 45 and older increased from 213,350 in 2001 to 265,190 in 2011, a rise of about 24.3 percent. The population 65 years of age and older increased by 31.8 percent.

It appears that the Francophone population is aging rapidly in Ontario. Overall, the average age of the Francophone population increased from 40.9 in 2001 to 43.9 in 2011. The median age increased from 42 years in 2001 to 47 years in 2011. The Francophone population is older than the total provincial population. The average age of Ontarians is 38.9 years compared to 43.9 years for the Francophone population. Similarly, the median age of Ontarians is 40 years compared to 47 years for the Francophone population. The median age is the age that divides a population into two equal groups with 50 percent of the people being younger than this age and 50 percent being older. In other words, the median age is the age of a person who separates the higher half of the population from the lower half.

Figure 2.9 shows the geographical distribution of the Francophone population in Ontario in 2011.

**Figure 2.9: Francophone Population in Urban and Rural Ontario**



<sup>10</sup> Two factors explain the differences between the 2011 NHS estimates and Census counts. First is the definition of the population of each data source. The target population for the 2011 Census includes usual residents in collective dwellings such as hospitals, nursing homes, prisons or correctional centres as well as persons living abroad, whereas the target population for the NHS excludes them. The second factor relates to the higher non-response error in NHS data due to the survey's voluntary nature.

The majority or 79.9 percent of the Francophone people live in urban areas. About 19.9 percent live in rural areas with a weak to strong link with urban centres. Only 0.3 percent live in remote rural communities.

## Aboriginal Population

Table 2.7 shows the age distribution of the on- and off-reserve Aboriginal population in Ontario during 2001-2011. It shows that the on-reserve population has declined slightly during 2001-2011. This is primarily due to the migration of Aboriginal individuals from reserves to off-reserve areas. During the same period, the off-reserve Aboriginal population increased by 72.2 percent. Overall, the total Aboriginal population increased from 184,555 in 2001 to 290,795 in 2011, a growth rate of about 57.6 percent. There are various factors explaining the significant growth of the Aboriginal population in Ontario. First, as mentioned above, one of the reasons for a significant growth of the off-reserve Aboriginal people in Ontario is the outmigration of people from reserves to off-reserve areas.

**Table 2.7: Aboriginal Population in Ontario**

Age Groups	2001		2011	
	On-Reserve	Off-Reserve	On-Reserve	Off-Reserve
0 to 14 years	12,770	41,720	10,785	60,675
15 to 24 years	6,005	24,070	6,480	43,070
25 to 34 years	5,325	22,795	4,630	34,610
35 to 44 years	5,400	25,830	4,835	34,835
45 to 54 years	3,395	17,150	5,030	38,550
55 to 64 years	2,255	9,415	3,275	25,005
65 to 74 years	1,485	4,295	1,675	11,665
75 years and over	775	1,870	685	4,990
<b>Total</b>	<b>37,410</b>	<b>147,145</b>	<b>37,395</b>	<b>253,400</b>
0 to 44	29,500	114,415	26,730	173,190
45 to 64	5,650	26,565	8,305	63,555
65 and over	2,260	6,165	2,360	16,655
Average Age	27.8	29.2	30.4	32.5
Median Age	24.9	28.6	28	31.5

Secondly, the high Aboriginal population growth is not solely due to natural demographic processes; according to Statistics Canada, the traditional demographic components of growth (fertility, mortality and migration) are not the only factors that have affected the growth of the Aboriginal population in Canada. Another phenomenon that has also affected the size, growth

and composition of the Aboriginal population in recent years is referred to as a “change in reporting” or “ethnic mobility.” Ethnic mobility refers to people changing, from one census to the next, the reporting of their Aboriginal affiliations from a non-Aboriginal identity to an Aboriginal identity.<sup>11</sup> The passage of Bill C31 in 1986 has been a factor in this ethnic mobility.

According to Statistics Canada, “The Aboriginal population has grown faster than the non-Aboriginal population. Between 1996 and 2006 it increased 45 percent (4.5 percent per year), nearly six times faster than the 8 percent (0.8 percent per year) rate of increase for the non-Aboriginal population.”<sup>12</sup>

In addition to the above factors, there has been a higher participation in the census in recent years. Statistics Canada reports that some Indian reserves and settlements did not participate in the census as enumeration was not permitted or it was interrupted before completion. In 2006, there were 22 incompletely enumerated reserves, down from 30 in 2001 and 77 in 1996.<sup>13</sup> Other factors explaining higher Aboriginal population growth include better and more accessible health care leading to a lower mortality rate and decline in infant mortality.

Finally, one of the main factors explaining the rising share of the Aboriginal population relates to their fertility rate. The fertility rate among Aboriginal women has been significantly higher than the regional average. A report by the Ontario Ministry of Health states that: “Fertility is almost exclusively the source of population growth for Aboriginal peoples in Ontario. Provincially, some in-migration of Aboriginal people takes place from other provinces but does not substantially impact population dynamics among Ontario’s Aboriginal peoples although the impact may be greater in some urban areas. Although minimum information is directly available on Aboriginal fertility in Canada, INAC has reported a total fertility rate (TFR), which is the number of children a woman would have under current prevailing fertility rates, of 2.9 children in 2000 for Registered Indian women. In the same year, the TFR for Canadian women was approximately half that rate at 1.5 children.”<sup>14</sup>

Higher fertility rates along with other factors discussed above have resulted in significant growth of the Aboriginal population in Ontario (Table 2.7).

Table 2.7 also shows that like the overall population in Ontario, the Aboriginal population is aging. The average age of the on-reserve and off-reserve Aboriginal population increased from 27.8 and 29.2 percent in 2001 to 30.4 and 32.5 percent in 2011 respectively. Similarly, the median age of the on- and off-reserve Aboriginal population increased from 24.9 and 28.6 percent in 2001 to 28.0 and 31.5 percent in 2011 respectively.

Figure 2.10 shows the geographical distribution of the Aboriginal population in Ontario calculated based on the 2011 National Household Survey.

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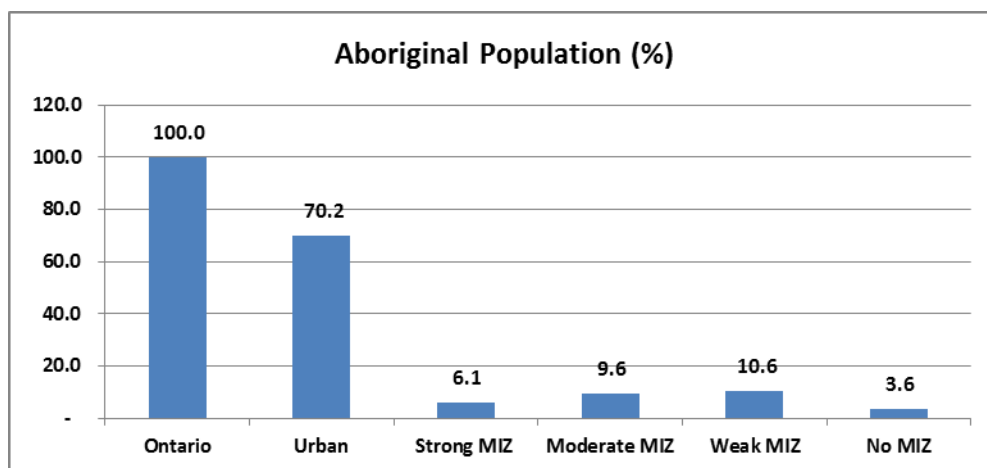
<sup>11</sup> Siggner A. and Rosalinda Costa, “Aboriginal Conditions in Census Metropolitan Areas, 1981-2001”, Statistics Canada, 2005.

<sup>12</sup> Statistics Canada, “Aboriginal peoples in Canada in 2006: Inuit, Metis and First Nations, 2006 Census”.

<sup>13</sup> Ibid.

<sup>14</sup> Ministry of Health and Long-Term Care, Health Analytic Branch, “First Nations Peoples in Ontario: A Demographic Portrait”, January 2009, page 15.

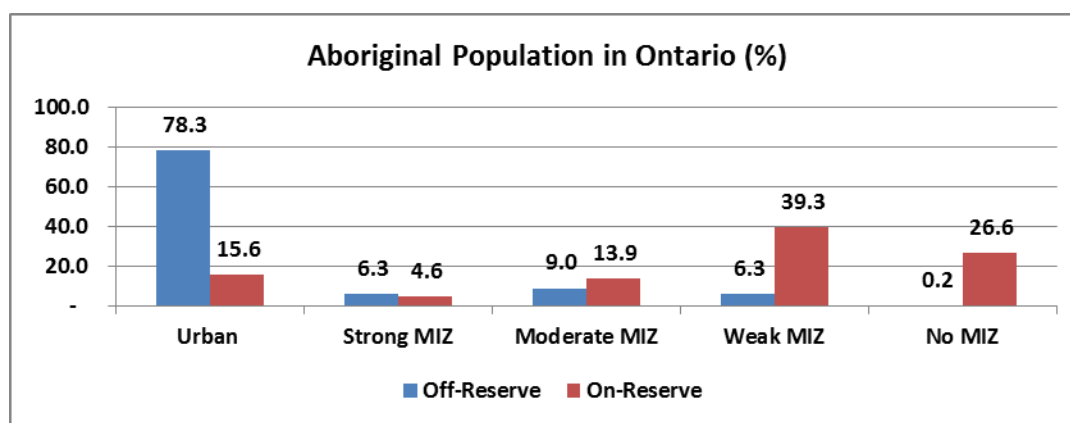
**Figure 2.10: Rural and Urban Aboriginal Population in Ontario**



About 70.2 percent of the Aboriginal population live in urban areas. The other 29.8 percent live in rural areas. About 10.6 percent live in relatively remote rural areas with a weak link to population centres. Another 3.6 percent live in remote regions with no link to urban centres.

Figure 2.11 shows the distribution of on- and off-reserve Aboriginal population in Ontario in 2011.

**Figure 2.11: On-Reserve, Off-Reserve Aboriginal Population**



The majority (78.3%) of the off-reserve Aboriginal population live in urban areas. About 15.6 percent of the Aboriginal people live in urban reserves. The majority or 65.9 percent of the reserve population live in relatively remote rural areas with a weak or no link to urban centres. These are areas with potentially significant mineral resources development requiring a skilled labour force and developed infrastructure which are both absent at the present time.

## Immigrant Population in Ontario

Table 2.8 shows the age distribution of the immigrant population in Ontario during 2001-2011.

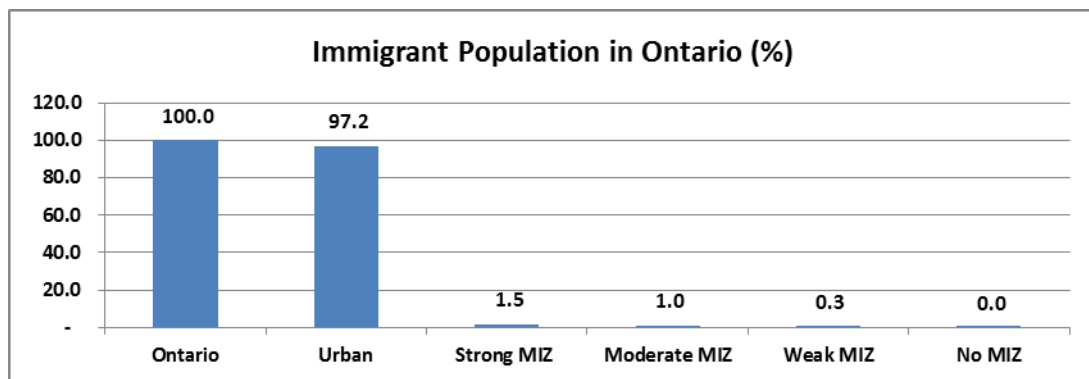
**Table 2.8: Immigrant Population in Ontario**

<b>Age Groups</b>	<b>2001</b>	<b>2011</b>
0 to 14 years	176,815	376,920
15 to 24 years	260,830	568,215
24 to 34 years	419,750	875,485
35 to 44 years	598,840	1,227,770
45 to 54 years	577,475	1,283,200
55 to 64 years	429,975	1,084,800
65 to 74 years	335,420	758,360
75 years and over	225,265	601,025
<b>Total</b>	<b>3,024,370</b>	<b>6,775,775</b>
Average age	45.9	47.0
Median Age	46.2	47.4

Table 2.8 shows that the immigrant population has increased by more than 124.0 percent during 2001-2011. This amounts to a growth rate of 12.4 percent per year. The number of immigrants has increased in all age categories. However, like the overall population, the average age of immigrants has increased from 45.9 years in 2001 to 47.0 years in 2011. Similarly, the median age of immigrants has risen from 46.2 years in 2001 to 47.4 years in 2011.

As Figure 2.12 shows, almost all immigrants reside in urban areas. Only a small percentage of them live in rural areas.

**Figure 2.12: Immigrant Population by Place of Residency**



## What Factors Explain the Urban-Rural Earnings Gap?

As shown above, the average employment earnings decline as we move away from population centres. In other words, the employment earnings of those living in urban regions are much higher than those living in rural areas. There are at least two competing explanations for this observed earnings gap.

One potential explanation is the presence of agglomeration economies which refers to the notion that larger urban centres provide firms with a productive advantage that is not usually available to firms in rural areas. The productive advantage relates to the benefits firms obtain from locating near each other. Higher productivity leads to higher wages. Agglomeration economies relate to the idea of economies of scale and network effects. The cost per unit of output is expected to decline as close proximity results in greater specialization and division of labour, access to shared infrastructure, lower input costs due to competing multiple suppliers and availability and diversity of labour and market size.

Another potential explanation emphasizes the importance of human capital in explaining the earnings gap between rural and urban regions. The rationale is that workers and firms in larger urban areas are more productive resulting in higher wages commensurate with the worker's human capital level.

Beckstead et. al. (2010) examined the effects of agglomeration economies and human capital composition on urban-rural earnings differences in Canada.<sup>15</sup> They argue that (p. 7): "If agglomeration economies are the primary force underlying earnings differences, then the urban-rural earnings gap may be driven by the productive advantages that firms derive from the geographic concentration of economic activity. It is the very nature of urban economies themselves – the dense intertwining of firms and workers – that leads to their advantage. And yet, if it is the skill composition of cities that matters, then the advantage of cities turns on their capacity to educate, as well as attract and retain, highly skilled workers." Using the detailed 2001 census micro-data file, they find that rural-urban earnings gaps are associated with both agglomeration economies and differences in human capital composition. Their econometric results suggest that up to one-half of urban-rural earnings differences are related to human capital composition. The rest are likely due to agglomeration economies. Other researchers have also found similar results.

Glaeser and Maré (1994) find that wages are 32% higher in large cities (over 500,000 population) than in the hinterland. The earnings gap falls to less than 4% when they control for education, experience and race. The gap falls to only 2% when they also control for different occupational composition. The urban wage premium is higher for older workers, but the premiums from living in a city are not higher for the more educated or those with more tenure.<sup>16</sup>

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<sup>15</sup> Beckstead Desmond, W. Mark Brown, Yusu Gue and K. Bruce Newbols, *Cities and Growth: Earnings Levels Across Urban and Rural Areas: The Role of Human Capital*, Statistics Canada, Catalogue No. 11-622-M – No. 020, 2010.

<sup>16</sup> Glaeser Edward and David C. Mare, 1994, "Cities and Skills", NBER Working Papers 4728, National Bureau of Economic Research, Inc.



In addition to the agglomeration economies and human capital level, there are other factors that can influence earnings differentials between regions. Some of these factors include skill differences, compensating differentials due to regional amenities and special occupation and industry factors such as the presence of mining, forestry and agricultural activities in an area. We also saw that the Aboriginal people have lower earnings than the total population. Therefore, the increased share of the Aboriginal population in an area can influence the average earnings in a region.

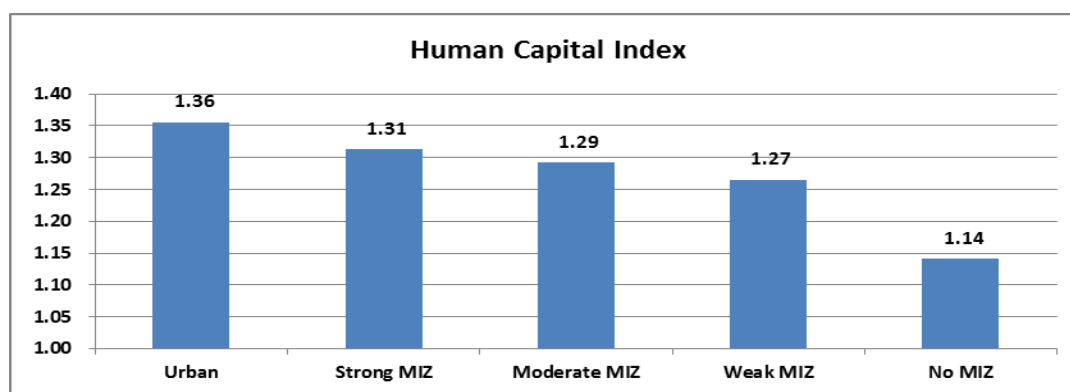
The objective of this part of the report is to explore the role of human capital in explaining the earnings gap between rural and urban Ontario.

## Constructing a Human Capital Index

In order to estimate the influence of human capital on earnings, one needs to specify and measure a proxy for human capital for each of the CSDs (Census Sub-Divisions) in Ontario. To obtain a human capital index, we first estimate a standard earnings model using the 2006 census micro-data file.<sup>17</sup>

Then, we use the estimated coefficients as weights to calculate a weighted average index of the share of individuals with different levels of schooling for each of the 574 CSDs in the province of Ontario.<sup>18</sup> The estimated human capital indexes for urban and rural areas are shown in Figure 2.13.

**Figure 2.13: Human Capital Index for Urban and Rural Areas in Ontario**



<sup>17</sup> The earnings model is of the form:  $\ln Wage = \alpha + \sum \beta_i S_i + X_i \delta_i + \varepsilon_i$ , where  $S_i$ s are the highest level of schooling with those without a high school diploma as the reference group,  $X_i$ s are other control variables which include age categories, marital status, etc. and  $\varepsilon_i$  is an error term.

<sup>18</sup>  $HCI = \exp\{\sum \beta_i \cdot S_i \text{ shares}\}$  where exp stands for exponential and  $S_i$  shares are share of the population 15 to 64 with  $S_i$  level of education in a given CSD. The formulation of the human capital measure is based on Hall, R.E. and C.I. Jones (1999), Why do some countries produce so much more output per worker than others?, the Quarterly Journal of Economics 114 (1), 83-116. Also see Francesco Caselli, "Accounting for Cross-Country Income Differences", First Draft, November 2003.

The estimated index ranges from 1 if none of the area's residents have completed high school to about 2 if all residents have obtained a university degree.

## Agglomeration Economies or Human Capital: Checking the Data

In general, agglomeration economies suggest that larger places offer higher productivity and therefore higher average earnings. Figure 2.14 shows the relationship between the population size and average earnings in various CSDs in Ontario.

**Figure 2.14: Relationship between Population Size and Average Earnings in Ontario CSDs**

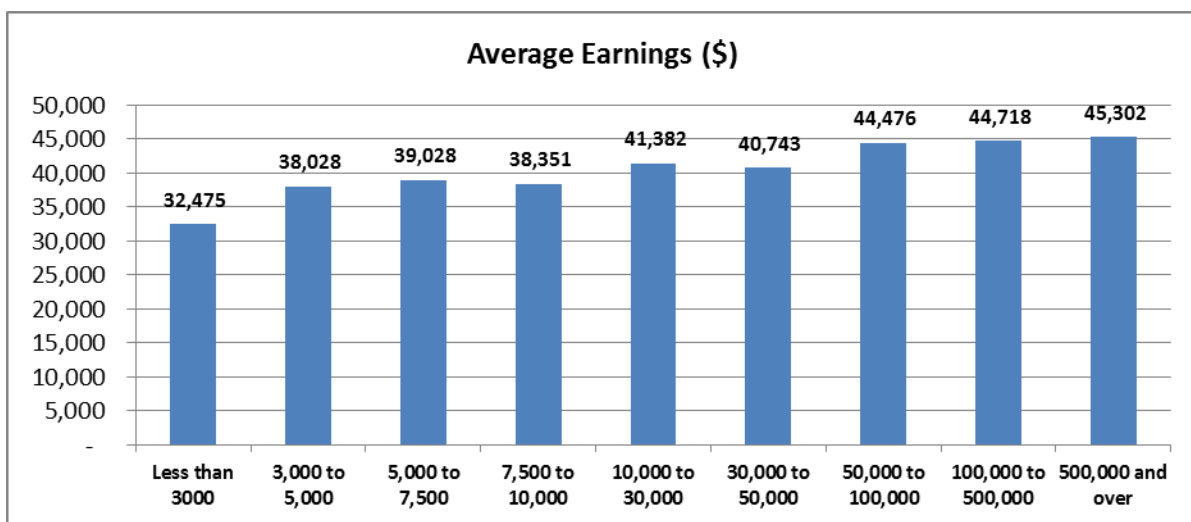
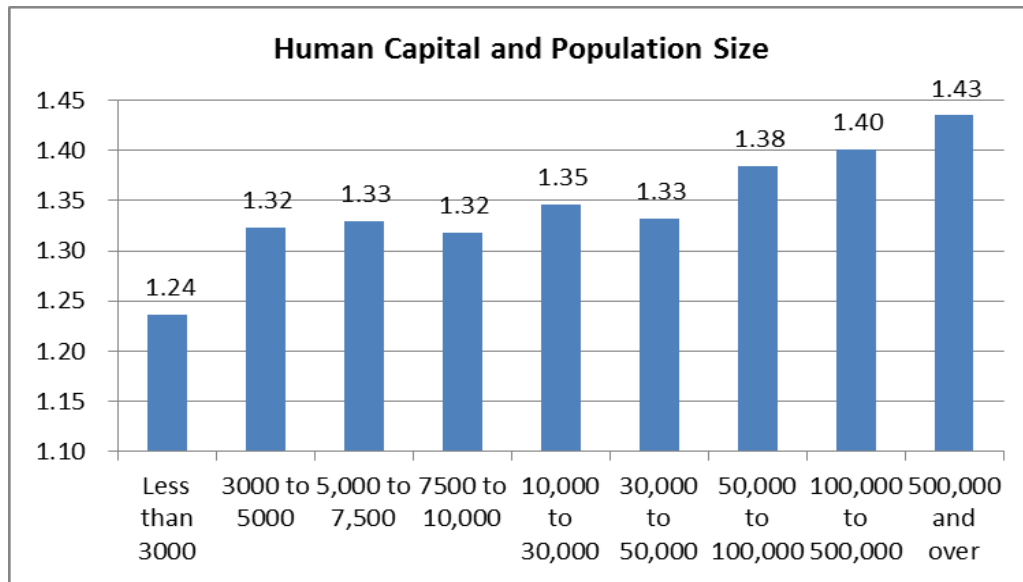


Figure 2.14 shows a positive association between earnings and population size of an area. However, the relationship is not perfect. The estimated correlation coefficient between average population size and average income is 0.58. It appears that there are other factors affecting earnings that are not necessarily captured by the population size. Similar results appear when the population size categories are changed.

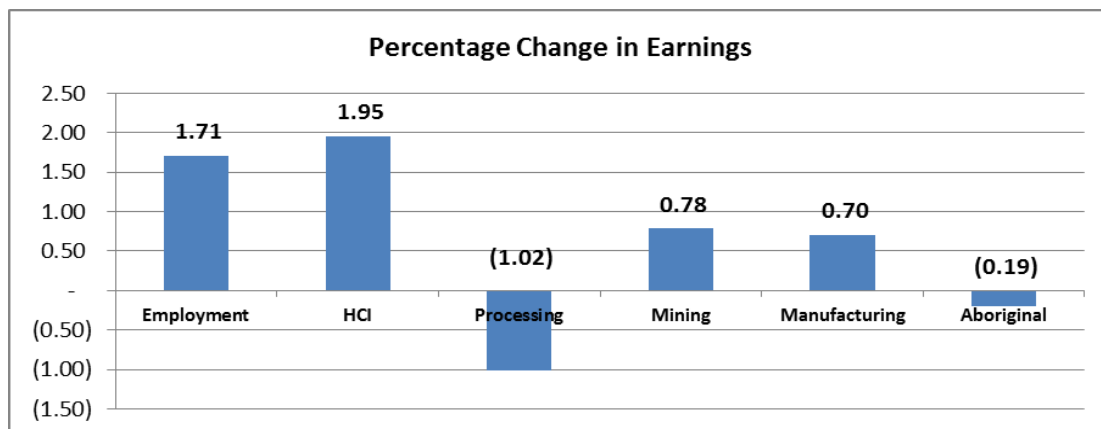
Next, we examine the relationship between population size, average earnings and human capital composition in Ontario. A comparison of Figures 2.14 and 2.15 shows that human capital and average earnings are closely related. The correlation coefficient between the two variables is 0.97 which suggests a near perfect correlation between human capital and average earnings in all CSDs in Ontario.

**Figure 2.15: Population Size and Human Capital Index in Ontario in 2010**



To estimate the role of human capital and agglomeration economies in explaining the urban-rural earnings gap, we estimated a model that includes both variable as well as other control variables such as the share of employed workers in primary, processing, mining, agriculture, forestry and manufacturing as well as the Aboriginal population in each CSD.<sup>19</sup> As is standard in this literature, we use employment levels as a means to estimate the effect of agglomeration economies. The idea is that employment levels correspond most closely to the population-based characterization of the rural-urban spectrum. Using population size rather than employment levels had a marginal influence on the results (Figure 2.16).

**Figure 2.16: Earnings, Human Capital & Agglomeration Economies**



<sup>19</sup> The estimated model is of the form:  $\ln(\text{Earnings}) = \alpha + \beta_1 \ln(\text{employment}) + \beta_2 \text{HCI} + \sum \delta_i X_i + \varepsilon_i$ . Since the dependent variable is average earnings, then the error term will be heteroskedastic by construction. We used heteroskedastic consistent variances to judge whether the estimated coefficients have a statistically significant impact on earnings or not.

Figure 2.16 shows that a percentage increase in a total area's employment results in 1.71 percent rise in average earnings. Also, a percentage rise in the human capital index results in a 1.95 percent increase in average earnings. Figure 2.16 also shows that areas concentrated in processing activities have lower average earnings. The same is true for areas with a higher share of the Aboriginal population. Areas with higher employment in primary and agriculture appear to have earnings similar to the overall provincial average. Figure 2.16 also shows that each percentage rise in employment in mining or manufacturing increases local average earnings by 0.78 and 0.70 percent respectively.

We also estimated the relationship without including the human capital composition index. The agglomeration effect increased significantly to 5.15 percent suggesting that a one percent increase in total area employment results in 5.15 percent rise in local average earnings. This estimate is very close to the one obtained by Beckstead et. al. (2010).<sup>20</sup> We saw above that the influence of employment size declines to 1.71 percent when we include the human capital index. In other words, the inclusion of control for human capital reduces the effect of agglomeration economies by 66.8 percent.

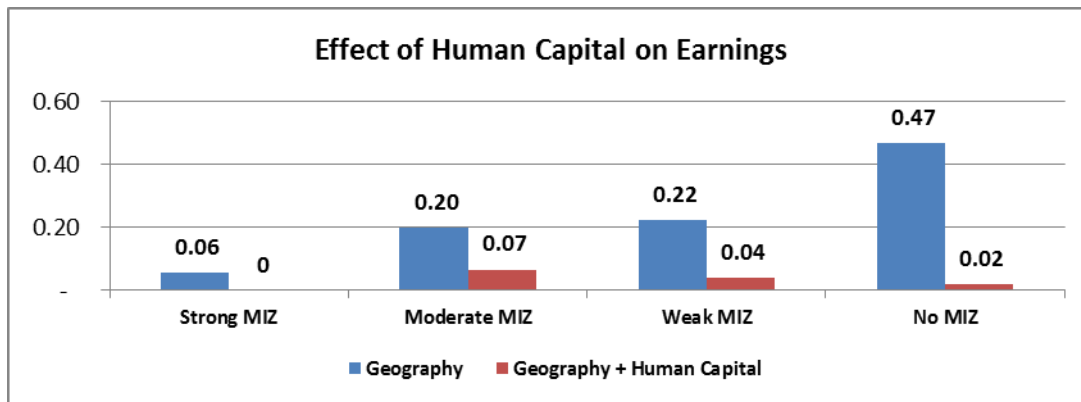
The above results suggest that the urban-rural earnings gap is influenced by agglomeration economies as well as the human capital composition. How much of the urban-rural earnings gap is due to differences in their human capital composition? To examine this question, we estimated two models, one with only binary variables representing rural areas with different degrees of urban influence. Note that we excluded urban areas and thus the estimated coefficients of the binary variables measure the urban-rural earnings gap due to distance from urban centres. Agglomeration economies suggest that the estimated coefficients of the binary variables should be negative and increasing as the degree of rurality increases. The second model adds the human capital indicator to the first model. We expect the inclusion of human capital composition to explain some of the urban-rural earnings gap and therefore resulting in a decline in the estimated coefficients of the binary variables. In other words, the difference between the estimated values of the binary variables from two models is attributed to the inclusion of the human capital index. Results are shown in Figure 2.17.<sup>21</sup> Note that the estimated coefficients were all negative and highly significant suggesting a negative earnings gap between urban and rural areas.

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<sup>20</sup> Regressing average earnings on employment levels across various geographical units in Canada, they found a similar elasticity of about 5.0 percent. Combes et. al. (2008) also found the same elasticity across various geographical areas in France. See Combes, P., Gilles D. and L. Gobillon, 2008, "Spatial wage disparities: Sorting matters!" *Journal of Urban Economics*, 63, 2: 723-742.

<sup>21</sup> Inclusion of the human capital index increased the coefficient of determination from 0.23 to 0.61.

**Figure 2.17: Impact of Human Capital on Rural-Urban Earnings Differentials**



First, we concentrate on the estimated coefficients of the model which only includes binary geographical variables. Figure 2.17 shows that the average earnings of workers in rural areas designated as having a strong MIZ is about 6.0 percent lower than average earnings in urban centres. The reduction in average earnings increases to 20.0 percent for rural areas with a moderate MIZ, to 22.0 percent for areas with a weak MIZ and to 47.0 percent for remote rural areas. How much of the above earnings gap is explained by differences in human capital composition?

Figure 2.17 shows that the estimated coefficient of the binary variable representing rural areas with a strong MIZ declined to zero when control for human capital composition is included in the model. In other words, 100 percent of the earnings gap between rural areas with a strong MIZ and urban regions are accounted for by differences in the human capital composition of their employed workforce. There is virtually no effect of agglomeration economies.. The coefficient of the binary variable representing rural areas with a moderate MIZ has changed from -0.20 to -0.07, a change of about 66.7 percent. In other words, about 66.7 percent of the earnings gap is attributed to the differences in the human capital composition of the employed people in moderate MIZ areas and urban regions. The rest or 33.3 percent of the gap is likely due to agglomeration economies that are represented by the binary variables. Similarly, 82.4 percent of the earnings gap between urban and rural areas with a weak MIZ is accounted for by differences in their human capital composition. Again, the rest or 17.6 percent is likely to be explained by agglomeration economies.

Finally, about 96.0 percent of the earnings gap between remote areas and urban areas is due to differences in their human capital composition. The rest is due to agglomeration economies. Our estimates of the share of human capital in explaining the urban-rural earnings gap are significantly higher than those obtained by Beckstead et. al. (2010). The difference can be due to a different set of data used in their study as opposed to ours as well as a different approach to measuring human capital.

## PART III: DEMOGRAPHIC CHANGE IN ONTARIO – LOOKING INTO THE FUTURE

### Population Projection Model

This part of the report employs the Cohort Component method to make projections of the rural and urban populations in Ontario from the base year of 2011 to 2025.<sup>22</sup> Population projections are an extrapolation of historical data into the future based on certain assumptions about future fertility rates, mortality rates and migration flows. The accuracy of population projections is directly proportional to the population size and its historical growth rate and is inversely proportional to the length of the time projection.

The four basic components of population change are:

1. Births
2. Deaths
3. In-migration
4. Out-migration

Births and in-migration add to the population whereas deaths and out-migration subtract from it. The demographic balancing equation can be written as:

$$P_t - P_0 = (\text{Births} - \text{Deaths}) + (\text{In-migration} - \text{Out-migration}) \quad (1)$$

Where  $P_0$  is the initial population and  $P_t$  is the population after time  $t$ .

If population information from two censuses years are available and the numbers of births, deaths and in- and out-migrations are known, then the demographic balancing equation (1) must be exactly balanced. Therefore, the population of a province or a region at any time interval can be calculated using the demographic balancing equation as:

$$P_t = P_0 + (B - D) + (I - O) \quad (2)$$

As model (2) shows, the cohort component technique uses the four components of demographic change to project population growth. The technique projects the population by single year of age and sex. The method takes each age class of the population and ages it over time using survival rates.

Examination of model (2) reveals that the natural population growth ( $B-D$ ) evolves slowly over time. However, net migration ( $I-O$ ) is a much more volatile component of population

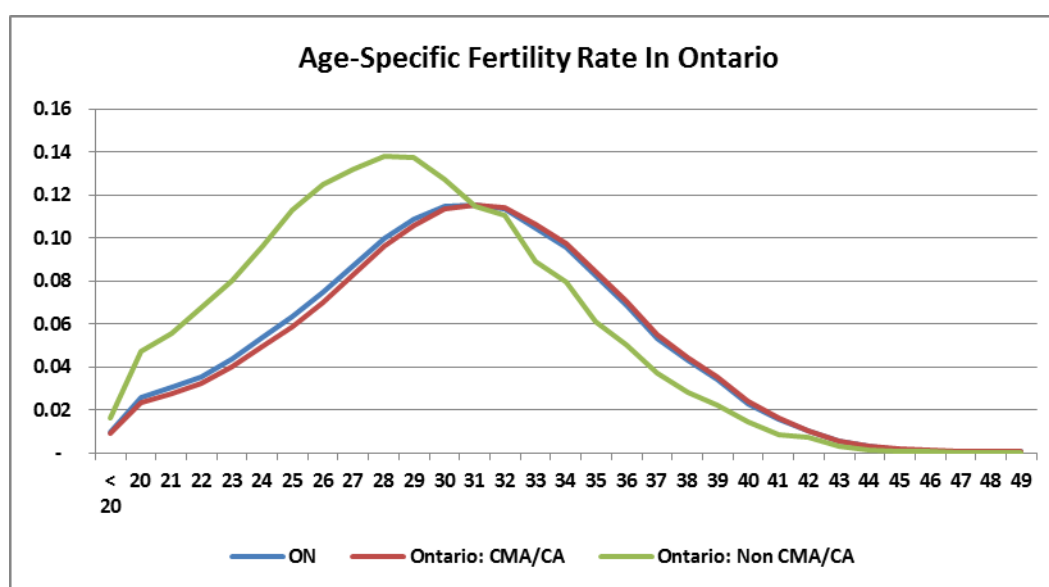
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<sup>22</sup> This projection method is the most widely used tool by planners since it provides information on the potential growth or decline of a region by age and sex. The Ontario Ministry of Finance also uses the cohort-component method for its long-term population projections.

projections due to fluctuation in interprovincial (province to province) migration and changes in immigration. Slower economic activity in recent years has resulted in lower net migration levels to Ontario. In fact, net interprovincial migration to Ontario has been negative since 2003 due to net losses to Alberta.<sup>23</sup> However, a changing economic environment will influence changes in interprovincial migration in the coming years.

To employ the cohort component method we have used detailed 2001 and 2011 Census population data obtained from Statistics Canada. We have also obtained age-specific fertility rates for rural and urban regions in Ontario in 2011. An age-specific fertility rate indicates the probability that a woman in her reproductive years will give birth in a given year. These rates are used to project the number of births that occur during the projection period. As Figure 3.1 shows the fertility rates in rural Ontario have been higher than those in urban regions for women aged 15 to 30 and lower for women older than 30 years of age. Overall, the total fertility rate for women in rural Ontario equals 1.83 compared to 1.53 for women in urban Ontario.

**Figure 3.1: Fertility Rates in Urban and Rural Ontario in 2011**



The 2009-2011 Life Table for Ontario is used to calculate survival rates at every single year of age. The last piece of information needed to undertake population projections is to estimate net migration. For this, an indirect method is often used. Assuming no migration flows and using census data,  $P_0$ , the forecaster projects population at time  $t$ , say  $P^e_t$ . The difference between the actual and expected population at time  $t$  equals the net migration from time 0 to time  $t$ .

<sup>23</sup> Ministry of Finance, *Ontario Population Projections Update 2012-2036*, Spring 2013.

Using the demographic balancing equation (2), one can calculate net migration as:

$$\begin{aligned}\text{Net Migration flows} &= (\text{In-migration} - \text{Out-migration}) = (P_t - P_0) - (\text{births} - \text{deaths}) \\ &= P_t - (P_0 + \text{births} - \text{deaths}) = P_t - P_t^e\end{aligned}\quad (3)$$

Model (3) is referred to as the 'residual method' since it calculates net migration as a residual of the balancing equation. In other words, net migration is set equal to the actual population at any point in time minus the predicted or expected population based on natural population growth. Net migration estimates can be negative in some years indicating out-migration in a given age group. Alternatively, it can indicate mortality in older age groups.

To determine the number of net migrants to Ontario during 2001-2011, the expected population of year 2011 in the absence of net migration ( $P_0 + \text{births} - \text{deaths}$ ) is subtracted from the actual Census 2011 population.

It is also assumed that the components of demographic change, i.e., mortality, fertility, and migration flows, will remain constant throughout the projection period and net migration will be equal to its 2001-2011 average. Hypothetically, one can alter the vital statistics and migration estimates to reflect his or her view of the future.

## Ontario's Urban Population Structure

According to a custom tabulation obtained from Statistics Canada, Ontario's population residing in Census Metropolitan (CMA) and Census Agglomeration (CA) areas increased from 10.1 million in 2001 to 11.6 million in 2011, an average growth rate of 1.5 percent per year which is greater than the provincial average of about 1.0 percent per year.

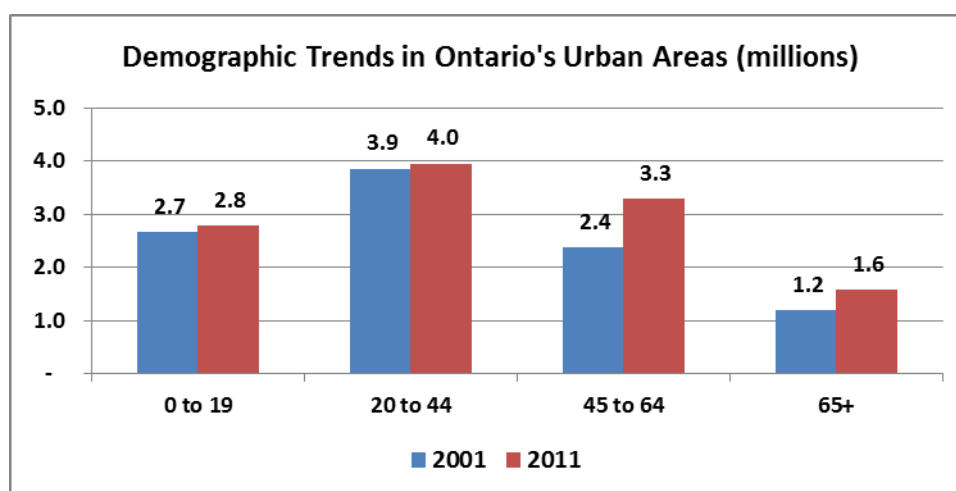
Table 3.1 shows the age distribution of the urban population in Ontario during 2001-2011.



**Table 3.1: Population Trends in Urban Ontario**

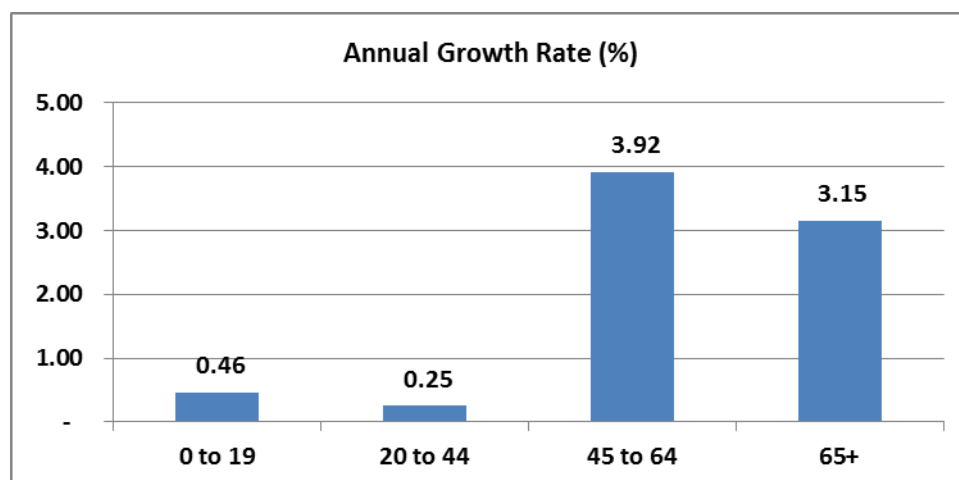
Age Category	2001	2011	Annual Growth Rate (%)
0 to 4 years	603,435	650,075	0.77
5 to 9 years	688,470	653,170	-0.51
10 to 14 years	691,770	694,225	0.04
15 to 19 years	674,940	784,650	1.63
20 to 24 years	658,295	792,390	2.04
25 to 29 years	676,040	766,190	1.33
30 to 34 years	760,820	751,970	-0.12
35 to 39 years	893,245	786,760	-1.19
40 to 44 years	866,535	853,895	-0.15
45 to 49 years	763,600	960,360	2.58
50 to 54 years	685,280	903,670	3.19
55 to 59 years	508,585	765,695	5.06
60 to 64 years	411,680	668,305	6.23
65 to 69 years	367,075	486,925	3.27
70 to 74 years	328,205	379,510	1.56
75 to 79 years	261,710	304,640	1.64
80 to 84 years	147,455	224,945	5.26
85 to 89 years	68,290	126,760	8.56
90 to 94 years	19,690	41,045	10.85
95 to 99 years	3,450	8,040	13.30
100 years and over	395	820	10.76
<b>Total</b>	<b>10,078,975</b>	<b>11,604,035</b>	<b>1.51</b>

Overall, urban Ontario has experienced population growth in most age categories primarily due to a large influx of immigrants to the province. This is also shown in Figure 3.2 which shows population growth in all age groups during 2001-2011.

**Figure 3.2: Age Structure of Population in Ontario**

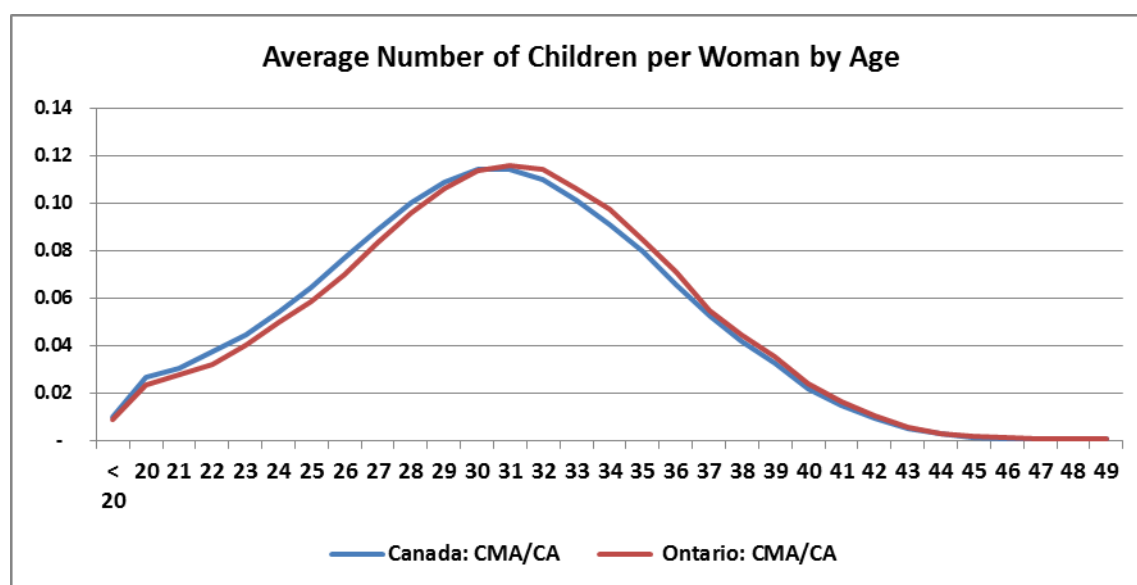
The aging of the population is reflected in the fact that the growth rate of the population aged 45 and older has been much higher than those in younger age categories (Figure 3.3). Also, the median age of urban Ontarians increased from 36.7 years in 2001 to 39.5 years in 2011.

**Figure 3.3: Aging Urban Population in Ontario**



The aging of Ontario's urban population is partly due to the low fertility rates in urban areas. As Figure 3.4 shows, the fertility rate in Ontario's urban regions has been similar to those in Canada. The horizontal axis shows the age groups and the vertical axis shows the average number of children per woman at a given age. On average, the total fertility rate in urban Ontario equals 1.53 compared to 1.54 in urban Canada in 2011.

**Figure 3.4: Fertility Rates in Urban Canada and Ontario**



## Looking into the Future: Population Projection for Urban Ontario during 2011-2025

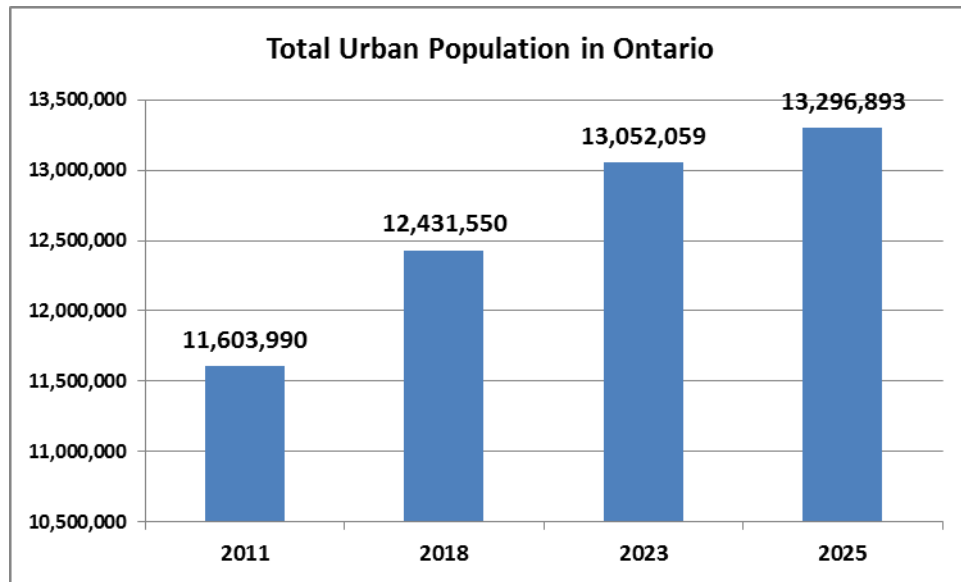
Using the demographic model discussed above, Table 3.2 shows population projections for urban Ontario during 2011-2025.

**Table 3.2: The Future Population of Ontario's Urban Areas**

<b>Age Category</b>	<b>2011</b>	<b>2018</b>	<b>2025</b>
0-4	650,080	658,712	716,018
5--9	653,170	632,370	677,200
10--14	694,220	687,161	657,283
15--19	784,645	730,555	730,613
20--24	792,395	824,250	777,079
25--29	766,190	879,959	855,850
30--34	751,960	845,943	955,996
35--39	786,760	861,126	974,800
40--44	853,890	866,907	972,031
45--49	960,355	891,656	924,442
50--54	903,675	941,151	907,070
55--59	765,685	942,502	899,110
60--64	668,290	793,374	943,122
65--69	486,915	640,814	794,588
70--74	379,510	504,808	615,299
75--79	304,635	335,673	462,043
80--84	224,935	219,880	258,880
85--89	126,775	123,516	125,483
90+	49,905	51,192	49,986
<b>Total</b>	<b>11,603,990</b>	<b>12,431,550</b>	<b>13,296,893</b>

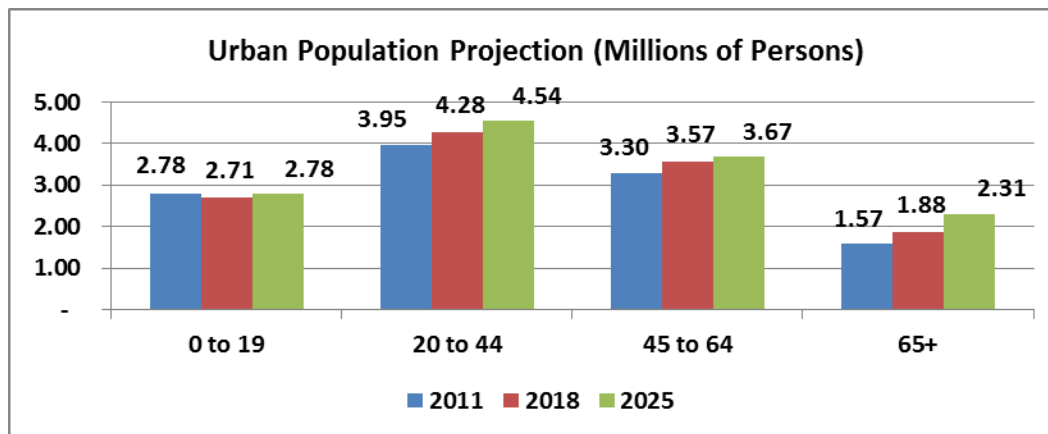
Ontario's urban population is expected to grow from 11.6 million in 2011 to 13.3 million in 2025, a growth rate of about 1.0 percent per year (Figure 3.5).

**Figure 3.5: Ontario's Future Urban Population**



All age categories experience growth during the forecast period except for those aged 19 and younger whose share declines from 24.0 percent in 2011 to 20.9 percent in 2025 (Figure 3.6). The number of people in their prime working age of 20 to 44 years increases from 3.95 million in 2011 to 4.54 million in 2015. However, the share of this age group stays relatively constant at about 34.0 percent during the forecast period. The same holds for those between the ages of 45 and 64 whose share in the total population stays relatively unchanged during the forecast period. However, the share of individuals 65 and over increases from 13.5 percent in 2011 to 17.3 percent in 2025.

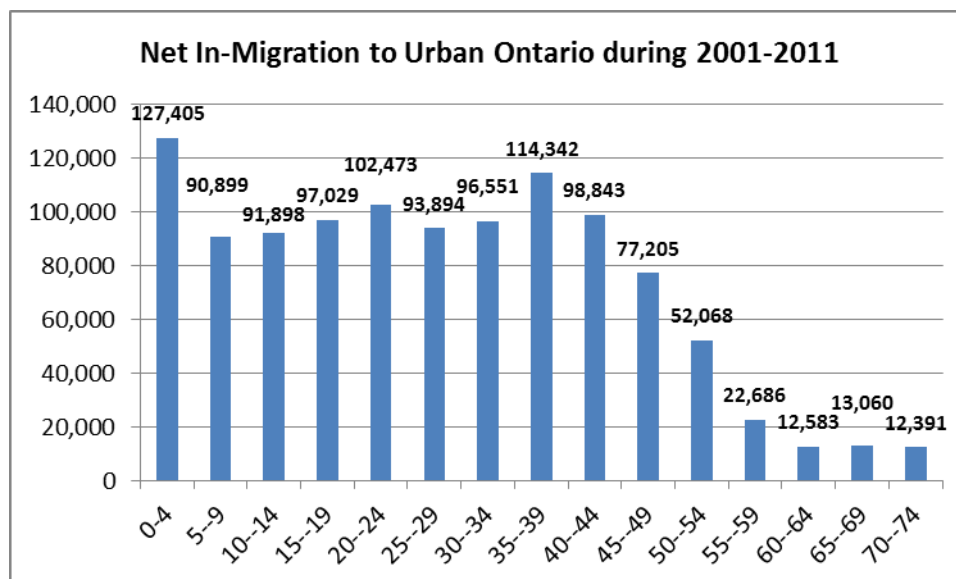
**Figure 3.6: Age Structure of Ontario's Urban Population**



The above relatively stable population structure is primarily due to a significant net in-migration that urban Ontario has been experiencing. Figure 3.7 shows that urban Ontario experienced

significant net inflow of people in all age categories during 2001-2011. The newcomers came from other provinces, rural areas and other countries.

**Figure 3.7: Net In-Migration to Urban Ontario**



Had it not been for the newcomers, Ontario's urban population structure would have been very different. To see the structure that would have emerged in the absence of migration, we used Ontario's 2011 population to forecast its future structure based on natural factors of fertility and mortality alone. The result is shown in Figure 3.8.

**Figure 3.8: Ontario's Urban Population Structure in the Absence of Migration**

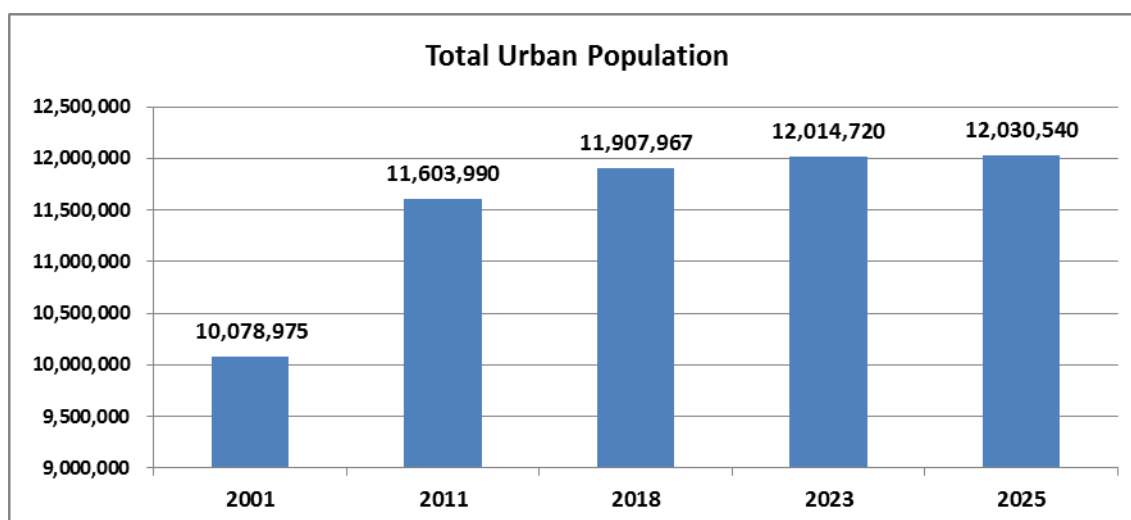
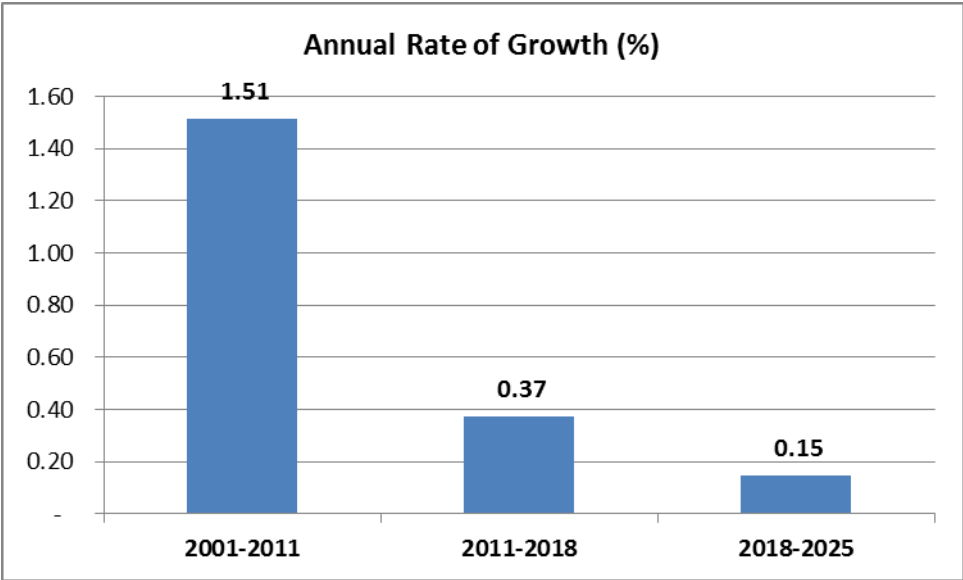


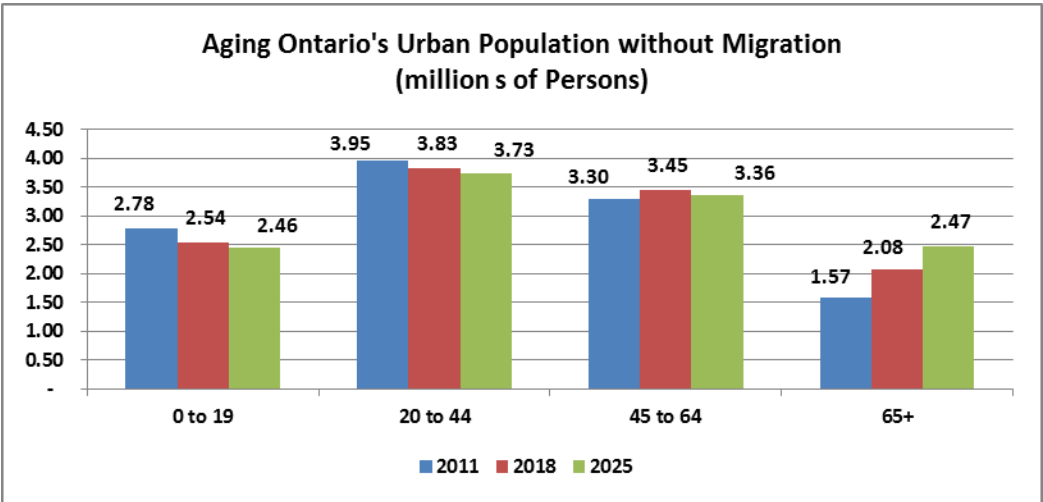
Figure 3.9 shows that under the scenario of zero net migration, the growth of Ontario’s urban population would have declined significantly from 1.51 percent per year during 2001-2011 to 0.15 percent during 2018-2025.

**Figure 3.9: Population Growth Rate Under Zero Migration Scenario**



The age structure would have also changed considerably. As shown in Figure 3.10, the number of people below the age of 45 would decline while those in the upper age categories would increase during 2011-2025.

**Figure 3.10: Urban Population Structure in the Absence of Migration**



Without migration flows, Ontario's urban population would age very rapidly. The share of individuals aged 19 and younger declines from 24.0 percent in 2011 to 20.1 percent in 2025. The share of those in prime working age drops from 34.1 percent in 2011 to 30.7 percent in 2025. The share of those aged 45 to 64 falls from 29.0 percent in 2011 to 27.3 percent in 2025. The share of seniors increases from 13.6 percent in 2011 to 21.9 percent in 2025.

## Ontario's Rural Population Structure

Ontario's rural population declined from 1.21 million in 2001 to 1.12 million in 2011, a decline of about 7.3 percent during 2001-2011. This is in contrast to the total urban population that grew about 1.5 percent per year and the provincial population that grew about 1.0 percent per year during the same period.

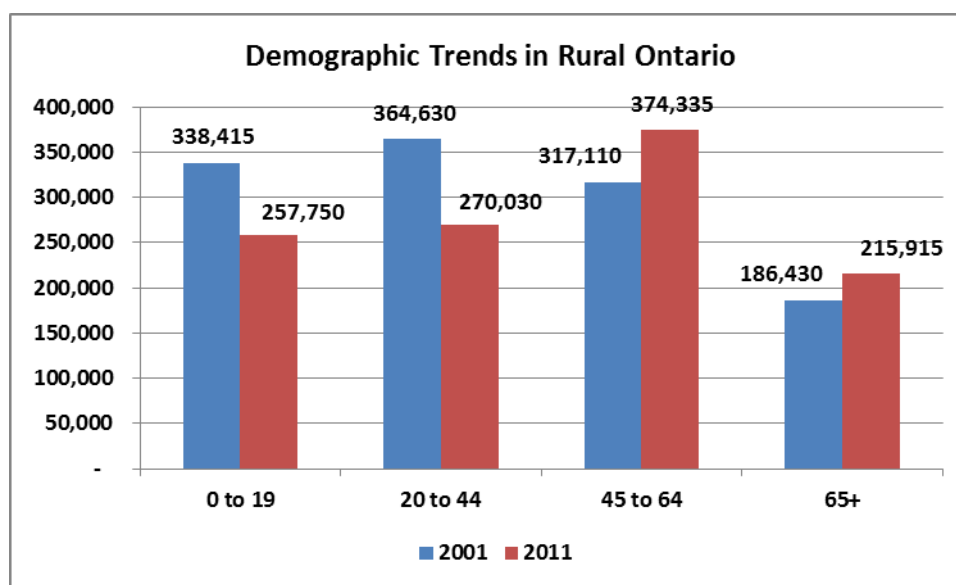
Table 3.3 shows the age distribution of the rural population in Ontario during 2001-2011.

**Table 3.3: Population Trends in Rural Ontario**

<b>Age Category</b>	<b>2001</b>	<b>2011</b>	<b>Percentage Change</b>
0 to 4 years	67,280	53,545	-20.41
5 to 9 years	83,695	59,145	-29.33
10 to 14 years	95,785	68,625	-28.36
15 to 19 years	91,655	76,435	-16.61
20 to 24 years	57,610	57,745	0.23
25 to 29 years	51,015	46,010	-9.81
30 to 34 years	64,685	45,440	-29.75
35 to 39 years	92,325	54,460	-41.01
40 to 44 years	98,995	66,375	-32.95
45 to 49 years	91,695	90,595	-1.20
50 to 54 years	87,535	97,335	11.20
55 to 59 years	73,010	93,870	28.57
60 to 64 years	64,870	92,535	42.65
65 to 69 years	59,660	71,995	20.68
70 to 74 years	51,620	55,180	6.90
75 to 79 years	38,505	40,975	6.41
80 to 84 years	22,960	27,975	21.84
85 to 89 years	10,230	14,195	38.76
90 to 94 years	2,860	4,685	63.81
95 to 99 years	520	815	56.73
100 years and over	75	95	26.67
<b>Total</b>	<b>1,206,585</b>	<b>1,118,030</b>	<b>-7.34</b>

Overall, population under the age of 50 has experienced decline while the number of people age 50 and over has increased during 2001-2011. Rural Ontario has undergone population decline in younger age categories primarily due to an out-migration of the working age population from rural areas. This is also shown in Figure 3.11 which shows population decline in working age groups and younger age cohorts during 2001-2011.

**Figure 3.11: Age Structure of Population in Rural Ontario**

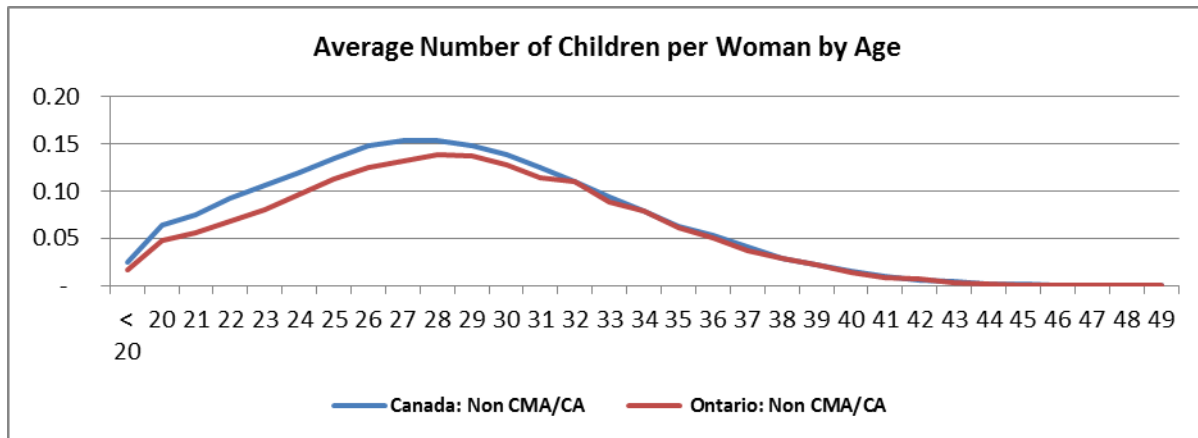


The aging of the population is reflected in the fact that the population aged 0 to 19 years old has declined by 2.4 percent per year during 2001-2011. Similarly, the prime working age population has declined by 2.6 percent per year while those aged 45 to 64 and 65 and over have experienced growth of 1.8 and 1.6 percent per year respectively during the same period.

The aging of Ontario's rural population is not occurring due to low fertility rates relative to urban regions. As mentioned above, the total fertility rate in rural Ontario equals 1.83 compared to 1.53 in urban Ontario. Out-migration appears to be the main reason for the declining and aging of the rural population. However, it has to be noted that the fertility rate in rural Ontario is lower than those in rural Canada (Figure 3.12). The horizontal axis shows the age groups and the vertical axis shows the average number of children per woman at a given age. On average, the total fertility rate in rural Ontario equals 1.83 compared to 2.10 in rural Canada in 2011.



**Figure 3.12: Fertility Rates in Rural Ontario and Canada**



## Looking into the Future: Rural Population Projection for 2011-2025

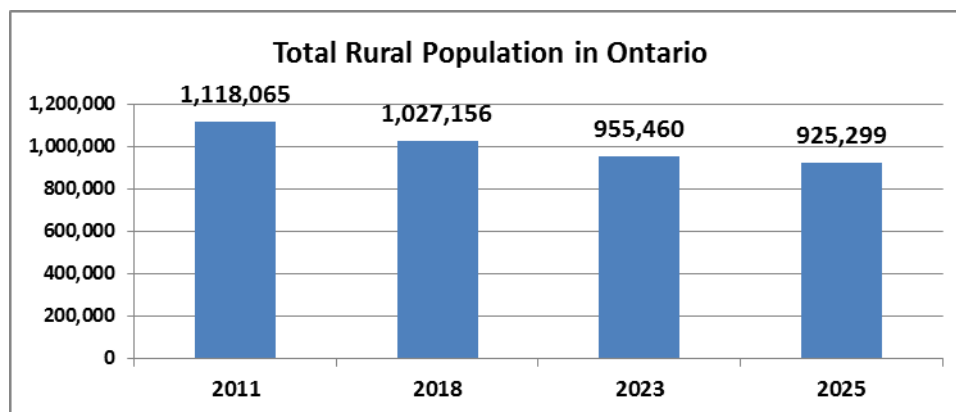
Using the demographic model discussed above, Table 3.4 presents population trends in rural Ontario during 2011-2025.

**Table 3.4: The Future Population of Ontario's Rural Areas**

Age Category	2011	2018	2025
0 to 4	53,545	40,065	36,786
5 to 9	59,145	48,413	38,884
10 to 14	68,630	57,444	44,254
15 to 19	76,440	63,412	53,806
20 to 24	57,740	63,102	51,188
25 to 29	46,010	44,095	42,466
30 to 34	45,445	33,809	36,940
35 to 39	54,470	43,246	33,331
40 to 44	66,385	52,809	41,155
45 to 49	90,590	62,585	49,542
50 to 54	97,320	77,399	57,623
55 to 59	93,875	95,202	66,085
60 to 64	92,540	95,236	91,892
65 to 69	71,995	88,294	92,097
70 to 74	55,185	72,213	80,470
75 to 79	40,985	45,856	60,396
80 to 84	27,975	26,242	31,098
85 to 89	14,180	13,050	13,006
90+	5,610	4,683	4,280
<b>Total</b>	<b>1,118,065</b>	<b>1,027,156</b>	<b>925,299</b>

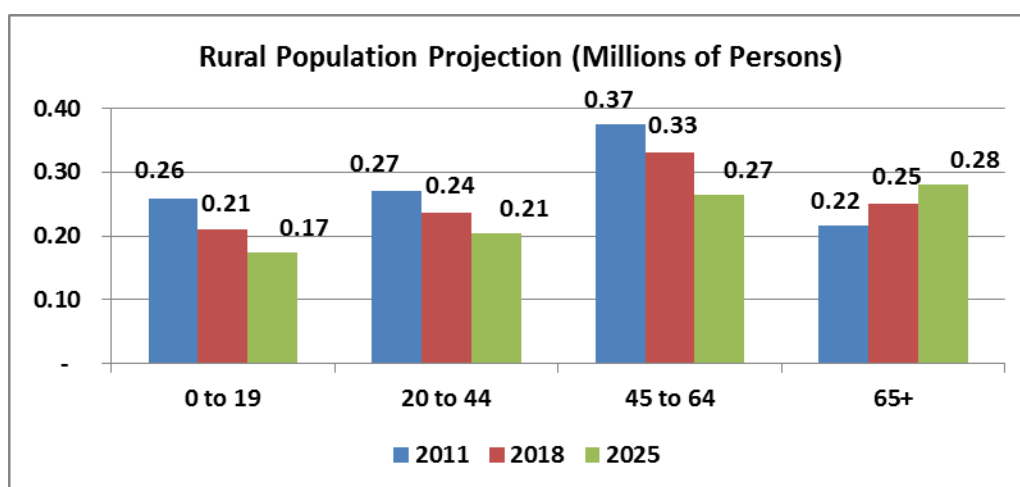
Ontario's rural population is expected to decline from 1,118,065 in 2011 to under a million people in 2025, a decline of about 1.2 percent per year during the above period (Figure 3.13).

**Figure 3.13: Ontario's Future Rural Population**



All age categories except for seniors will experience decline during the forecast period. The share of the population under 19 years of age declines from 23.1 percent in 2011 to 18.8 percent in 2025. Similarly, the share of those between 20 and 44 and 45 and 64 years of age declines from 24.2 and 33.5 percent in 2001 to 22.2 and 28.6 percent respectively in 2025. The share of seniors is expected to rise from 19.3 percent in 2011 to 30.4 percent in 2025.

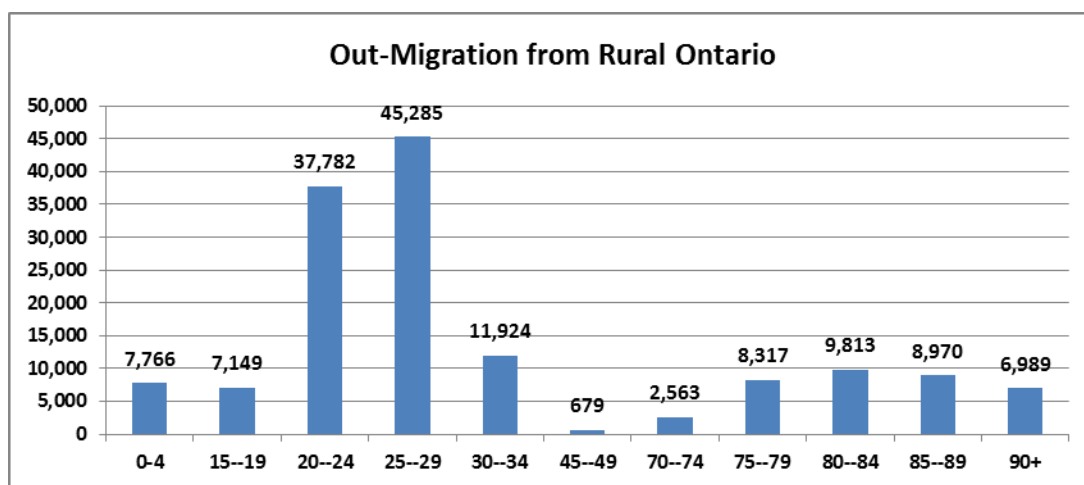
**Figure 3.14: Age Structure of Ontario's Rural Population**



To examine the potential factor explaining the declining rural population in Ontario, we used the 2001 population to forecast its 2011 level assuming zero net migration flows. Comparing the actual 2011 population with the expected 2011 population in the absence of migration provides us with information regarding the level of net migration by age during 2001-2011. Results shown

in Figure 3.15 reveal that rural Ontario experienced a significant out-migration during 2001-2011.

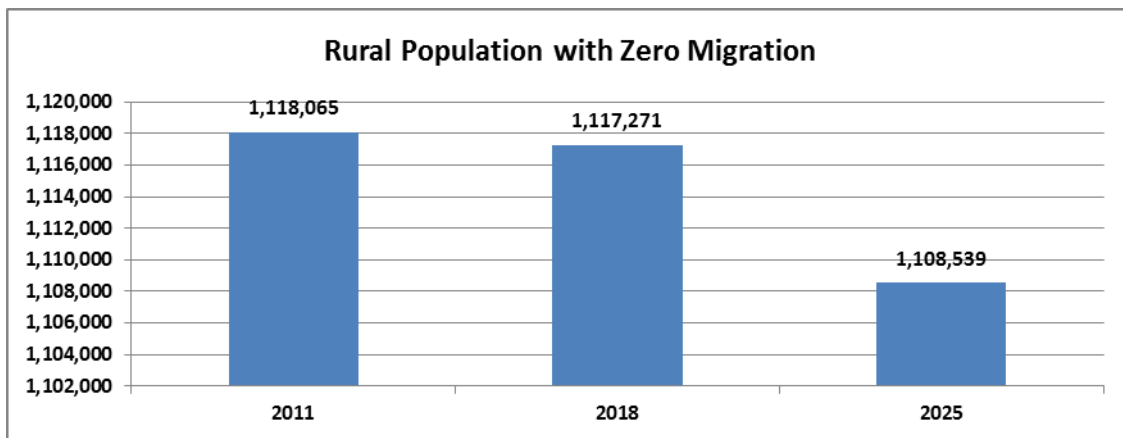
**Figure 3.15: Net Out-Migration from Rural Ontario**



The largest group of movers are those between the ages of 20 and 30 years old. It is expected that the youth out-migrate in search of better employment opportunities in urban areas. However, this process leaves rural areas without the necessary human capital that is required if rural areas are to remain productive. In addition to the youth, the data shows a significant out-migration of seniors who are likely seeking better medical services in urban regions. It is also noteworthy that young adults who out-migrate from rural areas take their children with them. That is reflected in a decline of children under age 4.

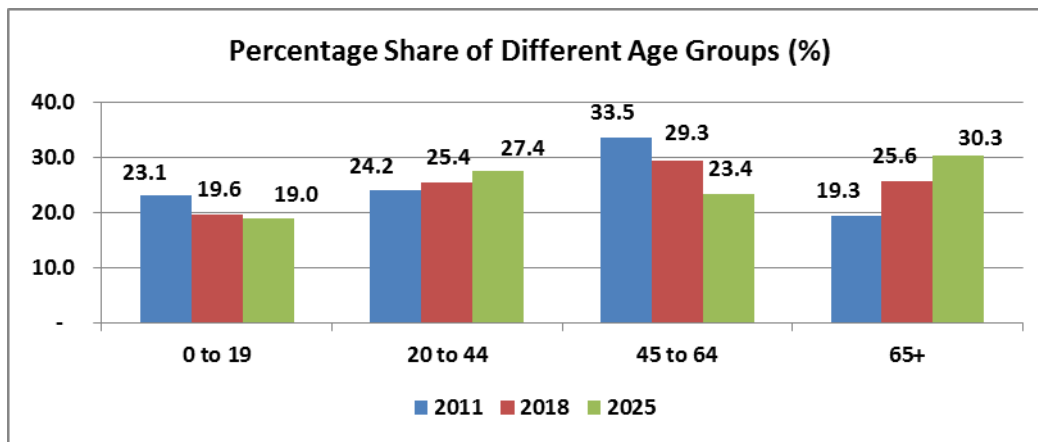
Had it not been for out-migration, Ontario's rural population decline would have been much smaller reflecting only relatively low fertility rates. To investigate the structure that would have emerged in the absence of migration, we used rural Ontario's 2011 population to forecast its future structure based on natural factors of fertility and mortality alone. The result is shown in Figure 3.16.

**Figure 3.16: Ontario's Rural Population Structure in the Absence of Migration**



Had it not been for the out-migration, Ontario's rural population would have been much greater. However, given relatively low fertility rates, the aging process would have changed the rural population structure during the forecast period. This is shown in Figure 3.17.

**Figure 3.17: Aging Ontario's Rural Population**



Without migration flows, Ontario's rural population would decline and age at a slower rate. Figure 3.17 shows that the share of the population under 19 years of age declines from 23.1 percent in 2011 to 19.0 percent in 2025. Similarly, the share of the population aged 45 to 64 declines by more than 10.0 percent during 2011-2025. The share of the population between the ages of 20 and 44 actually rises by 3.2 percent while the senior's share of total rural Ontario rises by 11.0 percent during the forecast period.

## **PART IV: CONCLUDING REMARKS**

The objective of the present report has been to analyze past, present and future demographic changes in rural and urban Ontario. The study examines various socio-economic characteristics of the rural and urban population and makes projections of their future demographic trends. The report focuses on four population groups, namely total provincial population, Francophone, Aboriginal and immigrant population.

The study shows that rural and urban Ontario have undergone significant demographic changes in recent years. The rural population has been declining and the projections suggest that the declining trend will continue into the future.

Changing demographics and declining population in rural areas have important implications for resource development in Ontario and Canada. Canada's economic prosperity has been based on a staples economy, relying on the export of natural resources from Canada's peripheral and rural regions.

Most of the mineral resources are located in rural and peripheral regions of Ontario. For example, Northern Ontario accounts for all the metals and about 20 percent of the non-metals produced in Ontario and has consistently produced between 67 and 79 percent of the value of all provincial minerals production. Currently, all the potential mineral resources are located in the north of 50<sup>th</sup> parallel region and their development necessarily involves Aboriginal and non-Aboriginal collaboration. Many of Ontario's resource-based areas are characterized as single-industry communities. Historically, population changes impacted the ability of those communities to participate in resource development which ultimately affects greater provincial and national economies.

Examination of facts and figures in this study suggests that rural areas are declining in terms of population as well as their ability to develop and/or participate in resource development activities. Further decline seems likely. The study reveals that the rural population is aging rapidly not only due to the declining birth rate but also due to an out-migration of youth between the ages of 20 and 30 years old. At the other end of the spectrum, Ontario's urban areas are experiencing significant in-migration from rural areas as well as other provinces and countries. The report shows that Ontario's urban population is also aging rapidly.

Slower growth and aging of the population affect the labour force and hence the rural region's ability to generate output and income. A declining labour force coupled with relatively low participation rates influences the rural region's present and future productive capacity. Our analysis shows that there exists a significant earnings gap between rural and urban regions. This is partly a reflection of the diminishing capacity of the rural population to capture a significant share of the value of resources produced in those regions. At the same time, lack of a qualified labour force reduces the ability of residents to participate in the benefits of economic development in their regions. Lack of a qualified labour force also represents an important barrier to economic development in remote regions. Many businesses operating in rural regions

face a significant shortage of a qualified labour force.<sup>24</sup> This is especially true in resource-based communities.

The study also suggests that an aging rural and urban population has significant budgetary implications for the province of Ontario. An aging population affects the tax bases from which the provincial government draws revenue. It also impacts demand for government program expenditures such as health care. What healthcare related services will be essential to meet the requirements of a rapidly aging provincial population? How many doctors, nurses and other types of healthcare providers do we need to train to replace the aging healthcare providers while satisfying the growing demand for healthcare services? How much of specific types of services and facilities do we require? These are important questions that policy makers need to address in the coming years.

The study finds that the average earnings in remote rural areas is about 65.8 percent of earnings in urban regions. Similarly, the average earnings of those who worked full-time and full-year in remote rural regions is about 67.8 percent of their counterparts in urban areas. In other words, there exists a significant earnings gap between rural and urban regions in Ontario.

The study finds that human capital is the main determinant of the rural-urban earnings gap in Ontario. The level of educational achievement declines as the distance between rural areas and population centres increases. Almost half of the remote rural population do not have a high school diploma. Similarly, the percentage of individuals with a high school diploma declines from 28.8 percent for rural areas with a strong link to urban regions to 19.9 percent for remote rural areas.

Given that the stock of human capital affects productivity and earnings capacity of the rural population, one approach to maintaining or even increasing earnings and production capacity in rural regions is to enhance productivity by increasing investment in education in rural areas. In fact, apart from increasing productivity and earnings, investment in education has significant positive social and economic consequences as well.

The study shows that the dependency on government transfer payments increases as the degree of rurality rises. While the average dependency rate in urban areas is about 9.2 percent, the dependency rate in Ontario's remote rural regions averages about 26.0 percent.

Similarly, the average labour force participation rate is highest in urban areas and declines as the degree of rurality rises. The difference between the participation rate in urban and remote regions is 14.0 percent. On the other hand, the unemployment rate is lowest in urban areas and increases as the degree of rurality rises.

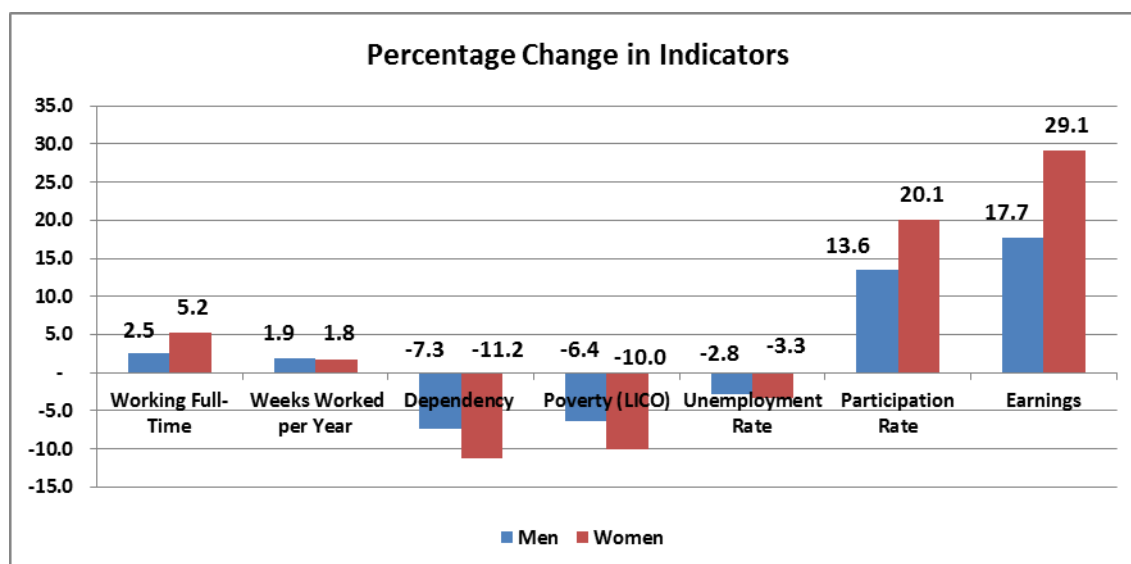
The study shows that a higher level of educational achievement increases the likelihood of working full-time weeks as well as increasing the number of weeks worked per year; lowers the probability of dependency on government transfers and reduces the chance of falling below the poverty line; reduces the likelihood of being unemployed and increases the chance of

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<sup>24</sup> For example see B. Moazzami, *Multi-national and Multi-locational Enterprise Initiative: Survey of Northern Ontario Companies and Analysis of the Results*, prepared for Federal Economic Development Initiative for Northern Ontario (FedNor), March 2012.

participating in the labour force. Higher level of schooling is also associated with higher productivity and earnings. Figure 4.1 summarizes the impact of obtaining a high school diploma, relative to those without a secondary certificate, on various socio-economic indicators for men and women in Ontario. Achieving post-secondary education also produced similar impacts.

**Figure 4.1: Impact of Obtaining a Secondary Diploma**

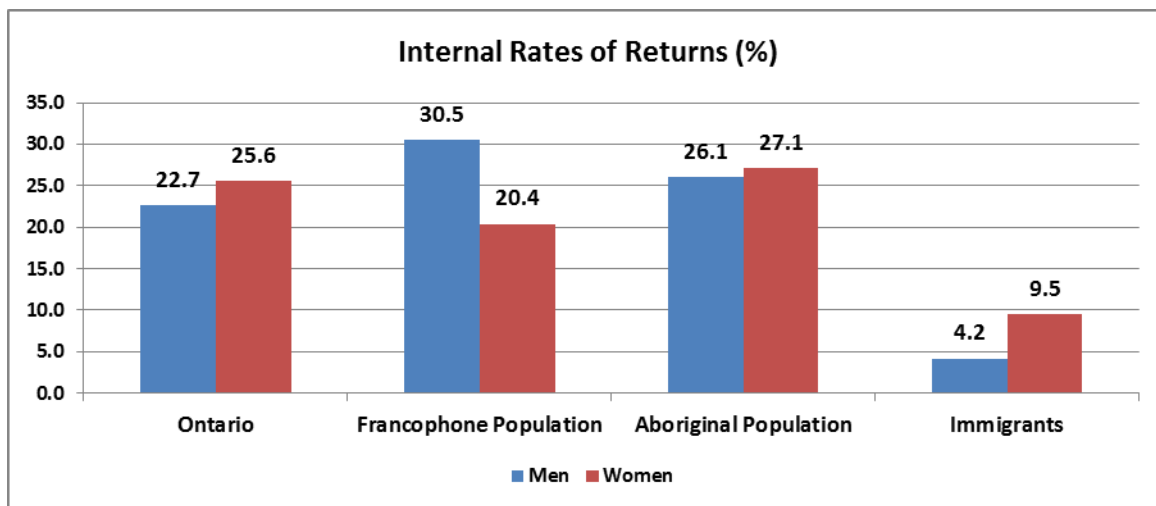


Having found human capital as the main determinant of productivity, earnings and other socio-economic determinants of well-being, the study investigates returns to investment in education for men and women in Ontario. It is found that the rates of returns to investment in education are well above the returns for other forms of investment. This suggests that investment in secondary and post-secondary education yields relatively high ex-post rates of returns over and above the earnings foregone and length of time invested. A forthcoming on the returns of educational attainment finds that the rates of returns to investment in a high school diploma and trade certificate are higher for men. On the other hand, the returns to investment in college and university degrees are greater for women. Figure 4.2 summarizes returns to investment in a secondary diploma for men and women in Ontario. Similar results were obtained for investment in post-secondary education. Relatively low returns to investment in a secondary diploma for the immigrant population reflect our findings that many immigrants have obtained their secondary diploma outside North America. Pursuant to that, our findings suggest that employers attach a wage premium to credentials obtained in North America and discount those obtained elsewhere.

The report also finds that a relatively high percentage of the Aboriginal population live in rural areas. They have lower levels of educational achievement and earnings as well as a higher likelihood of poverty and dependency on government transfers. The present report suggests that one approach to reducing poverty and dependency while enhancing productive capacity of those

rural residents is through investment in education. The rates of returns to obtaining a secondary diploma exceed 26.0 percent for the Aboriginal population.

**Figure 4.2: Internal Rates of Returns to Investment in a Secondary Diploma**



Although monetary returns may not be the only factor influencing the decision to pursue higher education, the estimated rates of returns in this report are a useful indicator for prospective students as well as those involved in the education system. The results suggest that the highest rates of returns for both men and women result from completing their secondary education. This has important policy implications emphasizing the importance of measures aimed at increasing secondary completion rates especially in rural areas.

Finally, the present study shows that acquiring a secondary or post-secondary education offers substantial labour market advantage over those without a secondary certificate. Better labour market outcome includes higher earnings, lower likelihood of unemployment or underemployment and improved job quality. Technological change has resulted in a shift in demand for labour towards higher skilled workers relative to lower skilled ones. This has resulted in growing employment opportunities for better educated workers and declining demand for less skilled ones.



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