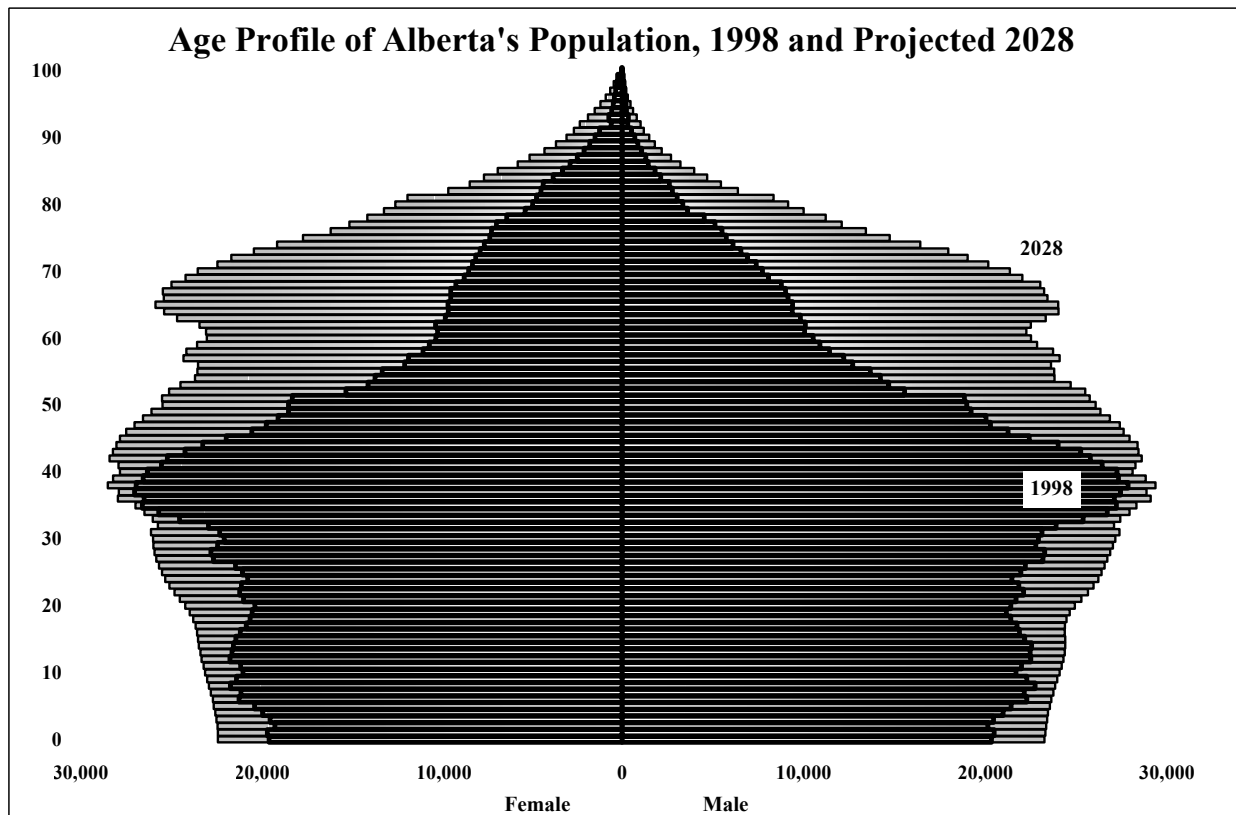


The Urban Futures Institute

Research on Population, Community Change and Land Use

Population 4 Million: Alberta's Population in the Next Three Decades

By David Baxter, Andrew Ramlo, and Jim Smerdon



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Population 4 Million: Alberta's Population in the Next Three Decades

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Summary

1. In 1998, Alberta was home to 2.9 million people, twice the 1.45 million who lived in the province in 1964, and five times the 588,000 who lived here in 1921. Since 1951, its population has increased by 2 million people, tripling in size in just under half a century. Some time this year, Alberta's population will reach 3 million and, using conservative assumptions, it will reach 4 million by 2028.
2. From 1988 to 1996, population growth averaged 40,000 persons per year (adding about the same number of people each year as occurred during the 1960s) with annual growth rates between 1.5% to 1.8% per year. In the past two years, growth has increased substantially, with 77,000 people added to the province's population between 1997 and 1998, resulting in a growth rate of 2.3%. The current size of the population means that, while the numbers added each year are large compared to the approximately 40,000 per year added in the 1945 to 1975 period, the current 2% growth rates are well below the 4% range of the early post war period.
3. In 1998, the major source of population growth in Alberta was net in-migration: of a total population increase of 77,146 people, 60.6% was from net in-migration of 46,787 people (97,229 in-migrants minus 50,442 out-migrants). Natural increase of 21,460 people (38,390 births minus 16,930 deaths) accounted for an additional 27.8%. Net international migration of 8,899 people (11,892 immigrant plus 3,925 returning Canadians plus 1,404 additional non-permanent residents minus 8,322 emigrants) account for the remaining 11.5% of the increase.
4. In 1998, 33% of Alberta's population were baby boomers, that is, were between the ages of 32 and 51. There were 423,800 people aged 42 to 51 and 523,500 aged 32 to 41 for a total of 947,300 boomers. The generation before the baby boom, now aged 52 to 71, is smaller than the baby boom, the result of the very low level of births that occurred in the 1927 to 1946 period: 14% of the population was in this older generation in 1998. The generation following the baby boom, 1998's 12 to 31 year olds, is also smaller than the baby boom generation, the result of the low level of births that urbanization and the birth control pill brought to the 1967 to 1986 period: 29% of the population is in this younger generation. The remaining population is divided between 0.18% over the age of 92, 5% in the 72 to 92 age group (the generation born between 1907 and 1926), and 17% under the age of 12 (the first of the 1987 to 2006 generation).
5. The result of the aging of the province's current population, combined with projected long term average levels of net inter-provincial and net international migration, will be continuous, but slowing, population growth over the next thirty years. Alberta's population in 1998 was 2,912,000. By 2006 it will have reached 3.25 million, by 2013 it will have reached 3.5 million, by 2020 it will have reached 3.75 million, and by 2028 it will have reached 4 million people. The adding of 1,080,000 people to the province's population over the 30-year period from 1998 to 2028 (an average of 36,000 people per year), is slightly smaller than the 1,104,700 people added to the province's population in the 23 years from 1974 to 1998 (an average of 48,000 people per year).

6. The aging of Alberta's 1998 population will shift the baby boom bulge into older age groups where there are currently relatively few people. The consequence will be that, while the number of people in all age groups will increase, the 45 and older age groups will experience above average increases, in terms of both absolute increase and rate of increase. The biggest increase, both absolute (277,000 more people) and percentage (167%), will be in the 65 to 74 age group, the result of the aging of today's 35 to 44 year olds into this age group. In 2028, there will be 250,000 more 55 to 64 year olds, 155,000 more 45 to 54 year olds, and 127,000 more 75 to 84 year olds in Alberta. While there will be only 32,000 more people aged 85 and older, this will be a 113% increase on the 23,000 people in this age group in 1998. The under 45 age groups will increase, as the result of migration and births, by somewhere between the 35 to 44 age group's 42,000 (8%) increase and the 15 to 24 age group's 67,000 person (16%) increase. The reason for the modest increase in the 35 to 44 age group is that migration in this age group and aging of younger people into it will be to some extent offset by its loss of the baby boom to older age groups.

7. In 1998, there were 144 persons 65 years of age and older per 1,000 people between the ages of 15 and 64 (the elderly dependency ratio), and 318 persons under the age of 15 per 1,000 people in these working ages (the youth dependency ratio), for a total dependency ratio of 462 persons per 1,000 persons of working age. This compares to Alberta's 1966 elderly dependency ratio of 123 persons 65 and older per 1,000 people of working age, and a youth dependency ratio of 600 per 1,000. Over the past 32 years, the total dependency ratio has declined by 36%, the net result of a 53% drop in the youth dependency ratio, and 17% increase in the elderly dependency ratio.

8. Without-migration Alberta's population would age rapidly, with the number of elderly increasing to 340 per 1,000 people of working age (a 135% increase), and the number of young people per 1,000 people of working age declining to 266 (a 20% decline), by 2028. The total dependency ratio would drop from 462 per 1,000 in 1998 to 428 in 2009, then climb to 606 per 1,000 by 2028.

9. The relatively young age profile of migrant populations, combined with their positive impact on the number of births in the province, means that dependency ratios will be much lower with migration than without it. The projected population of Alberta in 2028 will have a youth dependency ratio of 271 people under the age of 15 for every 1,000 people of working age, not significantly different from the 266 per 1,000 that would occur without migration. However, the elderly dependency ratio without migration of 340 people 65 and older per 1,000 people of working age in 2028 is 21% higher than the projected ratio of 281 persons per 1,000. The direct and indirect impact of inter-provincial and international migration on the age structure of Alberta's population is to reduce the relative number of people supported, to one extent or another, by the working population: migration makes the province's population younger than it otherwise would be.

10. In the past 25 years more Canadian residents moved into and out of Alberta than currently live in here, with 3.2 million Canadians moving into and out of the province, compared to its current population of 3 million.

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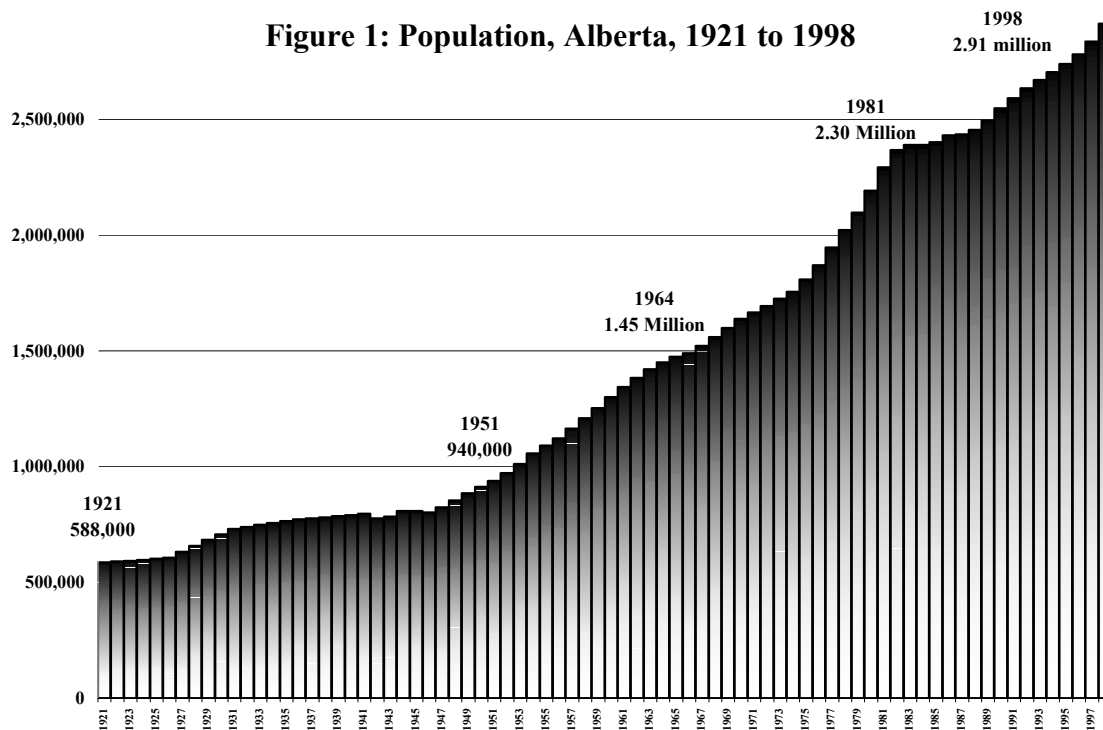
I. Introduction

Growth and change has been the history of Alberta's population, and growth and change will be its future. Neither growth nor change has been steady in the past, and neither will be in the future. In the short run, resource cycles and economic change will continue to bring uncertainty to labour markets, and hence to projections of population change. In the long run, however, the general stability of major demographic variables, and the averaging of cycles that occurs over a long period of time, permit projection of population growth and of changes in its composition in terms of orders of magnitude if not with exact precision.

This report presents a base line population projection for the province of Alberta for the period 1998 to 2028. The assumptions and values used in this projection are developed from the long run patterns of growth and change shown in the historical data for population trends in Alberta.

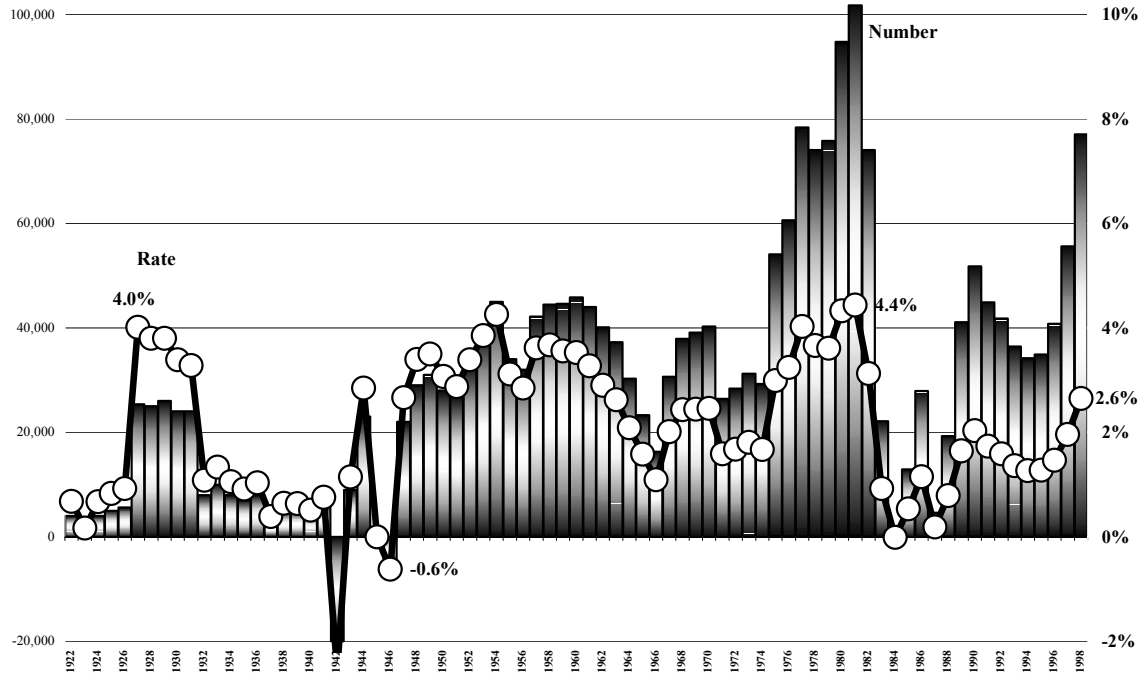
II. Alberta's Population Past and Present

There were 2.91 million people in Alberta in 1998¹, twice the 1.45 million who lived in the province in 1964, and five times the 588,000 who lived here in 1921 (Figure 1). Most of Alberta's population growth has occurred since the end of the Second World War. Leduc Number One signaled not only the beginning of Alberta's petroleum economy, but also of its rapid population growth. Since 1951, the population has increased by 2 million people, tripling in size in just under half a century.



The pattern of population growth in Alberta has been one of volatility (Figure 2). The longest period of relatively steady growth was 1946 to 1976, when an average of 30,000 additional people were added to the province's population each year². Only one short slowdown, in the 1964 to 1967 period, interrupted this otherwise steady annual increment of growth. With this relatively constant increment, and a growing population, the annual rate of growth slowed, from the 4% per year range in the 1950s to 2% in the early 1970s.

Figure 2: Net Annual Population Growth, Alberta, 1922 to 1998



With the oil boom in the late 1970's, the province's population increased dramatically, adding an average of 70,000 people per year during the 1976 to 1982 period, with a record 103,000 people added in 1981 and average annual growth of over 4%. Immediately thereafter, the recession of the 1980s led to a dramatic slowdown, with an annual average of less than 5,000 people added to the province's population, and growth of less than 1%, during the 1983 to 1988 period.

From 1988 to 1996, population growth averaged 40,000 persons per year, about the same level as it had during the 1960s, with an annual growth rate of 1.5% to 1.8% per year. In the past two years, growth has increased substantially, with 78,000 people added to the province's population between 1997 and 1998, resulting in a growth rate of 2.3%. The current size of the population means that, while the numbers added each year are relatively large compared to the 1945 to 1975 period, the growth rates are well below those experienced in the early post war period.

The typical³ Albertan in 1998 was a 38 year old (Figure 3): there were 54,600 people aged 38, more than the number of people of any other age. The typical Albertan was also male: there were 1,465,900 males, and 1,447,000 females in 1998. The typical 38 year old was also a male: there were 27,900 males and 26,800 females in this age group. The average⁴ age of an Albertan in 1998 was 34.6 years old, 33.9 for males and 35.3 for females. The reasons why the average age of women was older than that for men are that there are more males born than females but women have longer life expectancies. Half of the population in Alberta is under (or over for that matter) 32 years of age⁵.

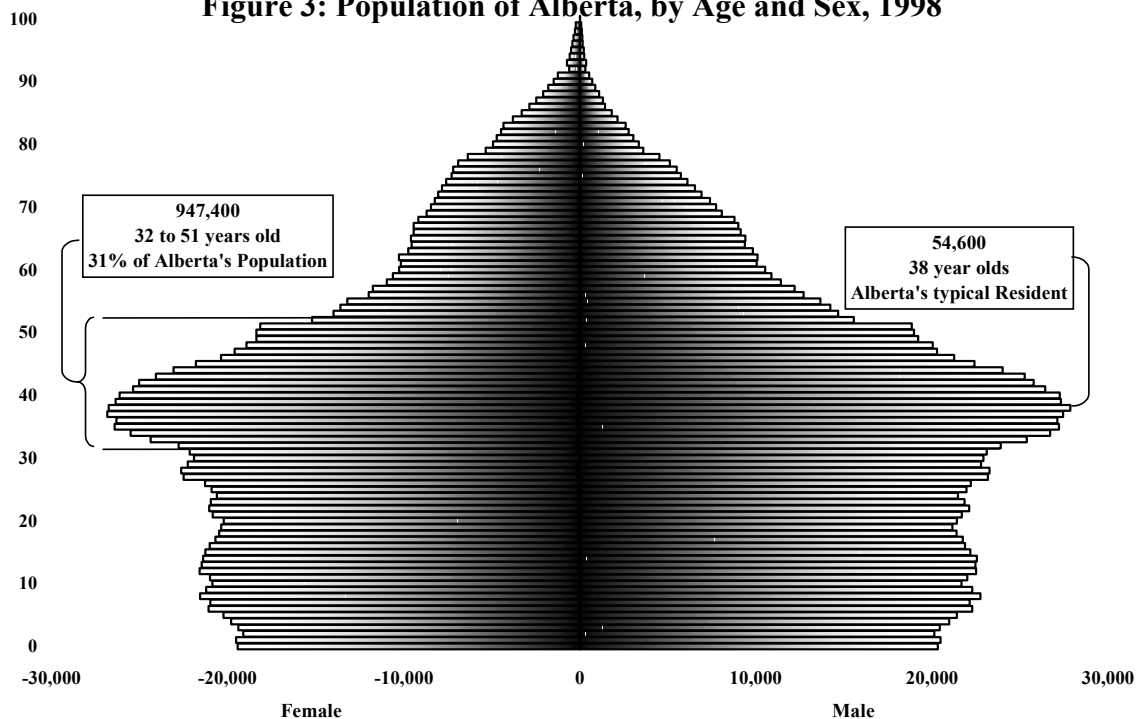
Alberta's population demonstrates a distinct "baby boomer bulge" age profile. In the old days of population analysis, population profiles were referred to as pyramids, with the youngest age groups being largest and annual mortality reducing the number of people with increasing age. Such pyramids only exist when there have been long periods of stable birth and death rates, and little migration. None of these characterize Alberta's population. Like all other regions where there was a post world war two boom in births, Alberta's age profile looks more like a tree (with a very thick trunk) than a pyramid.

The baby boom generation – the single largest generation in history, accounting for one third of the country's population – was born between 1947 and 1966 (or 1946 and 1965, or a number of other combinations in this range – assuming that a generation is a 20 year age group). This means that (in 1998) baby boomers were between the ages of 32 and 51, with the typical baby boomer being the typical Albertan – a 38 year old.

In 1998, 33% of Alberta's population were baby boomers, that is, were between the ages of 32 and 51. There were 523,500 aged 32 to 41 and 423,800 people aged 42 to 51 and for a total of 947,300 boomers. The generation before the baby boom, now aged 52 to 71, is smaller than the baby boom, the result of the very low level of births that occurred in the 1930 Depression and pre-War period: 14% of the population was in this older generation in 1998. The generation following the baby boom, 1998's 12 to 31 year olds, is also smaller than the baby boom generation, the result of the low level of births that urbanization and the birth control pill brought to the 1967 to 1986 period: 29% of the population is in this younger generation. The remaining population is divided between 0.18% over the age of 92, 5% in the 72 to 92 age group (the generation born between 1907 and 1926), and 17% under the age of 12 (the first of the 1987 to 2006 generation).

In every age group 60 and under, there are more males than females: there were 53,100 more males under the age of 61 than there were females. Conversely, there were more women of every age 61 and older: there were 34,400 more women 61 and older than there were men.

Figure 3: Population of Alberta, by Age and Sex, 1998



Populations are often described in terms of the ratio of the number of people in one age group compared to the number in another. The most common such ratios are the elderly and youth "dependency" ratios: the number of people 65 and older (elderly), and under 15 (youth), divided by the number of people of working age (15 to 64). This ratio is meant to generally represent the magnitude of the relationship between the beneficiary population (of pension plans and health care or education) and the contributory population (those of working age who contribute, via taxation and plan installments). In 1998, there were 144 persons 65 and older, and 318 persons under the age of 15, per 1,000 people of working age in Alberta, for a total dependency ratio of 462 persons per 1,000 persons of working age. This compares to 1966's elderly dependency ratio of 123 per 1,000 people of working age, and a youth dependency ratio of 600 per 1,000. Thus over the past 32 years, the total dependency ratio has declined by 36%, the net result of a 53% drop in the youth dependency ratio, and 17% increase in the elderly dependency ratio. As is shown by the population projection presented later in this report, the aging of Alberta's population is going to bring a dramatic increase to both the total and elderly dependency ratio.

III. Components of Population Growth and Change

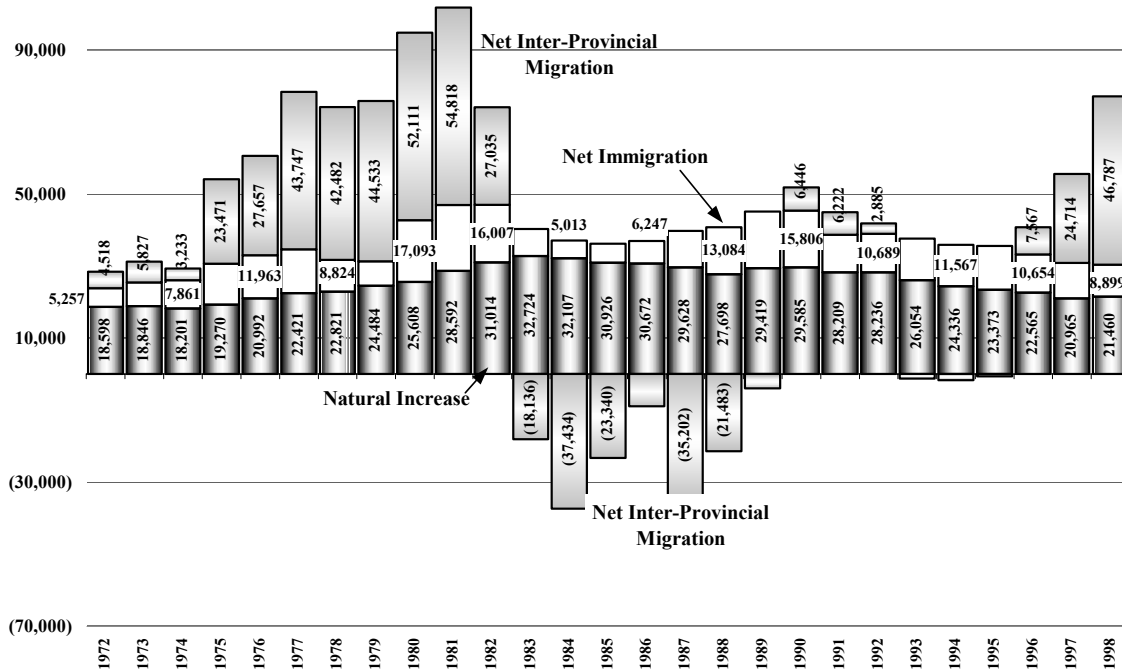
Population growth is the net result of births, deaths, in-migration from other provinces, out-migration to other provinces, immigration from other countries, the return of Canadians who have been resident outside of the Canada, emigration to other countries, and the net change in the number of non-permanent residents (foreign students, diplomats, etc.) living in the province. While we consider each of these components separately and in detail in subsequent sections of this report and in the projection, they are generally grouped into three categories for discussion (Figure 4): natural increase (births minus deaths), net inter-provincial migration (in-migration minus out-migration), and net immigration (immigration plus returning Canadians plus the net change in non-permanent residents minus emigration).

Natural increase has demonstrated a relatively stable pattern, increasing from a net of 18,600 more births than deaths per year in the early 1970s to a net of 33,000 per year during the population boom of late 1970s, then dropping to the 21,000 range in the late 1990s⁶. In 1998, natural increase added 21,460 people to Alberta's population (38,390 births minus 16,930 deaths).

The reason for this stability is that both births and deaths are determined by the composition of the province's population and by birth and death rates, all of which change, but only slowly. The reasons for the decline over the past twenty years has been the slow rate of population growth combined with the aging of the first of the baby boomers out of the high birth rate age groups. While the current higher level of population growth will lead to an increase in the annual number of births, the aging of the population will lead to a faster increase in the number of deaths each year. As a result, natural increase will play a smaller role in population growth in the future than it has in the past.

It is inter-provincial migration (primarily labour force migration) that imparts volatility to the province's population growth. As labour force migration is driven by relative economic conditions, the pattern of economic change in Alberta is reflected in the pattern of inter-provincial migration. In the early 1970s, in-migrants exceeded out-migrants by a modest 3,000 to 6,000 persons per year. In the economic boom from 1975 to 1982, the difference was much greater, with the net in-migration in the range of 23,000 to 56,000 persons per year. The 1980s recession brought a dramatic reversal, with the number of out-migrants exceeding in-migrants from 1982 to 1989, and net out-migration reaching a record of 38,250 in 1984. In the early 1990s, net inter-provincial migration was negligible, slightly positive from 1990 to 1992 and then slightly negative from 1993 to 1995.

Figure 4: Components of Net Annual Increase, Alberta, 1972 to 1998



In 1995 Alberta began a period of economic recovery followed by economic growth, with net inter-provincial migration responding. In 1996 in-migrants out numbered out-migrants by 7,567 people: by 1998, net inter-provincial migration to Alberta was a positive net 46,787 (79,229 in-migrants minus 46,787 out-migrants), the third highest increment in the past quarter century.

Net immigration (immigration plus returning Canadians plus the change in non-permanent residents minus emigration) has always made a positive contribution to Alberta's population, adding in the range of 5,000 people per year (during the early 1970s and mid 1980s) to 16,500 (in the early 1980s and early 1990s). In 1998, net immigration added 8,899 people to the province's population (11,892 immigrants plus 3,925 returning Canadians plus 1,404 additional non-permanent residents minus 8,322 emigrants).

Each of these aspects of population growth also changes the characteristics of the resident population, not only in terms of its age and gender composition, but also in terms of the myriad of other characteristics by which populations may be measured. In the following sections the effects of these factors on the age composition of Alberta's population are presented. However, the most important factor bringing change to Alberta's population is not something that causes it to grow or decline, but does cause it to change, not by much in the short run, but dramatically in the long run. This is birthdays, or in the language of demographics, aging.

IV. Aging

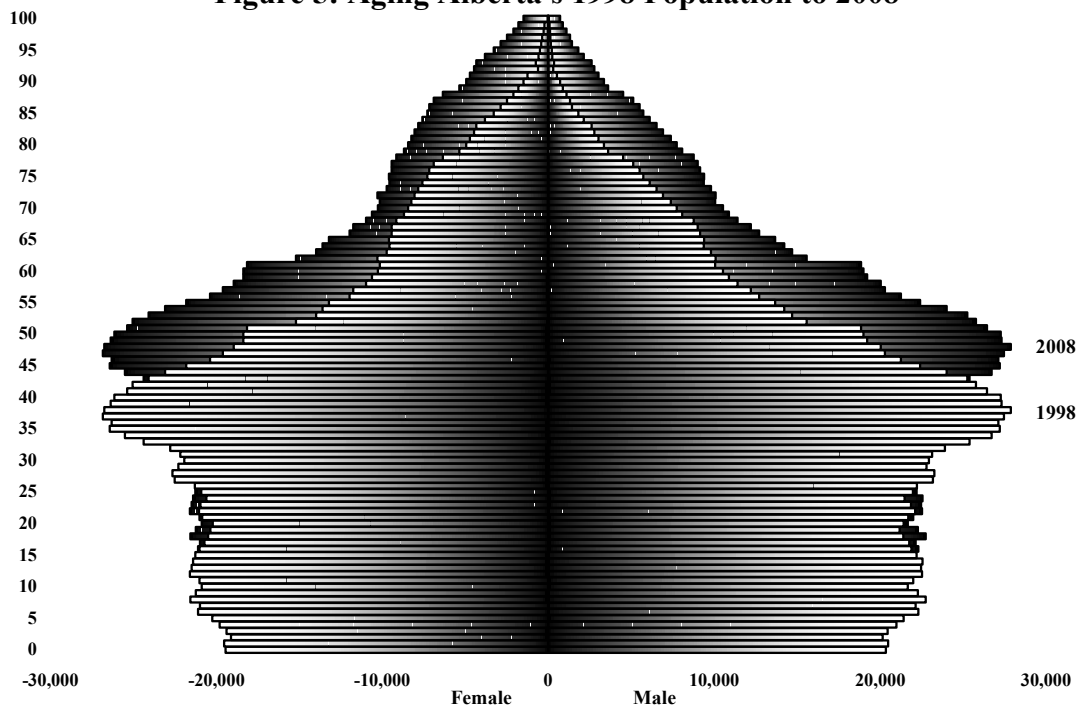
The most important factor affecting Alberta's population in the future will be aging, as this process affects everyone. While a population might increase by 1% or 2% per year, 100% (well, almost 100%) of the population gets a year older each year. The effects of aging can be shown by simply shifting the age profile up (as is shown on Figure 5): in ten years, the population of Alberta, with no in- or out-migration, no deaths or births, no immigration or emigration, would be precisely ten years older than it is today. Aging with no deaths – seems a bit of a stretch – but it

is the reality for the vast majority of the population: mortality rates are not significant in the under 75 population, particularly in the under 50 age groups where most of Alberta's population is today. As is demonstrated in the next sections, aging will have a greater impact on the composition of Alberta's population than migration or natural increase: the future population of Alberta will to a large extent be an older version of today's population.

Given the "tree" shape of Alberta's population, aging alone would result in 2008's typical Albertan being a 48 year old rather than a 38 year old. In ten years, aging alone would mean that the 423,800 people aged 42 to 51 in 1998 would be 423,800 people aged 52 to 61 in 2008. As there were only 247,600 people aged 52 to 61 in 1998, aging alone would mean that the province's population of 52 to 61 year olds would increase by 176,200 people, a 71% increase.

This aging would also mean that the number of people aged 32 to 41 would decline, as 1998's 523,900 32 to 41 year olds would become 2008's 42 to 51 year olds: the 441,100 22 to 31 year olds in 1998, who would become 2008's 32 to 41 year olds, are not numerous enough to replace the people aging out of this age group. Migration and immigration, therefore, will be required in order to offset a 82,400 people (16%) decline in the 32 to 41 population that would otherwise be brought about by the aging of the baby boom generation.

Figure 5: Aging Alberta's 1998 Population to 2008



V. Mortality

It has been said that the only thing worse than aging is its alternative, death. Mortality is the final demographic variable, and one that affects both the size and the composition of the population. The number of deaths in Alberta has increased from 10,786 in 1972 to 16,930 in 1998 (Figure 6). This increase is the result of the growth, and the aging, of the province's population, offset by a slight decline in mortality rates over the past quarter century. A mortality rate is the number of people of a particular age who die in a year divided by the total number of people in the population in that year (Figure 7). These rates are expressed as number of deaths per 100,000 people to avoid having miniscule numbers for rates in the younger ages.

Figure 6: Annual Number of Deaths, Alberta, 1972 to 1998

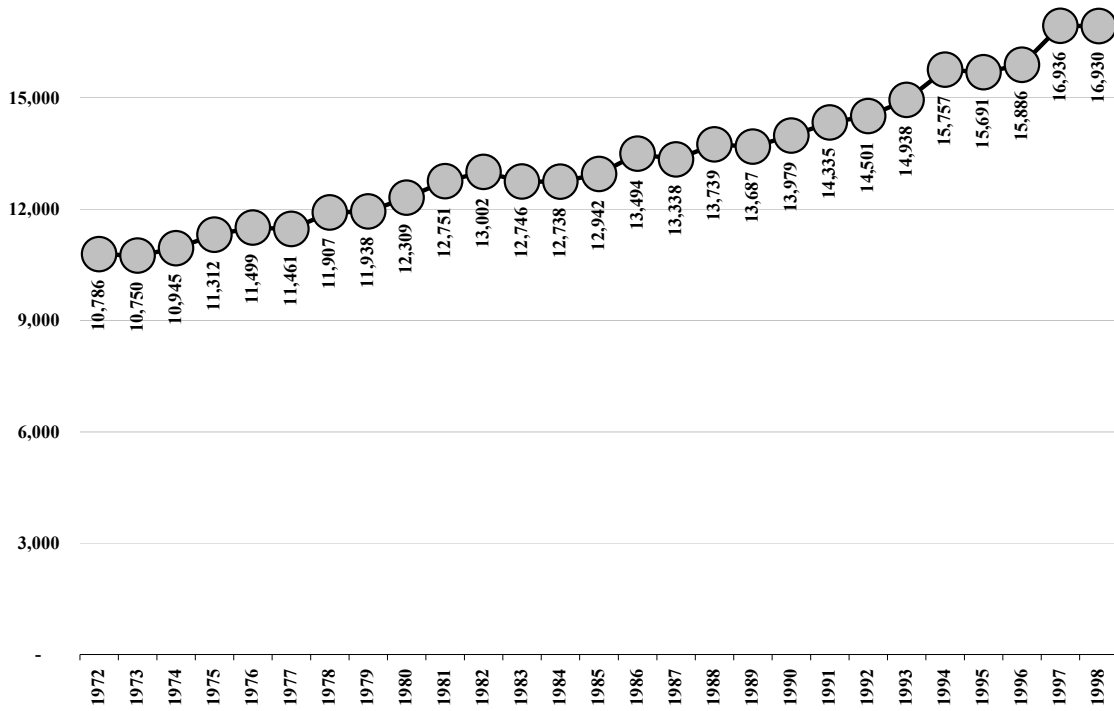
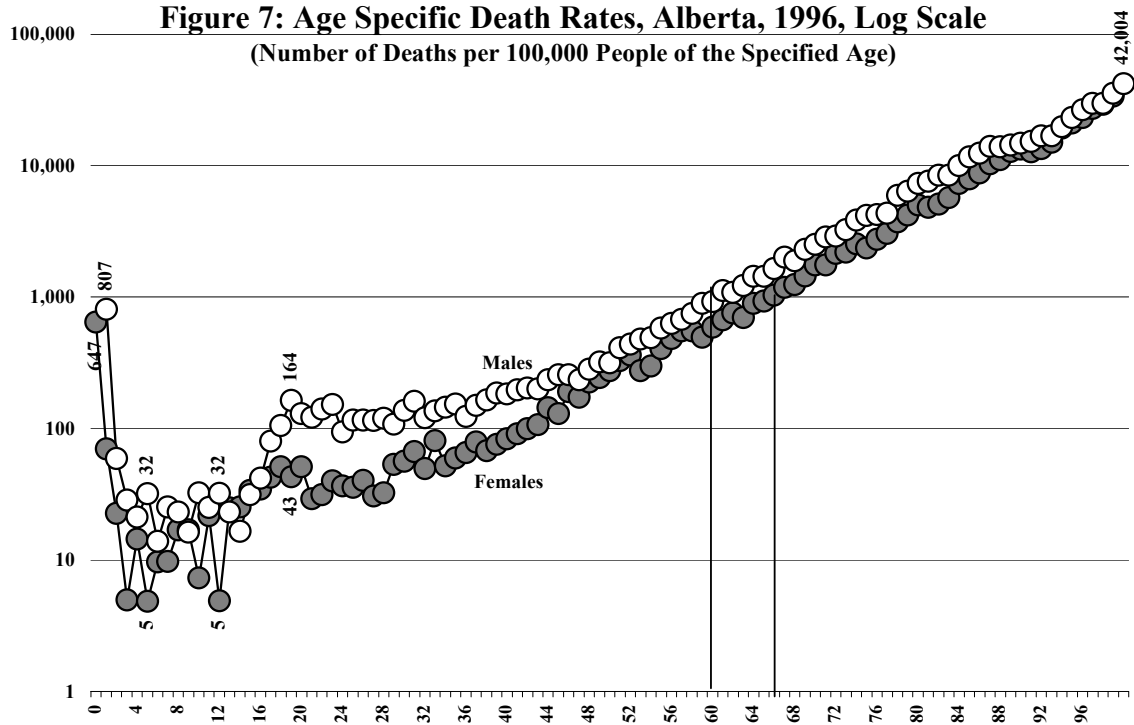


Figure 7: Age Specific Death Rates, Alberta, 1996, Log Scale
(Number of Deaths per 100,000 People of the Specified Age)



As Figure 7 indicates, mortality rates generally increase with increasing age, and rates for males are higher than for females of the same age (hence males have a lower probability of reaching the next age, resulting in females greater life expectancies)⁷. The mortality rates for the new born (647 deaths per year per 100,000 females and 807 per 100,000 for males in their first year of life

in 1996) are higher than for older children and adults up to the age of 60, showing the vulnerability of the youngest additions to our population. The lowest mortality rates are from 2 to 15 years of age, with rates in the range of 5 to 32 deaths per year per 100,000 people.

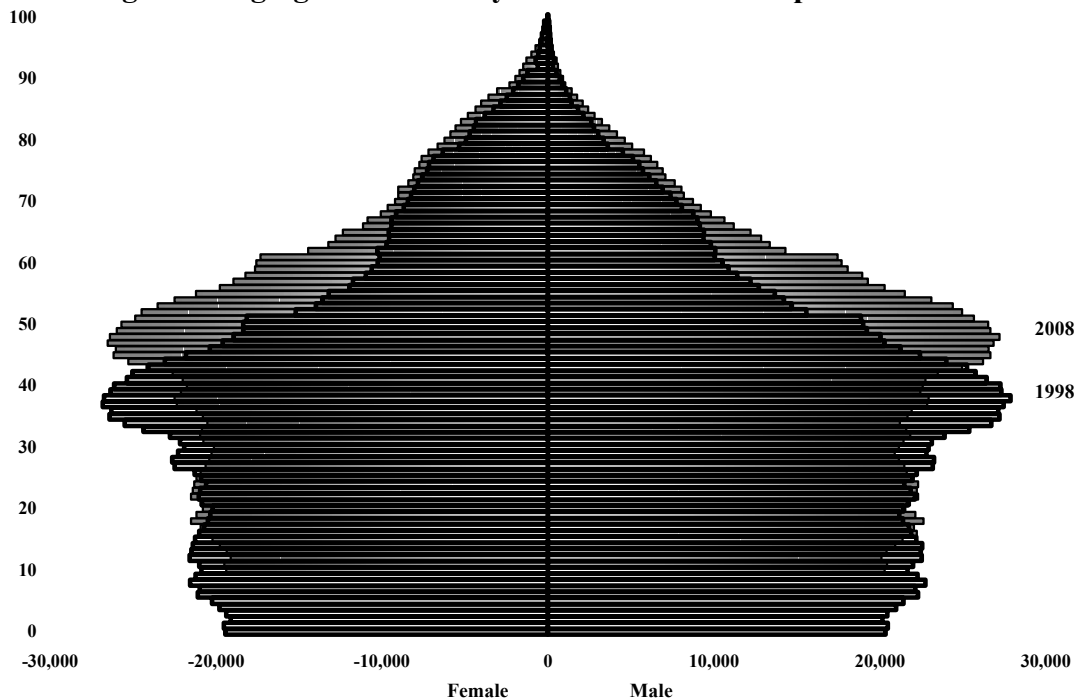
Once males reach the age of 16, their probability of dying increases significantly, to 164 deaths per year per 100,000 males aged 19, four times the 43 per 100,000 rate for females of the same age (the difference is largely explained by the higher number of male deaths each year in each adult age group due to accidents and violence). By age 50 the gap between male and female mortality rates has converged in the range of 300 deaths per year per 100,000 persons aged 50.

The two rates then move together (with the rate for males always slightly higher than that for females of the same age) through the 1 in 100 range (1,000 in 100,000) in people's sixties, 1 in 10 in their mid-eighties, to 1 in 2 in their late nineties. There are so few people in the 100 plus age group that no data are available for each single year of age: at some point the rate will be 1 in 1.

For purposes of a baseline population projection, it will be assumed that the age specific mortality rates shown on Figure 7 will remain constant over the projection period. This is in contrast to what has happened over the past three quarters of a century, where age specific mortality rates at all ages have fallen to such an extent that life expectancies have increased by almost 10 full years. While it is most likely that medical technology will result in a continuing decline of mortality rates, the law of diminishing returns will likely apply. This means that future declines will be much more modest, and more difficult to achieve, than the declines that have been achieved in the past. Thus it is prudently conservative to project constant mortality rates.

In population projections, the focus is not on mortality, but rather survivorship. Survivorship rates, the percentage of people in each age group who do not die in a year and hence who age into the next older age group, are the inverse of the mortality rates shown on Figure 7. Applying these rates to the aging of Alberta's current population shows the impact of mortality on the age profile of the province's population (Figure 8).

Figure 8: Aging and Mortality of Alberta's 1998 Population to 2008



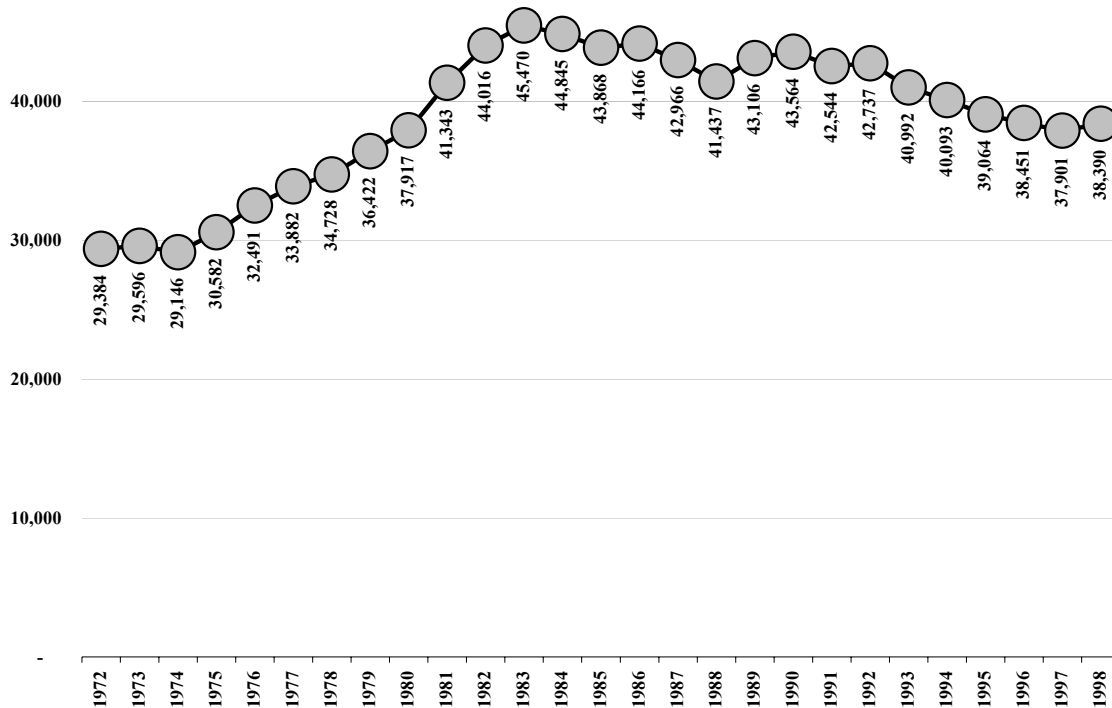
Over the next decade mortality will not noticeably change the baby boom age profile of Alberta's population: the profile will still shift up, and the typical Albertan ten years from now will be ten years older than the typical Albertan of today. Where the noticeable difference between aging alone and aging with mortality will be is in the over 75 population: the top of the population tree is a lot narrower in Figure 8 than it was in Figure 5.

Following the last example, aging and mortality would mean there in 2008 would be 514,400 people between the ages of 42 to 51, rather than the 523,000 there would be if there was no mortality. In comparison, in 2008 there would be 163,500 in the 71 to 8 years of age group, compared to the 216,500 there would have been without mortality. Thus, mortality has a relatively small impact on population in younger and middle age group, but significant impact in older age group.

VI. Births

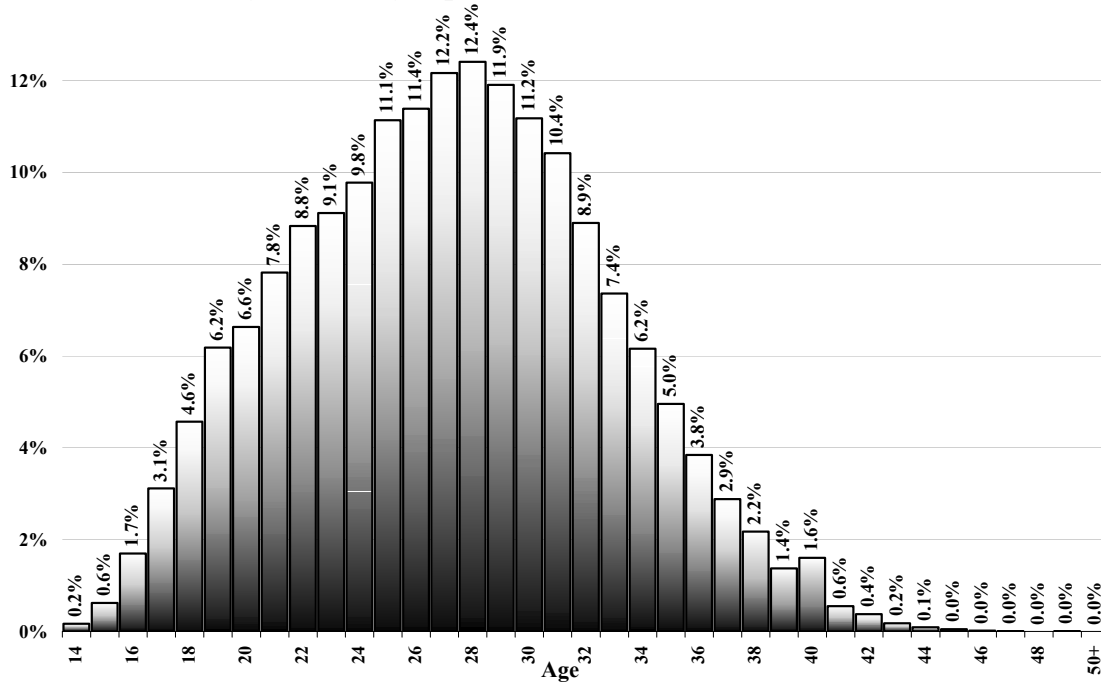
Alberta is one of two provinces (the other is British Columbia) that have had their record number of births after the post war baby boom era. The record number of births in Alberta was the 45,470 kids born in 1982: this was 6,461 more than Alberta's baby boom record of 39,009 births in 1960. Alberta beat its baby boom era record every year from 1980 to 1994 (Figure 9). If this is the case, why does the province have a distinct baby boomer age profile?: because historically net inter-provincial migration has been overwhelmingly comprised of baby boomers.

Figure 9: Number of Births, Alberta, 1972 to 1998



The number of births each year is a function of the number of women in the child bearing ages (14 to 50 years of age) and the probability that they will have a child during a year. This rate is calculated as the number of women of each age who give birth during a year divided by the total number of women of that age resident in the province. As Figure 10 shows, there is a very distinct pattern to age specific birth rates.

Figure 10: Age Specific Birth Rates, Alberta, 1996



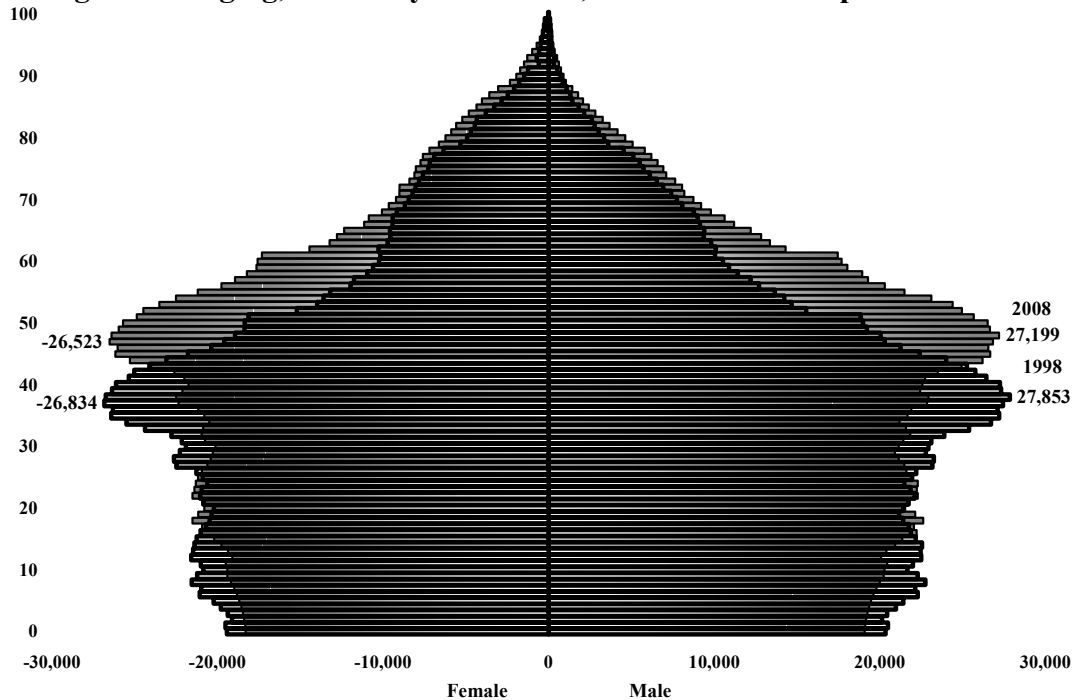
The highest age specific birth rates are for women in the 25 to 31 year group, where between 11% and 12% of the women have a child each year. The rates increase steeply from 0.6% for women of age 15 to the peak at 12.4% at age 28, then drop very sharply back to 0.6% by age 41, becoming negligible by the age of 45.

Age specific birth rates have changed dramatically over the past seventy-five years, doubling for all age groups between the pre world war two and post war periods, and then dropping by more than a half between the 1960 and the 1970s. Although there have been changes in specific age groups (continuing slight declines in the younger age groups, and slight increases in the rates for women in their thirties), rates have generally been stable over the past decade⁸. As with mortality rates, in preparing the baseline projection for Alberta's population, it has been assumed that age specific birth rates will remain constant at their 1996 level.

There is one other factor about births that must be considered in population projection: the proportion of the births in a particular year that are male and female, as this will have an impact on the future gender composition of the population. In 1996, of a total of 38,914 births, 48.92%, (19,036) were females and 51.08% (19,878) were males. This rate is assumed to be constant during the projection period.

Aging and the 1996 birth and death rates can be applied to the 1998 population profile to show how these natural processes would affect the size and composition of the province's future population (Figure 11). Over the 1998 to 2008 period, in the absence of migration⁹, there would be 385,520 births (196,931 males and 188,589 females). These new additions to the population would be between 0 and 9 years of age in 2008, and would be the only people in the age group. However, in the absence of migration into and out of the province, there would only be 382,232 people in Alberta under the age of 10 in 2008. The difference of 3,288 people is explained by the mortality rates of children under the age of 10.

Figure 11: Aging, Mortality and Births, Alberta's 1998 Population to 2008



VII. Natural Increase

Traditionally, consideration of the processes of aging, births and deaths without migration has been used to show the change in a population due to natural processes (as was done in the previous section). The resultant change was referred to as natural increase, and (unless you believe that the movie *Men In Black* was a documentary) would capture all of the forces that shape the population of the world. In any smaller geographic level, migration of people between regions (which, given the nomadic nature of people, is as natural as births and deaths) must also be accounted for.

Starting with the age and sex characteristics of Alberta's population today, and the assumption of constant 1996 age and sex specific birth and death rates, natural increase alone (no migration) would result in a slowing in the growth of, and ultimately a decline in, the province's population over the next 30 years (Figure 12). With the province's current young age profile, natural increase alone would result in population growth from its current 2,913,400 persons to a peak of 3,233,700 in 2026, and then the beginning of a decline, to 3,230,900 in 2028, and to a smaller population every year thereafter.

The reasons for the decline is, effectively, the aging of the province's 1998 population. This is clearly shown in the dependency ratio (Figure 13). In 1998, there were 144 people 65 and older, and 318 people under the age of 15, for every 1000 people of working age in Alberta. Natural increase alone would result in the number of elderly increasing to 340 per 1,000 of working age (a 135% increase), and the number of young people per 1,000 of working age declining to 266 (a 20% decline), by 2028. The total dependency ratio would drop from 462 per 1,000 in 1998 to 428 in 2009, then climb to 606 per 1,000 by 2028. Beyond 2028, no migration would mean that the elderly dependency ratio would continue to increase (albeit at a slowing rate): the youth dependency ratio, however, would stabilize as births would become the sole determinant of the relationship between the under 15 and the working age populations.

Figure 12: Alberta Population, 1971 to 1998, Projected 1998 to 2028 Assuming No Migration

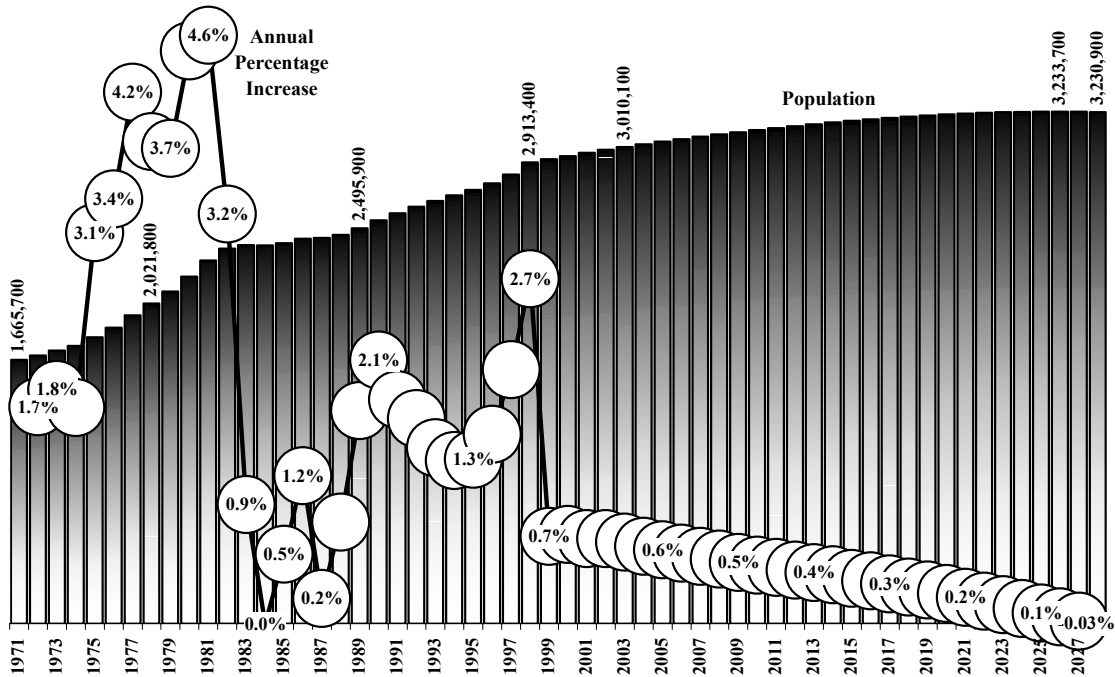
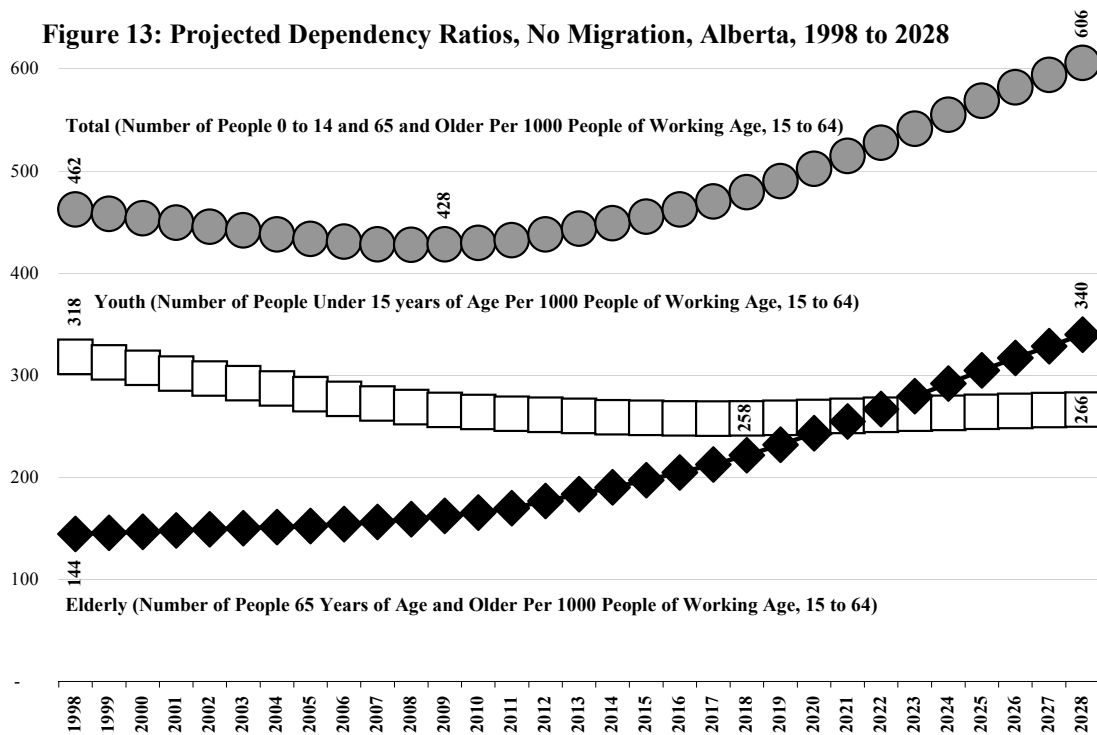
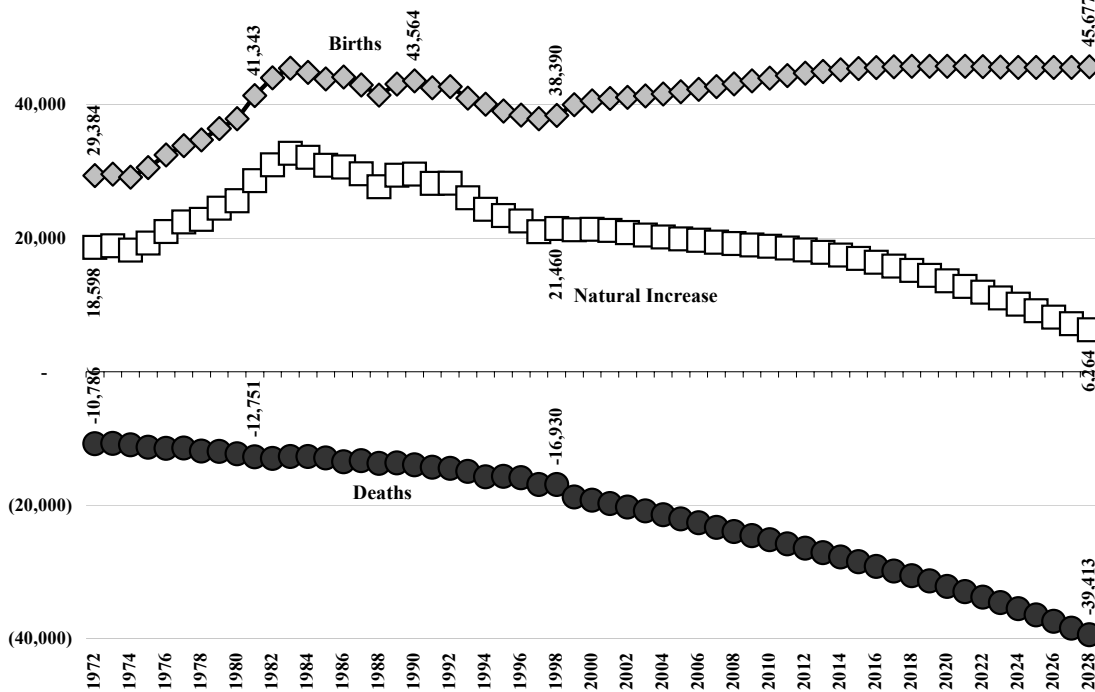


Figure 13: Projected Dependency Ratios, No Migration, Alberta, 1998 to 2028



With over 70% of the province's current population under the age of 45, natural increase would result in only a slight decline in the annual number of births (from 38,390 in 1998 to 34,312 in 2028, Figure 14) as many of the women in today's population will be of childbearing age over the coming three decades. However, given its baby boom profile, as today's population ages the proportion in the older, high mortality age groups will increase. As a result, the number of deaths each year would increase significantly, from 16,930 in 1998 to 36,247 in 2028. This more than doubling in the annual number of deaths, compared to a 10% decline in the annual number of births, means that net natural increase would decline from 21,460 in 1998 to -1,935 (deaths exceeding births) by 2028.

Figure 14: Natural Increase, Alberta, 1972 to 1998, Assuming No Migration, 1998 to 2028



The annual number of deaths would continue to increase, and the number of births would decrease, until early in the 2040s when the last of the baby boomers dies. After this date, the annual number of deaths would start to decline and the annual number of births would continue to decline, resulting in a slowing of the rate of population decline. It would not, however, stop the decline, as birth rates in Alberta are below the replacement level.

Without migration Alberta's population would age rapidly (the increasing elderly dependency ratio). It would increase very little (and at a declining rate) for the next quarter century, until aging resulted in the annual number of deaths exceeding the annual number of births, at which point the number of people in the province would decline.

While it is important to understand the relative role of natural increase in population change, particularly as it is the only factor affecting the growth of the world's population, in the open economy of Alberta and Canada, this understanding does not provide the basis of a population projection. Migration into and out of Alberta is significant: in the past 25 years more Canadian residents moved into and out of Alberta than currently live in Alberta, with 3.2 million Canadians moving into and out of the province, compared to its current population of 3 million.

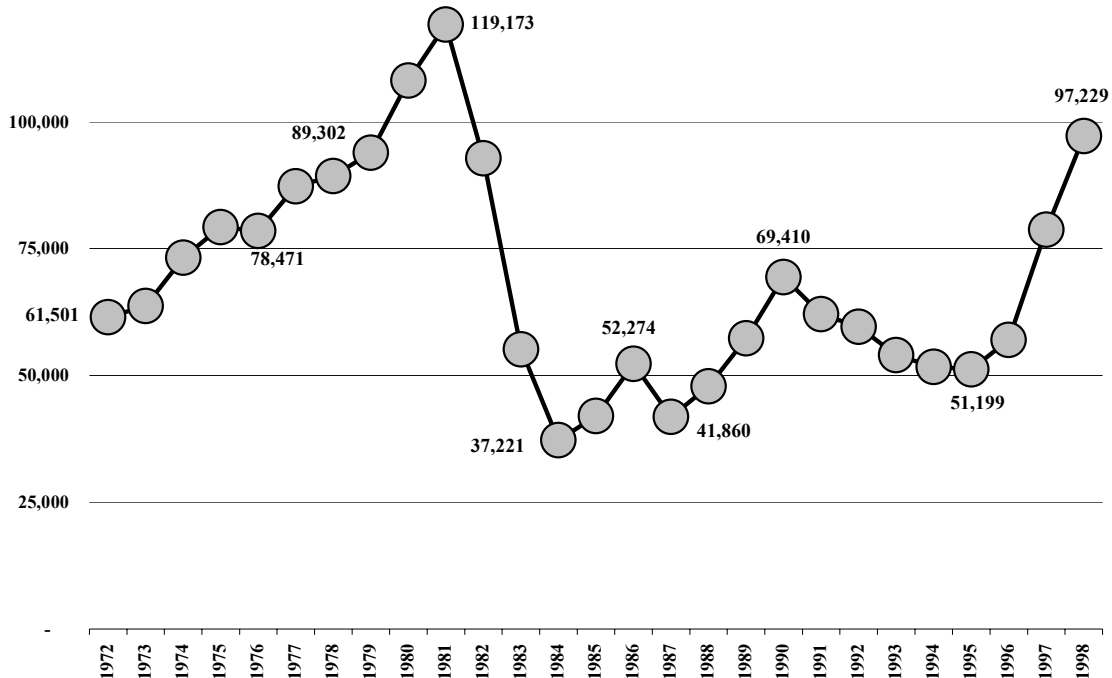
VIII. Inter-Provincial Migration

Internal or domestic migration involves people changing regions of residence within a country. This migration, which includes people moving within provinces (intra-provincial) and between provinces (inter-provincial), is not generally subject to direct government regulation. This is in contrast to international migration (immigration, emigration, temporary residency of foreign citizens as non-permanent residents, and the return of Canadian citizens who have been residing abroad) which is, to one degree or another, subject to governments' direct regulation.

The two components of inter-provincial migration are in-migration, people moving to Alberta from other provinces, and out-migration, people moving from Alberta to other provinces, the difference being net migration. Inter-provincial migration is caused by a wide range of factors, including economics (often referred to as "labour force migration"), life styles, stage in the life cycle (for example retirement), and relationships.

There has been considerable variance in the annual in-migration flow to Alberta, ranging from record highs of 90,000 to 118,000 per year in the 1977 to 1982 period, to lows of 36,000 to 50,000 per year during the 1980s recession, and back up to 97,229 in 1998 (Figure 15). Since 1972, an average of 68,948 people have moved to Alberta from other provinces every year. Two things are important to note about this pattern. First, regardless of the economic conditions, a significant number of people move to Alberta each year: even in the depth of the 1980s recession, an average of 40,000 people a year did so. These are people moving for reasons other than simple labour force economics: they had recession proof skills, they were moving with or to join family members, they chose the Alberta life style, things for them were better in Alberta than elsewhere, and all of the other reasons that are not driven by relative unemployment rates.

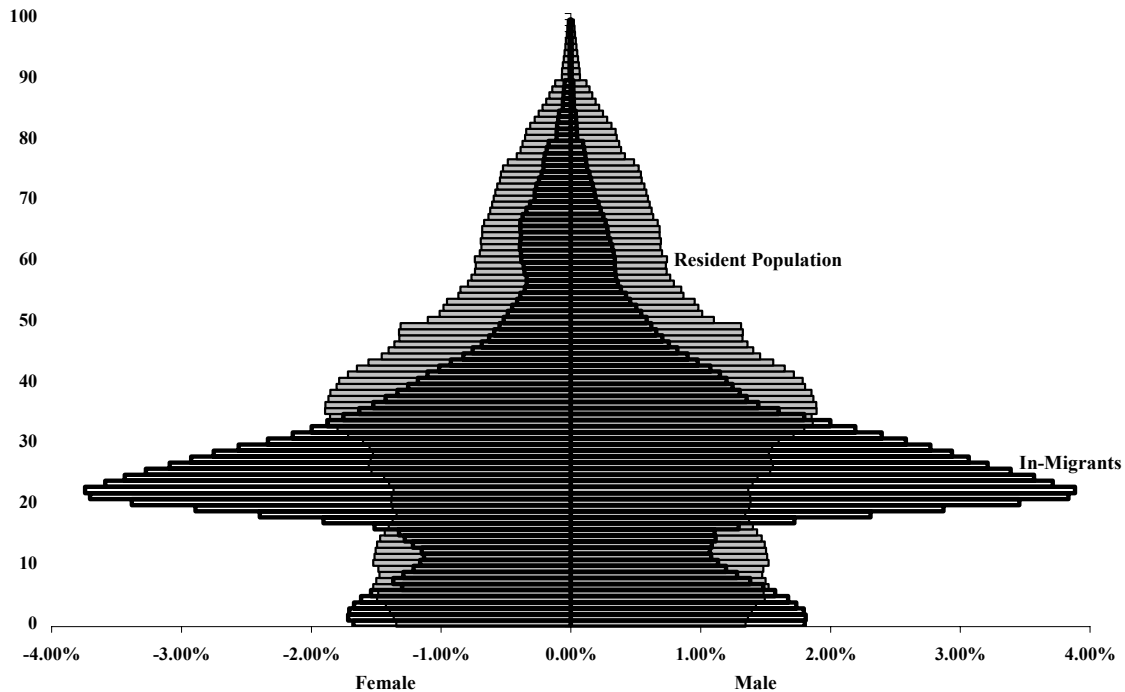
Figure 15: In-Migration, Alberta, 1972 to 1998



The second thing to note is that economics do have a major impact on migration and hence that most of migrants are labour force migrants. The oil boom of the late 1970s, the recession of the 1980's, the recovery of the late 1980s, the slowdown of the mid 1990s, and the expansion of the 1996 to 1998 period all mirrored in-migration to the province.

The fact that much of the in-migration stream to Alberta is made up of labour force migrants is shown in its age composition (Figure 16). 43% of the in-migrants to Alberta in 1996 were between the ages of 18 and 31, compared to only 21% of the province's residents being in this age group. Accompanying these young adult migrants were their young children: 9% of the in-migrant stream are children under the age of 5, compared to only 7% of the resident population. Older children and people over the age of 31 are underrepresented in the in-migration flow compared to the province's resident population: 52% of the resident population was over the age of 31, compared to 31% of the in-migrants.

Figure 16: Age Distribution of Resident and In-Migrant Populations, Alberta, 1996



Having said this, the age profile of the in-migrant stream also shows that it is not only labour force migrants who move to Alberta. 6% of the in-migrants are 60 years of age or older, certainly a smaller percentage than the 13% of people of this age account for in the resident population, but still a positive contribution to population growth.

Just as people have always migrated from other provinces to Alberta regardless of economic conditions, people have also always left Alberta to live in other provinces (Figure 17). And, just as in-migration is highly influenced by economic conditions, so too is out-migration: as a result, the out-migration pattern is roughly the inverse of that for in-migration. In the boom times of the late 1970s, there were still 41,000 people a year leaving Alberta to go to other provinces. Conversely, during the rough times of the 1980s, 74,000 people per year were leaving the province for other parts of Canada, at the same time as the smallest number of in-migrants were arriving. As the province's economy recovered in the late 1980s and early 1990s, the number of people leaving the province each year declined. By 1998, out-migration had dropped to 50,442 per year (a rate not dissimilar to that of the late 1970s, given the larger population of Alberta in 1998). Since 1972, out-migration from Alberta has averaged 58,882 people per year.

The age profile of out-migrants is remarkably similar to that of in-migrants (Figure 18), again reflecting the high degree of mobility enjoyed by, and required of, young adults. 39% of the out-migrants in 1996 were between the ages of 18 and 31, while this age group accounted for 21% of

the resident population. Children moving with their (young) parents mean that the under five age group accounts for 10% of the out-migrant stream, and only 7% of residents. Older children, and adults over the age of 31, are under-represented in the out-migrant population (as they are in the in-migrant stream), with out-migrants over the age of 31 accounting for 33% of all out-migrants, compared to 52% of residents.

Figure 17: Out-Migration, Alberta, 1972 to 1998

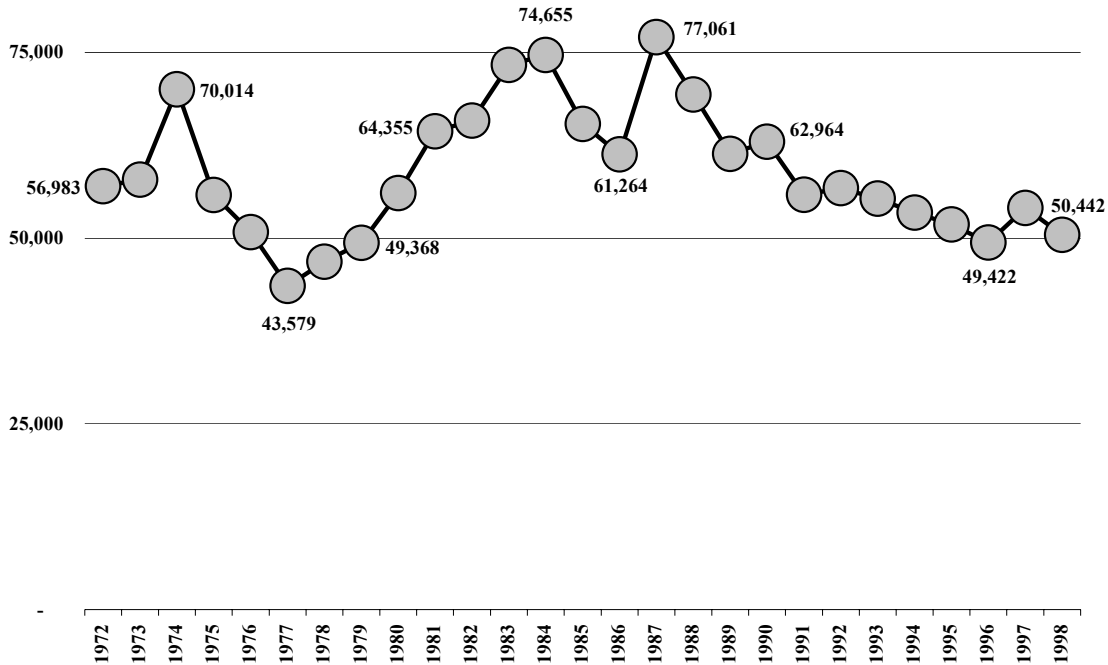
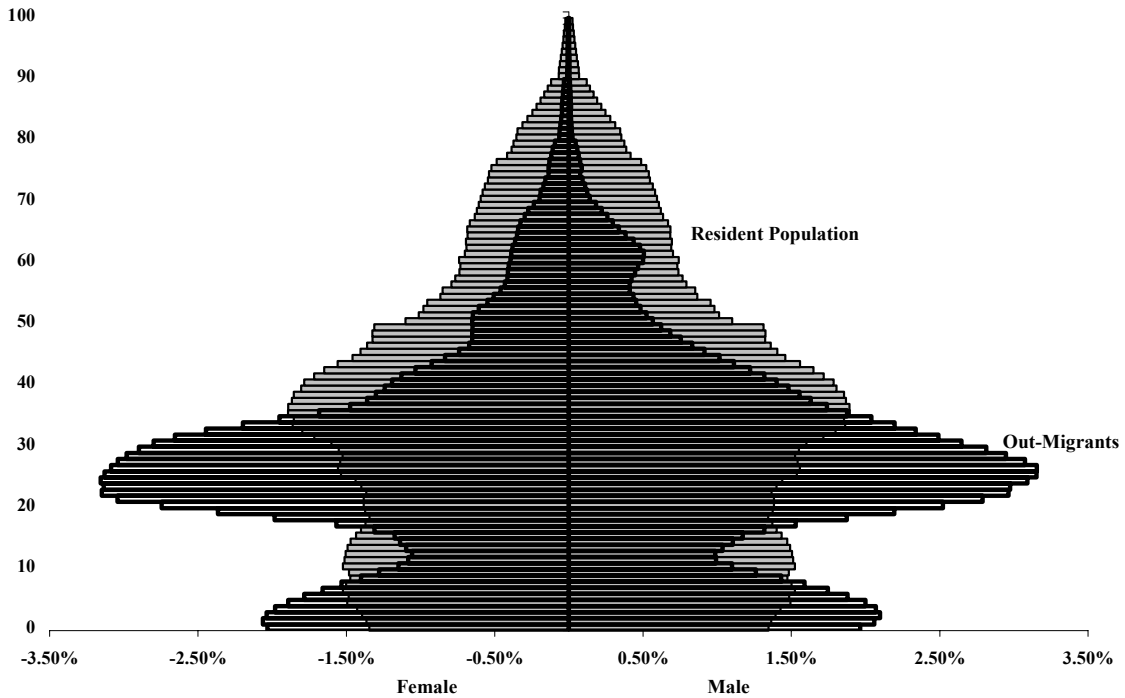
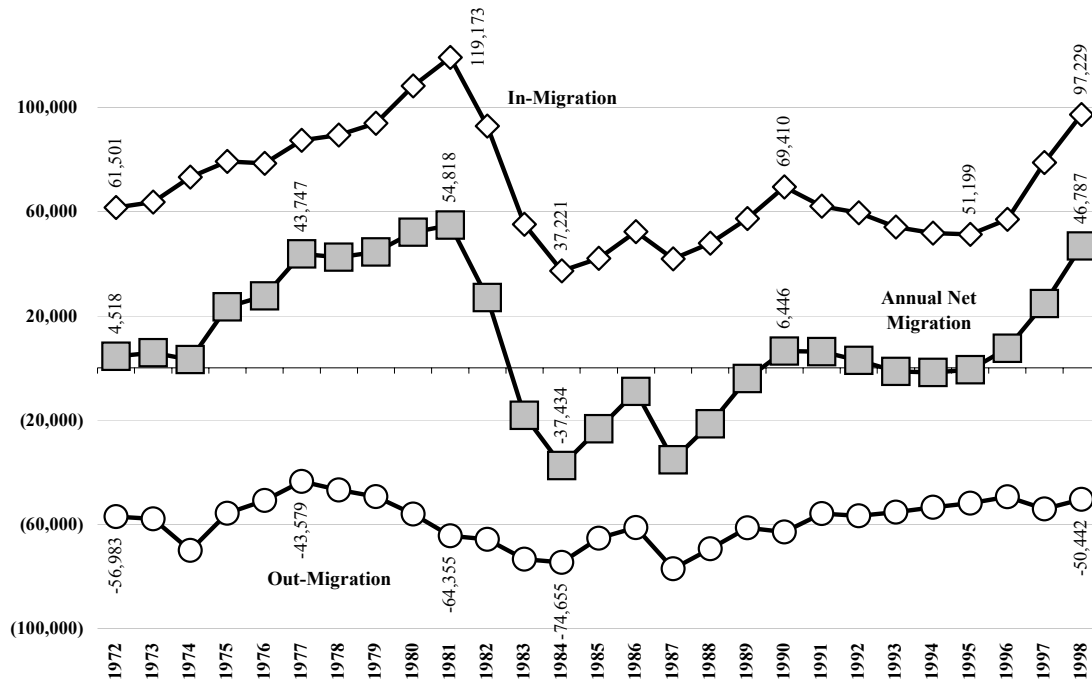


Figure 18: Age Distribution of Out-Migrant and Resident Population, Alberta, 1996



It is the general inverse labour force migration relationship between in- and out-migration that gives the volatility to net inter-provincial migration (Figure 19). In the high in-migration, low out-migration period of the late 1970s, net in-migration to Alberta reached record levels, with between 43,747 (1977) and 54,818 (1981) more people coming to the province from other provinces than leaving it for other provinces. The recession of the 1980s brought a sudden stop to this: out-migration exceeded in-migration (by as much as 37,434 people) from 1983 to 1989. In spite of significant in-migration in the 1990 to 1996 period, out-migration meant that net migration made no contribution to the province's population during this period. In contrast, the high level of in-migration in 1997 and 1998 pulled net migration back up to the record setting range of 46,000 to 47,000 net I-migrants, which had not been experienced since the late 1970s.

Figure 19: In-, Out-, and Net Migration, Alberta, 1972 to 1998



IX. International Migration

The definitional difference between inter-provincial and international migration is the nature of the boundaries crossed and, hence the degree of government involvement. In addition to all other factors that affect people changing their region of residence, international migrants are also subject to the entry and exit regulations of sovereign nations. International migration in Alberta is comprised of people from other countries taking up residency in the province (immigrants, non-permanent residents, and returning Canadians), and of Albertans moving to take up residency in other countries (emigration, which in turn affects the number of Canadians who may return to the province after having been residents of other countries).

The first, and largest, of the four components of international migration is immigration, people moving to Alberta as newly arrived Canadians. As Figure 20 shows, immigration to Alberta follows a cyclical pattern, part of which is determined by local economic conditions (witness its relatively low level during the recession of the 1980s) and part of which is not (witness its low level during the 1996 to 1998 period). Over the past 25 years, immigration to Alberta has ranged from lows of 8,000 to 9,000 per year to highs of 20,000 per year, averaging 14,179 per year from 1972 to 1998. In 1998, immigration added 11,892 people to Alberta's population.

Figure 20: Immigration To Alberta, 1972 to 1998

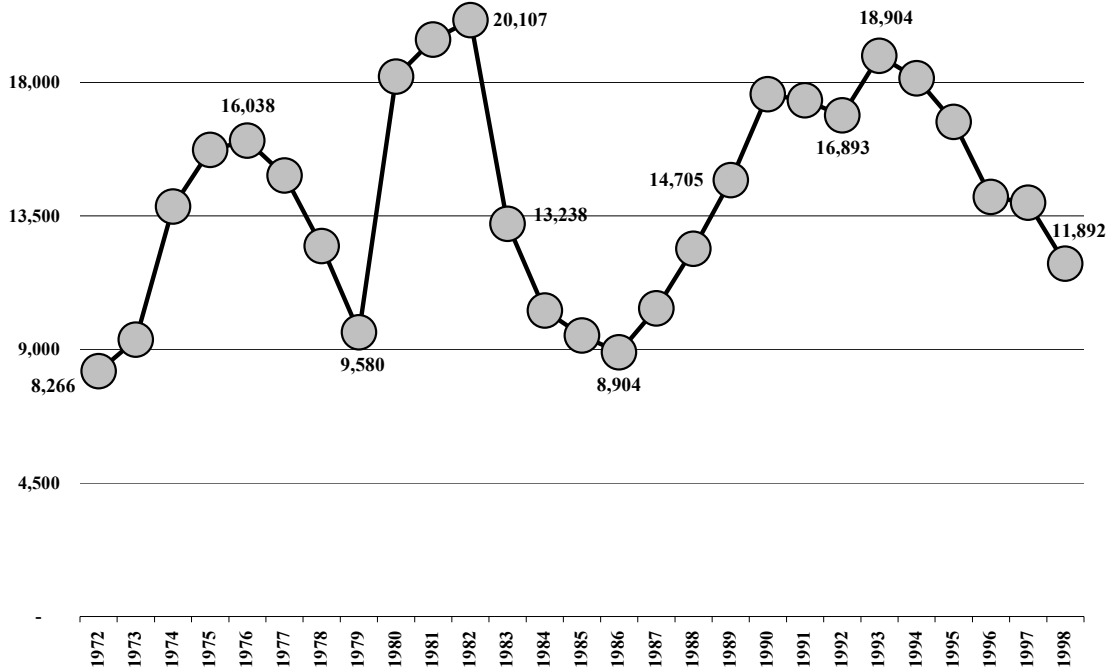
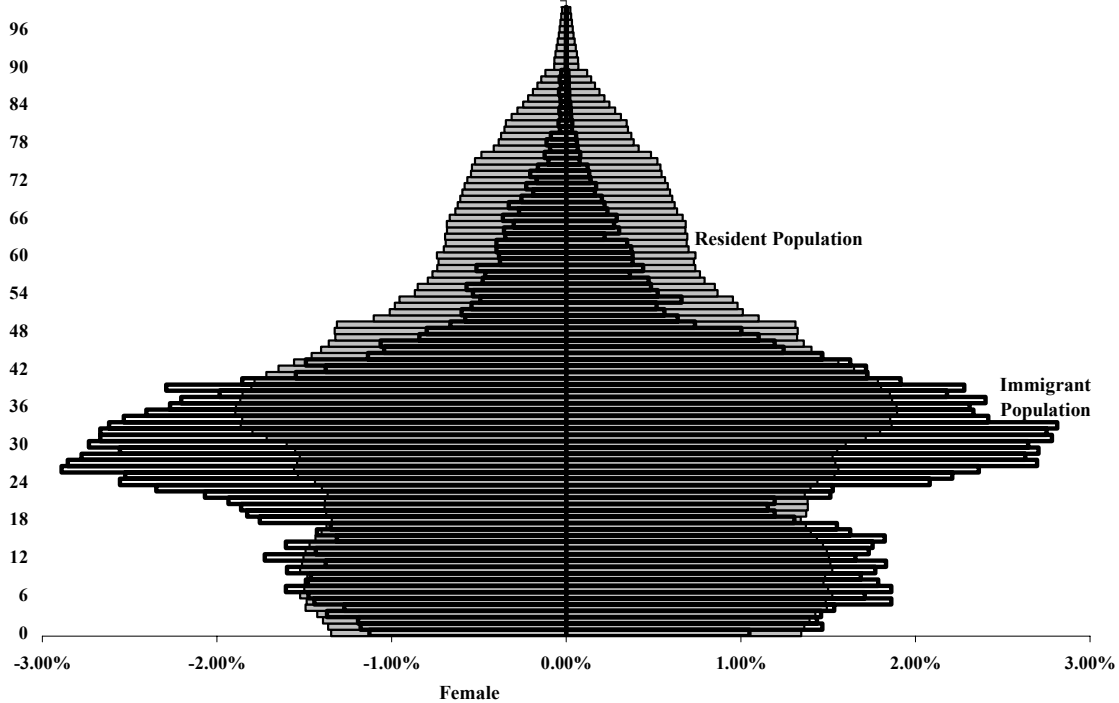


Figure 21: Age Distribution of Immigrant and Resident Populations, Alberta, 1996



As with all of the other migrant age groups, the age profile of the immigrant population is younger than that of the resident population. 31% of the immigrants to Alberta in 1996 were between the ages of 18 and 31 (compared to 43% of the in-migrant, and 21% of the resident, populations). The under 5 age group accounts for approximately the same portion of the immigrant and the resident population (7%), as does the 5 to 17 age group (21% of the

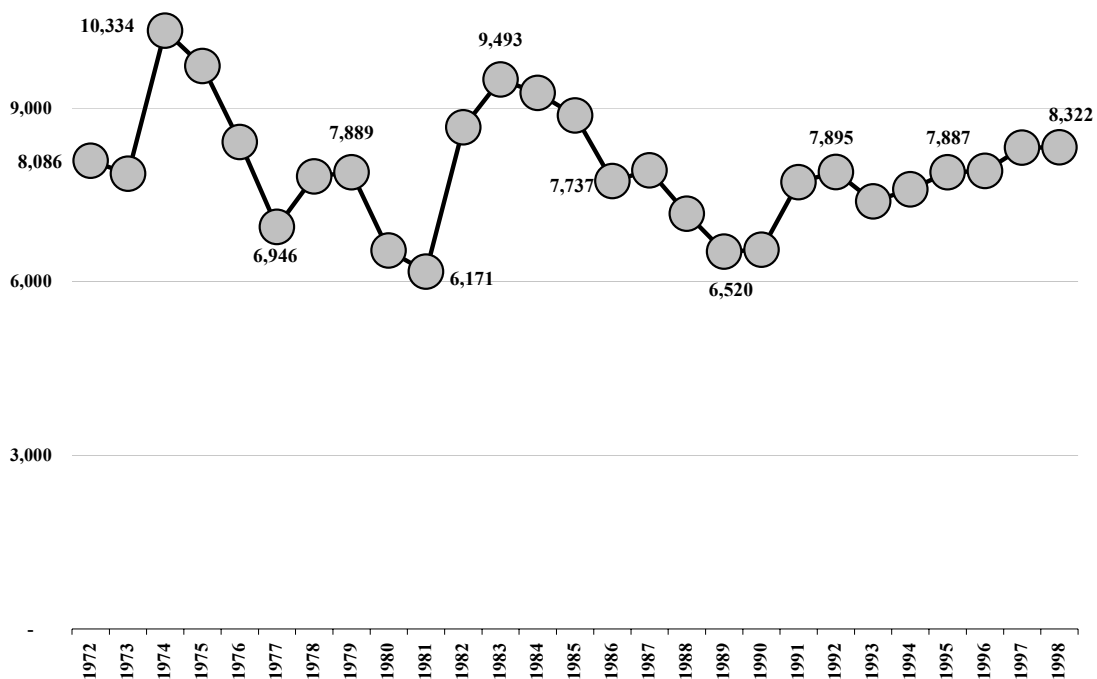
immigrant, and 20% of the resident, populations). The 32 and older population is under represented in the immigrant population (42%) compared to the resident population (52%), with the 60 and older population accounting for a significantly smaller share of the immigrant population (5%) compared to the resident population (13%).

The fact that the age profile of the immigrant population, as with the in-migrant, out-migrant, emigrant, and returning Canadian populations, is significantly younger than that of the resident population emphasizes the fact that changing regions of residence, whether within a province, between provinces, or between countries, is a challenging and difficult process. As a result, it is most often entered into by young adults, who are generally more adventuresome and are often required to be if they are going to find work and establish careers.

The age profiles of the immigrant, and to a lesser degree emigrant, populations are slightly older than those of the in-migrant and out-migrant populations: international migration is much more serious and arduous, requires more resources, and has entry requirements that require skills and education. These combine to make the immigrant and emigrant populations, while younger than the resident population, older than the in-migration population.

The counter flow to immigration is emigration, people leaving Alberta to take up residence in other countries. This second most significant component of Alberta's international migration flow has in some years taken away half as many people as immigration brought. The emigrant population includes a wide diversity of people, including, as examples, those leaving Alberta to be students in foreign universities, to work overseas or to play for the Ducks. It includes people leaving with the intention of returning (and hence may show up as returning Canadians, unless they decide not to come back) as well as those with the intention of permanently emigrating (who may change their minds and become returning Canadians).

Figure 22: Emigration from Alberta, 1972 to 1998

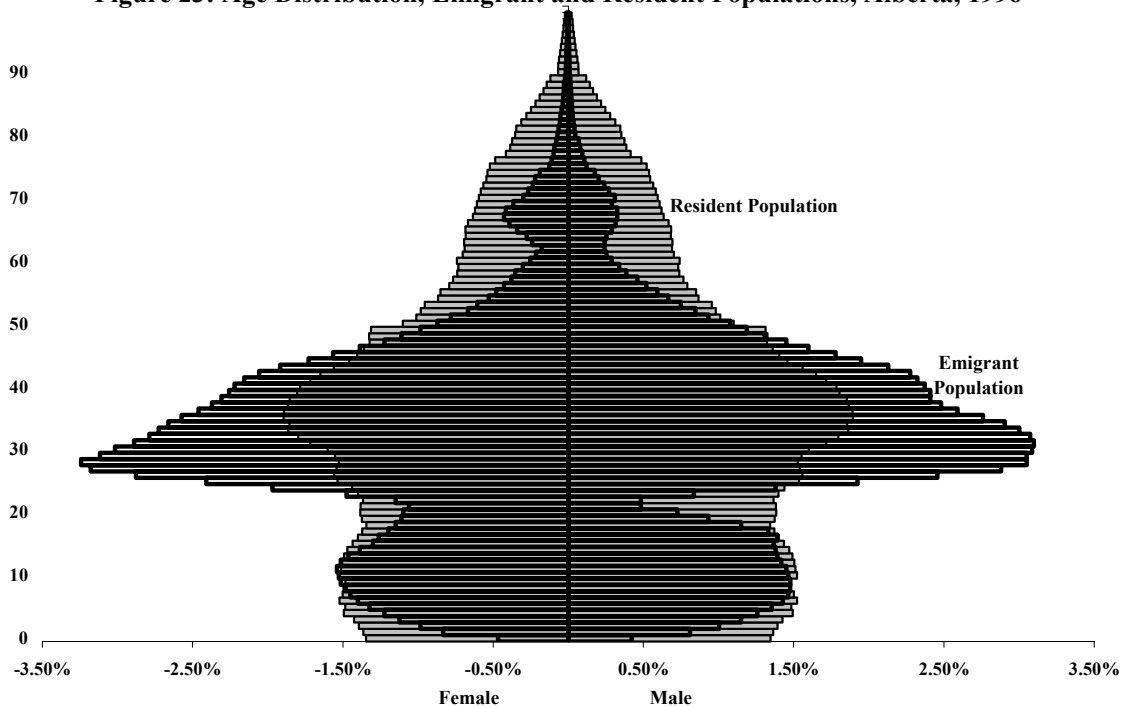


In 1998, 8,322 people emigrated from Alberta. Since 1972, each year an average of 7,963 people have left Alberta to live in other countries (Figure 22). The annual number of emigrants also follows a somewhat cyclical pattern, ranging from a high of 10,357 in 1974 to a low of 6,374 in

1989. The patterns indicate that there is some relationship between local economic conditions and emigration (witness the relatively low level of emigration during the late 1970s and the relatively high level during the early 1980s). It also demonstrates that much more than the provincial economy affects emigration, as regardless of provincial economic conditions at least 6,437 people have emigrated from Alberta every year since 1972.

The age composition of the emigrant population, while younger than the resident population, is older than the immigrant population. 28% of the emigrant population is between the ages of 18 and 31, compared to the 21% for the resident, and 31% for the immigrant, populations (Figure 23). The younger and older populations are under-represented in the emigration stream with only 23% of the emigrants under the age of 18 (27% of the resident and immigrant populations), and only 49% of the emigrants 32 and older (42% in the immigrant, and 52% in the resident, populations). The similarity of the shares of the emigrant and resident populations over the age of 31 (49% and 52%, respectively) conceals the fact that the percentage share of every age 48 and older in the resident population exceeds that of the emigrant population.

Figure 23: Age Distribution, Emigrant and Resident Populations, Alberta, 1996



Much of the emigration from Canada is, intentionally or unintentionally, not permanent. The flow of Canadian citizens returning from places of residence in other countries to become Alberta residents has added, over the 1972 to 1998 period, an average of 3,966 people per year to the province's population (Figure 24). There is not a great deal of variance to this flow of people into the province, nor is it particularly correlated with economic conditions in the province: it has ranged from a high of 4,798 persons added in 1972 to a low of 3,217 in 1990, with 1998's 3,925 being essentially equal to the average of the 1972 to 1998 period.

Young adults (18 to 31) account for a much greater share of the returning Canadian population (39%) than they do of the emigrant population (28%), and of the resident population (21%, Figure 25). 39% of the returning Canadian population is over the age of 31, compared to 49% of the emigrant, and 52% of the resident, population. The youngest age groups are also under-represented in the returning Canadian population compared to the resident population: only 22%

of the returning Canadians are under the age of 17, compared to 27% of the resident population. Children account for the same 22% share of both the returning Canadian and emigrant populations.

Figure 24: Returning Canadians Moving to Alberta, 1972 to 1998

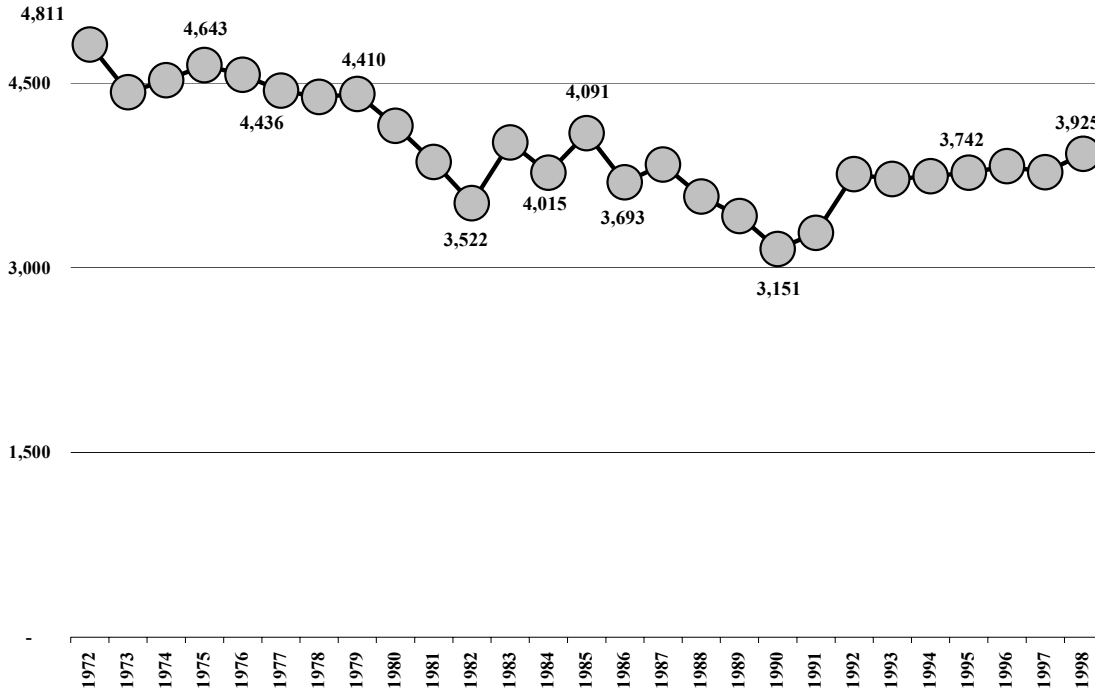
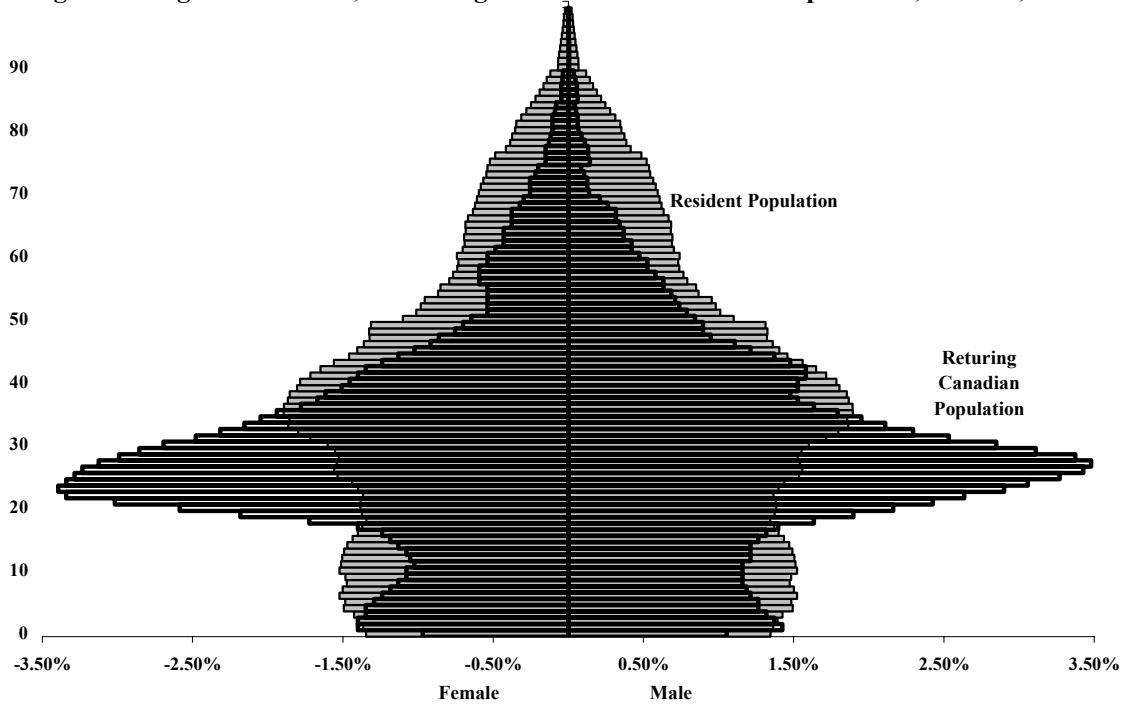
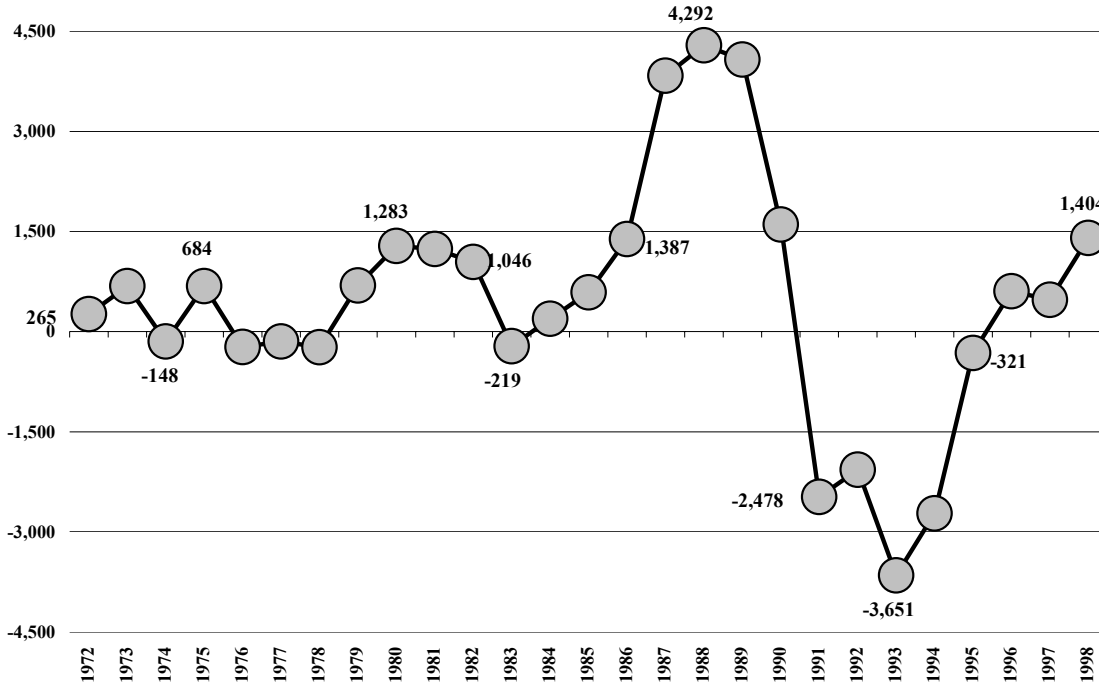


Figure 25: Age Distribution, Returning Canadian and Resident Populations, Alberta, 1996



The final, and numerically least significant, component of the international migration flow is the change in the number of people who are not citizens of Canada who reside in, but are not permanent residents of, the province. Such residents are primarily foreign students at Universities, colleges and schools, and temporary permit workers such as nannies and domestic assistants. Separate data are not published on the number and characteristics of non-permanent residents arriving and leaving the province: the only data is on the net change in the population of non-permanent residents. As with inter-provincial migration, this net change demonstrates a significant level of variance, particularly over the last 15 years (Figure 26).

Figure 26: Annual Change in Number of Non Permanent Residents in Alberta, 1972 to 1998

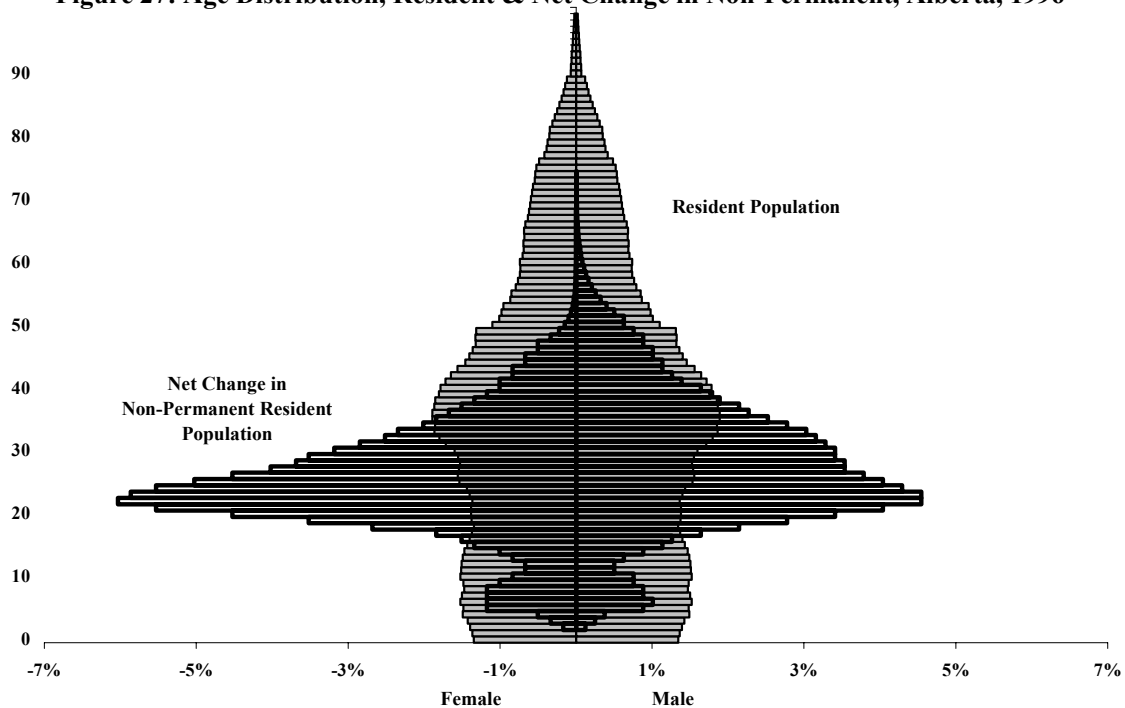


Since 1972, the number of non-permanent residents living in Alberta has increased by an average of 449 people per year. The largest increase in the non-permanent resident population occurred in the late 1980s, when 4,292 more non-permanent residents came to Alberta than left it. By 1993, the reverse situation prevailed, with 3,600 more non-permanent residents leaving the province that year than came to it. After declining every year from 1991 to 1995, the number of non-permanent residents in the province increased from 1996 to 1998: in 1998, 1,404 more non-permanent residents came to Alberta than left it.

The age profile of this net change was decidedly young adults (Figure 27): 55% were in the 18 to 31 age group, compared to 21% of the resident population. Only 14% were under the age of 18, compared to 27% of the resident population, and only 31% were over the age of 31, compared to 52% of the resident population. This youthfulness was particularly obvious in the young female population. While females account for only 43% of the net change, they account for 47% of the change in the 18 to 31 age group: this is primarily the result of the number of female nannies and household assistants who come to Alberta as non-permanent residents each year.

In summary, the relative importance of the sources of population growth recently have differed from the 1972 to 1998 pattern. The pattern for 1998 (and 1997) is indicative of population growth driven by a high level of inter-provincial labour force migration.

Figure 27: Age Distribution, Resident & Net Change in Non-Permanent, Alberta, 1996



In 1998, the major source of growth was net in-migration: of a total population increase of 77,146 people, 60.6% was from net in-migration of 46,787 people (97,229 in-migrants minus 50,442 out-migrants). Natural increase of 21,460 people (38,390 births minus 16,930 deaths) accounted for an additional 27.8%. Net international migration of 8,899 people (11,892 immigrant plus 3,925 returning Canadians plus 1,404 additional non-permanent residents minus 8,322 emigrants) account for the remaining 11.5% of the increase.

This is in contrast to the 1972 to 1998 pattern: over this period, the province's population increased by an average of 46,209 people per year. The major source of growth, accounting for 55.2% of the total, was natural increase which averaged 25,511 more births than deaths each year. Net international migration accounted for 23% of the growth (an average of 10,631 people per year) and net inter-provincial for the remaining 21.8%, adding an average of 10,067 people per year to the province's population each year.

X. Future Long Run Levels of Migratory Flows

Given the wide and diverse range of factors that affect each of the components of migratory population flows into and out of the province, and the fact that many of these factors are strongly influenced by conditions both within and outside the province, it is not realistic to attempt to forecast all of the factors that will affect the movement of people into and out of the province. Rather, given the objective of producing a long run base line population projection, it is appropriate to use past levels of migration as the base for assumption of what future levels may be.

In terms of age profiles it is appropriate to assume that the age profiles of migratory populations remain as they were in 1996 (i.e., the average of 1995 and 1996): given the mobility and risks that migration involves, it will continue to be dominated by young adults. While there will certainly be shifts in the age profile of migrant populations from year to year, the 1996 profiles used here will generally represent the average composition of future migrant flows.

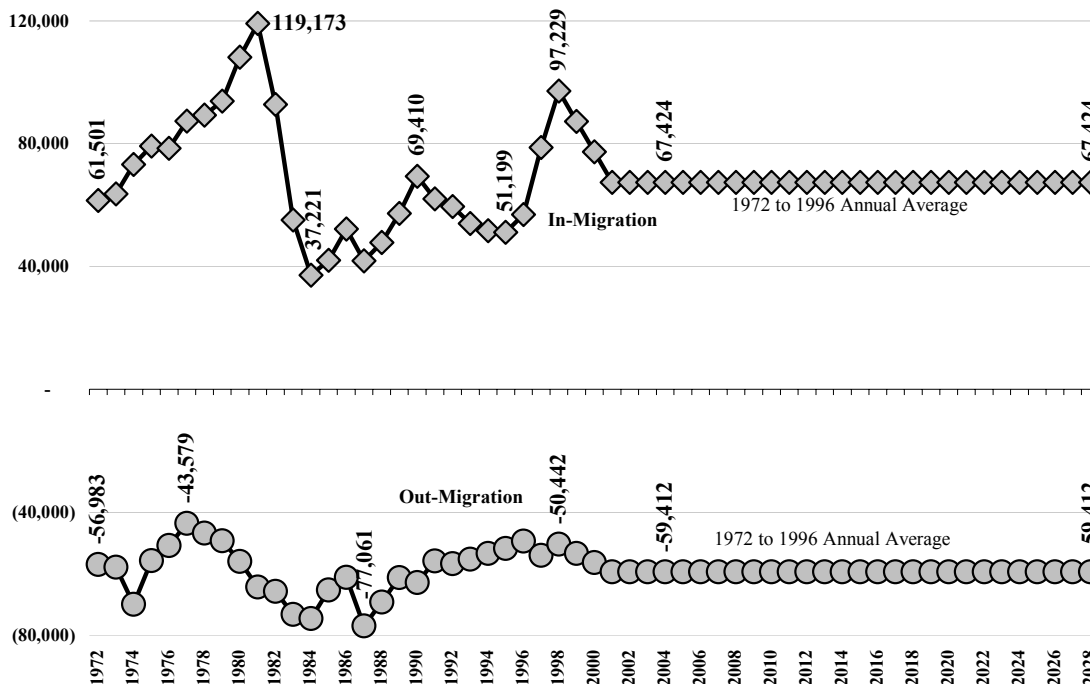
The past also provides guidance for the level of future migration to the province. Given the traditional resource dependency of the provincial economy, combined with the on-going process of diversification away from this traditional dependency, future cycles of growth will undoubtedly occur within the life of this projection. While the timing of these cycles cannot be predicted, given the diversification of the province's economy, it is highly unlikely that they will exceed the cycles that the province has experienced over the past quarter century. Thus, it can be assumed that the average levels of population flows into and out of the province that prevailed in the past long run will prevail in the future long run.

As the province was clearly on the up part of a cycle during 1997 and 1998, it is also reasonable to exclude these two years from the long term historical average. For purposes of the projection presented here, the average annual flows of population into and out of the province over the 25 year period from 1972 to 1996 are used as the long term averages.

There remains the question of when the long term will begin. For purposes of this base line projection, we have made the conservative assumptions that 1998 marked the peak of the current cycle¹⁰. It is assumed that the growth pattern in the province will, over the remaining three years of the cycle, move to the level of the long term average by 2001.

Figure 28 shows the implications of these assumptions on the level of future inter-provincial migration: in-migration would decline from 1998's 97,229 in-migrants to a long run average of 67,424 by 2001. Out-migration would increase from 1998's 50,442 persons leaving the province to take up residence elsewhere in Canada to 59,412 in 2001. Note that, as in-migration and out-migration have different age profiles, the projection is for each of these population flows, rather than simply projecting a net average annual in-migration of 8,012 persons per year.

Figure 28: In- and Out-Interprovincial Migration, Alberta, 1972 to 1998, Average to 2028



The components of international migration are also assumed to follow a pattern of stabilization to the long run average by 2001 (Figure 29). Immigration is assumed to increase from 11,892 people in 1998 to 14,279 in 2001, while emigration is projected to decline from 1998's 8,322 to 7,934 in 2001. The number of returning Canadians, historically relatively stable, will remain so,

increasing slightly from 3,925 in 1998 to 3,975 in 2001. The net change in non-permanent residents would drop from 1998's 1,404 person increase to the long run average of 410 by 2001.

Figure 29: Components of International Migration, Alberta, 1972 to 1998, Average to 2028

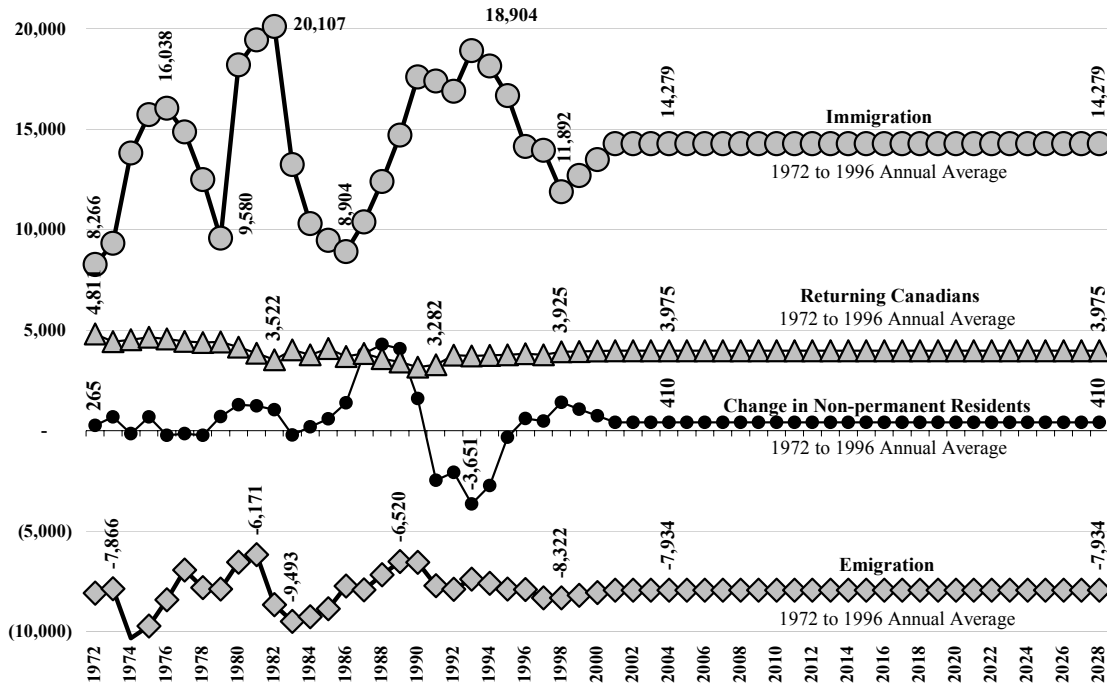
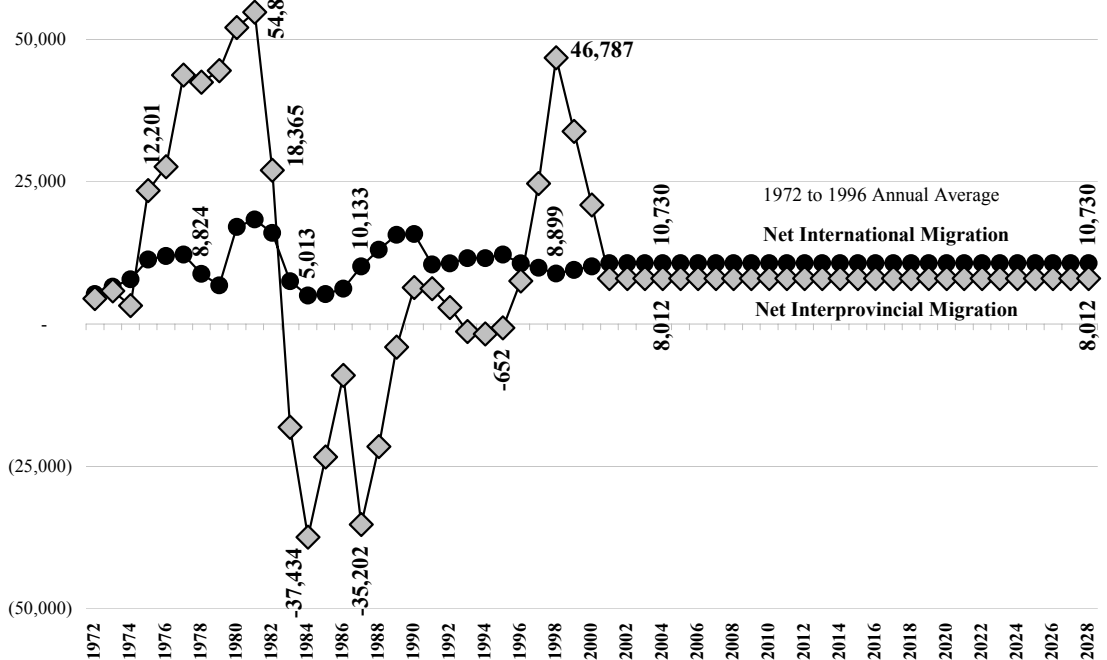


Figure 30: Net-Migration, Interprovincial and International, Alberta, 1972-1998, Average to 2028

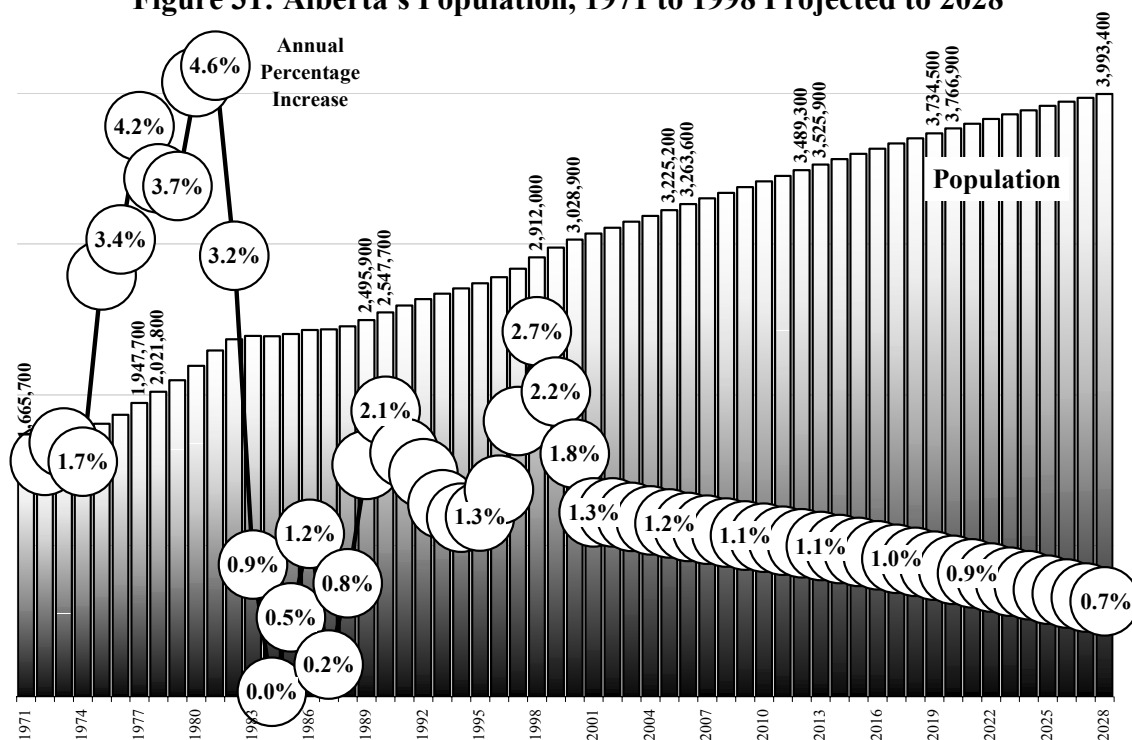


The net result of these assumptions about the migratory sources of population growth for Alberta would be a long term average net in-migration from other provinces of 8,012 persons per year and net international migration (including returning Canadians) of 10,730 persons per year. This means migration from outside the province will make a long term average contribution to Alberta's population of 18,742 persons per year. As the following section shows, the age profile of this net contribution, combined with the age profile of the province's resident population, will mean that natural increase will also make a positive contribution to Alberta's population during the next thirty years. The three sources of growth will combine to lead Alberta's population through the 3 million level this year, and to the 4 million level by 2028.

XI. The Baseline Projection: Alberta's Population Reaching 4 Million.

The result of the aging of the province's current population, combined with the demographic inputs and assumptions discussed in the preceding sections¹¹, is continuous, but slowing, population growth over the next thirty years (Figure 31, see Appendix for Projection). Alberta's population in 1998 was 2,912,000. By the end of 1999, it will have passed 3 million, by 2006 it will have reached 3.25 million, by 2013 it will have reached 3.5 million, by 2020 it will have reached 3.75 million, and by 2028 it will have reached 4 million people¹². The adding of 1,080,000 people to the province's population over the 30 year period from 1998 to 2028 (an average of 36,000 people per year), is slightly less than the 1,104,700 people added to the province's population in the 23 years from 1974 to 1998 (an average of 48,000 people per year).

Figure 31: Alberta's Population, 1971 to 1998 Projected to 2028

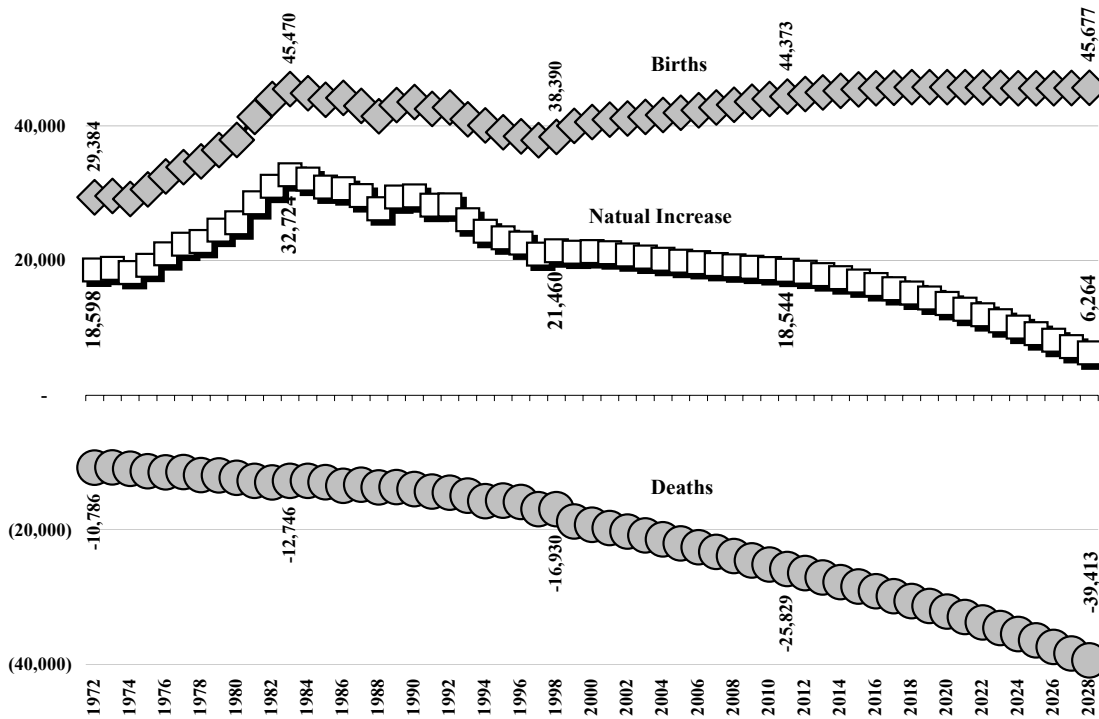


There are a number of reasons why Alberta's population is projected to grow slower in the next quarter century that it did in the past one. Among these reasons are the slower growth that is generated by the lower volatility and greater competition faced by the sectors into which the province's economy is diversifying, the lower employment per unit of output (greater productivity) of its resource industries, and the increasing marginal costs of expansion of both resource and non-resource sectors.

Most important, however, will be the decline in the contribution of natural increase as a result of the number of births in the province increasing slower than the number of deaths (Figure 32). Given the current relatively youthful age profile of Alberta's population, and the definitely youthful profile of migration flows, the number of births in the province will increase from 1998's 38,390 births to 45,677 births in 2028. This will mean a 1980's record of 45,470 births in the province will be passed in 2015, and a new record established every year thereafter.

In spite of this growth in the annual number of births, increases in the number of deaths due to the aging of Alberta's population will slow the contribution of natural increase to population growth, particularly after 2011. The number of deaths in Alberta will increase steadily every year in the future, from 1998's 16,930 deaths to 39,413 in 2028. Natural increase will add approximately 20,000 people per year to the province's population from 1998 to 2011: after that its contribution will decline steadily to a net increase of only 6,264 people in 2028 (and none by 2035).

Figure 32. Natural Increase, Alberta, 1972 to 1998, Projected to 2028

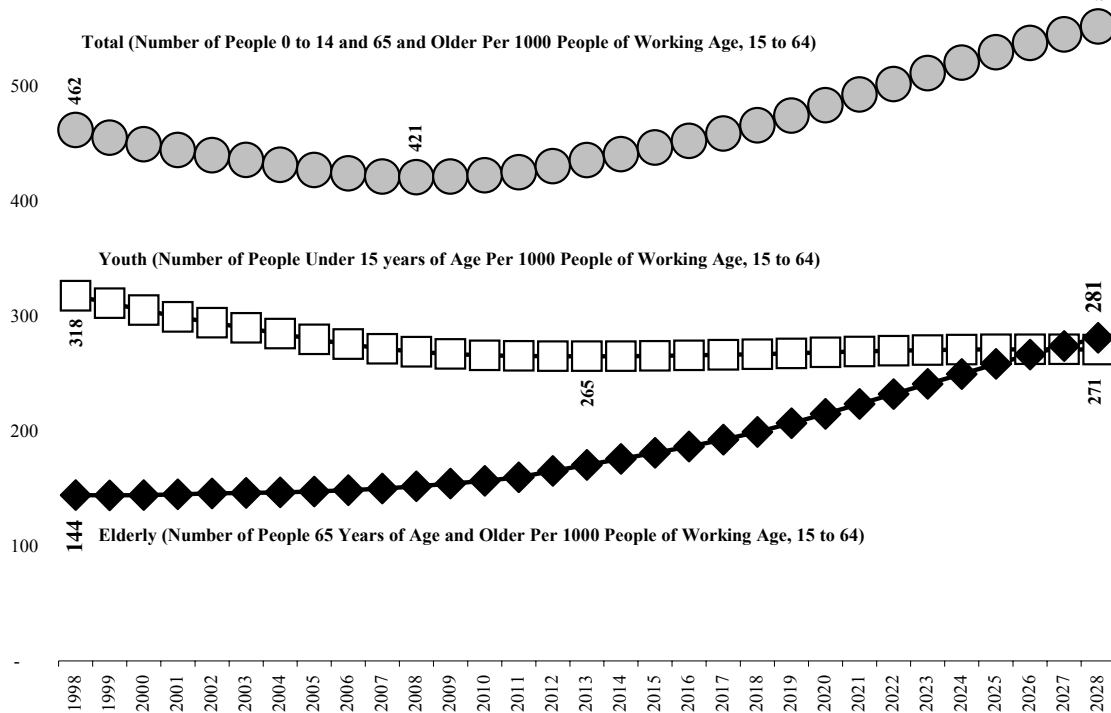


Note that population growth, which in Alberta is overwhelmingly comprised of young migrants and the newly born, does not contribute much to the annual number of deaths in the province: without migration, the aging of the province's current population would result in 36,237 deaths in 2028 (Figure 14), accounting for 92% of the 39,413 that would occur with aging and migration. Migration has a much greater impact on the number of births in the province: without migration, the number of births in 2028 would be 34,312 (Figure 14), only 75% of the 45,677 births that would occur with migration.

The greater impact of migration on births, combined with the relatively young age profile of migrant populations, means that the dependency ratios will be lower with migration than without it (compare Figure 33 to Figure 13). The baseline projection results in a youth dependency ratio of 271 people under the age of 15 for every 1000 people of working age in Alberta in 2028, not significantly different from the 266 per 1,000 that would occur without migration.

The elderly dependency ratio without migration of 340 people 65 and older per 1,000 people of working age in 2028, however, is 21% higher than the base scenario ratio of 281 persons per 1,000. The direct and indirect impact of inter-provincial and international migration on the age structure of Alberta's population is to reduce the relative number of people supported, to one extent or another, by the working population: migration makes the province's population younger than it otherwise would be.

Figure 33: Projected Dependency Ratios, Baseline Scenario, Alberta, 1998 to 2028



While migration slows the aging of the province's population age profile, it does not stop it. The aging of the province's 1998 population is clearly shown in a comparison of the 1998 and 2028 age profiles (Figure 34). Aging will ensure that the baby boom bulge will be replicated in the 62 to 81 population, albeit at a slightly reduced scale due to the ravages of mortality. Alberta's typical person in 1998 will be 68 in 2028, as is shown in the mini-bulge at age 68 (there will 24,800 females aged 68 in 2028, compared to 26,800 females aged 38 in 1998).

The shifting up of the baby boom bulge into age groups where there are currently relatively few people will mean that while the number of people in all age groups will increase, the 45 and older age groups will experience above average absolute and percentage increases (Figure 35). The biggest increase, both absolute (277,000 more people) and percentage (167%), will be in the 65 to 74 age group, the result of the aging of 1998's 35 to 44 year olds into this age group by 2028. In 2028, there will be 250,000 more 55 to 64 year olds, 155,000 more 45 to 54 year olds, and 127,000 more 75 to 84 year olds in Alberta. While there will be only 32,000 more people 85 and older in 2028, this will be a 113% increase on the 23,000 people in the age group in 1998.

The under 45 age groups will increase, as the result of migration and births, by between the 35 to 44 age group's 42,000 (8%) increase, and the 67,000 person (16%) increase of the 15 to 24 age group. The reason for the modest increase in the 35 to 44 age group is that migration of people in this age group and aging of younger people into it is to some extent offset by its loss of the baby boom bulge to older age groups.

Figure 34: Age Profile of Alberta's Population, 1998 and Projected 2028

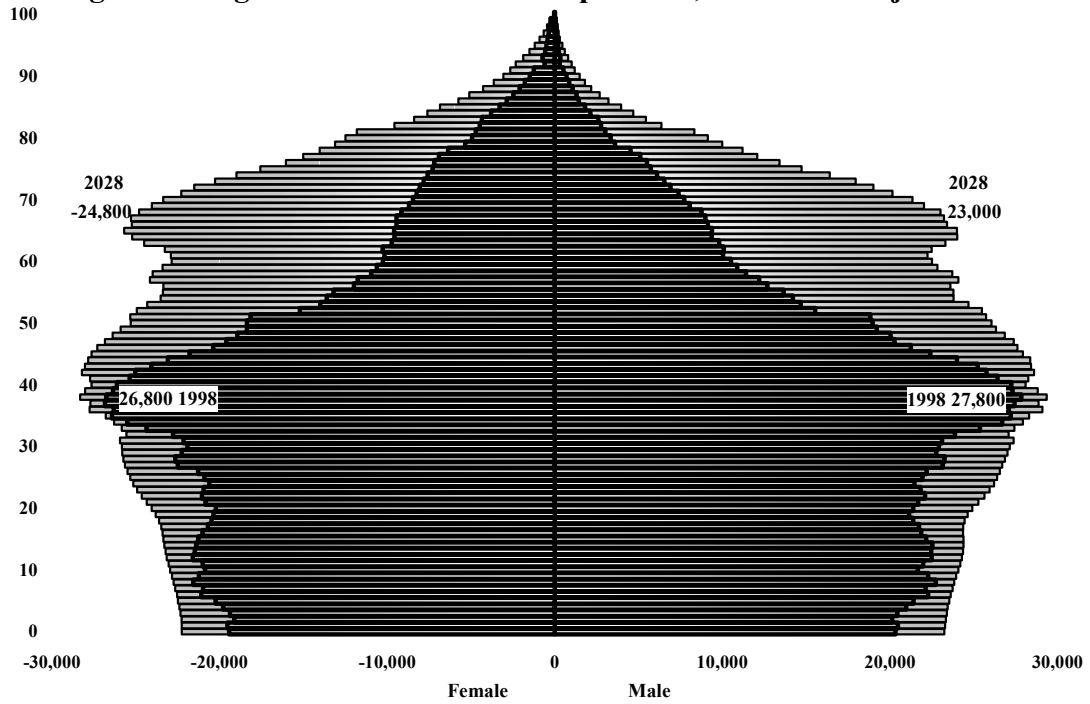
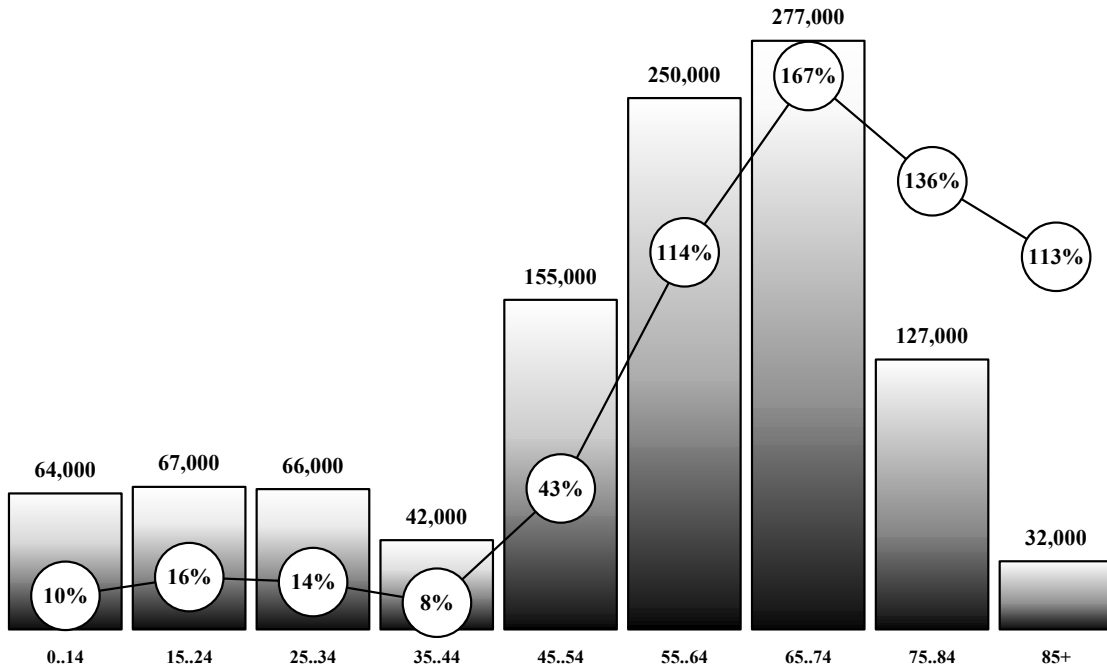


Figure 35: Projected Increase in Alberta's Population by Age Group, 1998 to 2028



The comparison of the number of people in an age group at a point in the future to its size in 1998 is a snapshot, rather than a look at a process of change. For example, between 1998 and 2008, the 45 to 54 age group will have the most rapid increase (Figure 36): between 1998 and 2018, it will be the 55 to 64 age group (Figure 37). In all three examples, the high growth age group is the one that the second half of the baby boom generation (today's 35 to 44 year olds) is aging into.

Figure 36: Projected Increase in Alberta's Population by Age Group, 1998 to 2008

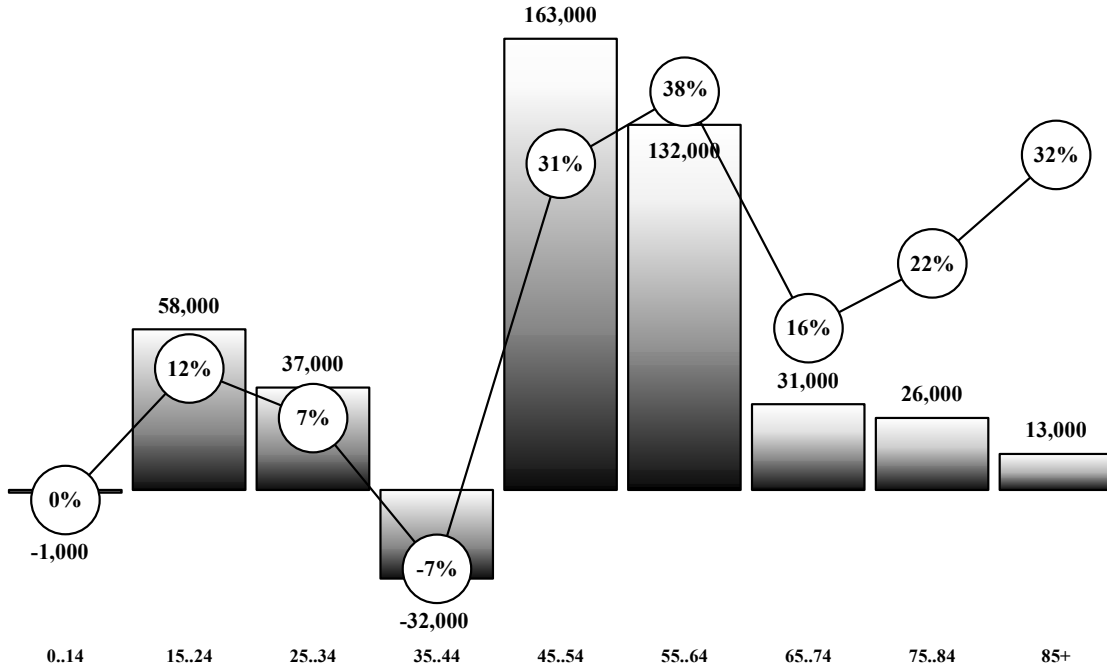
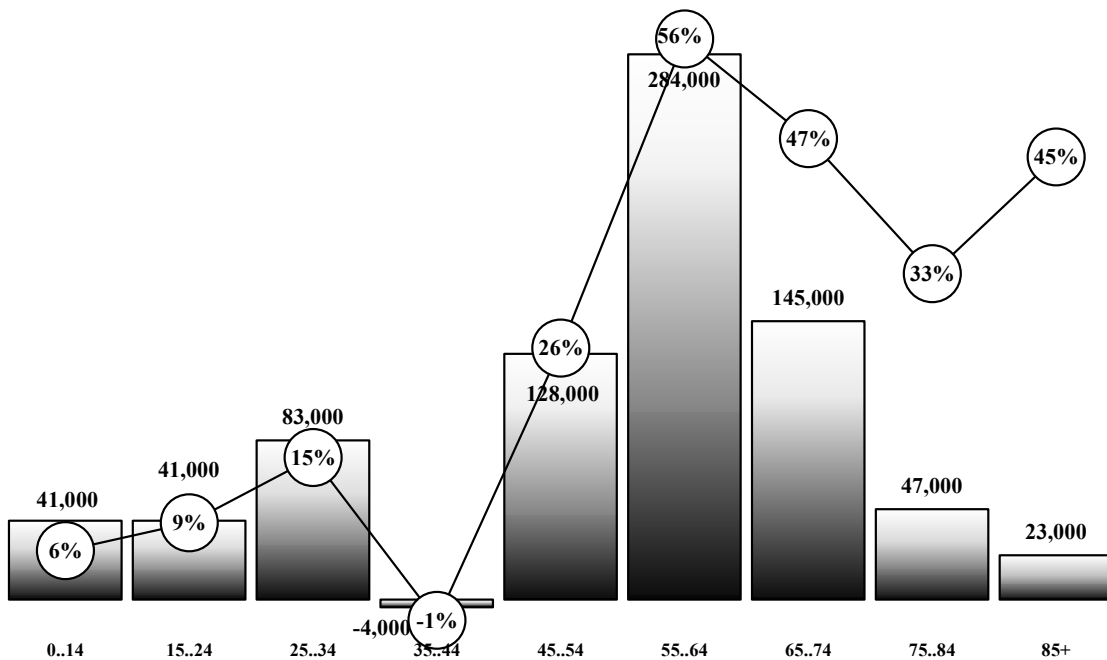


Figure 37: Projected Increase in Alberta's Population by Age Group, 1998 to 2018



The aging of the baby boom will bring the first of the baby boomers to the 65 to 74 by 2012, and the impact will be demonstrated by a significant increase in the growth rate of this age group from 2012 to 2028. However, the growth in the number of people in this age group will start to accelerate earlier, in 2005.

The reason for this “early start” is the fact that the baby boom – but not the post war part of it – actually began in 1940. The number of births in Canada remained relatively constant in the 240,000 to 265,000 births per year in the 1920s, and 237,000 to 250,000 per year in the 1930s. In 1940, there were 252,000 births in Canada, the largest number since 1923. In 1941, there were 263,000 births, and in 1942, there were 282,000, the record number for Canada to that date. In 1944, 1944, and 1945, new records were established each year, with 1945's 300,000 births being 25% greater than the 238,000 births of 1939. While the number of births each year continued to increase until 1959, the war babies were, in fact, the front edge of the baby boom. It is from these babies that the icons of baby boomer rock and roll - Eric Clapton, Mick Jagger, Tina Turner, Cher, Neil Young, Van Morrison, Ry Cooder and Joni Mitchell – came from, not from the boomers themselves.

The 65 to 74 age group will increase the most over the 1998 to 2028 period, with there being 2.67 people aged 65 to 74 in 2028 for every one that there was in 1998. The number of people in this age group will continue to increase until 2031, when the last of the baby boomers age out of it, and into the 75 to 84 age group, and then it will in turn decline in size for about 11 years. In its turn, the 75 to 84 age group will experience its most rapid growth from 2016 on, with the first of the boomers reaching it by 2021, and hence speeding its rate of increase, to reach 2.36 times its size (a 136% increase) by 2028.

And, as would be expected, the 85 plus age group experiences an acceleration in its growth in 2026, not as a result of the baby boomers reaching this age, but as a result of the war babies reaching age 85: the big growth in the 85 plus population will start in 2031, when the first of today's 51 year olds has their 85th birthday.

Note, however, that the population 85 and older grows both significantly and continuously throughout the projection period, surpassing the (percentage) growth of all but the 55 to 64 age group to 2011, all but the 55 to 64 and 65 to 74 age group to 2017, and all but the 65 to 74 and 75 to 84 age groups to 2028. This is the result of three factors. First, the long life expectancy of today's population means that a large proportion of today's population can anticipate having an 85th birthday (recall that the projection has assumed that there will be no increases in life expectancy).

The second factor is that there were many more births in the 1912 to 1939 period than there were in the preceding decades, so there are more people in every corresponding under 85 age group today than there were in the past: there are more people to benefit of long life expectancies.

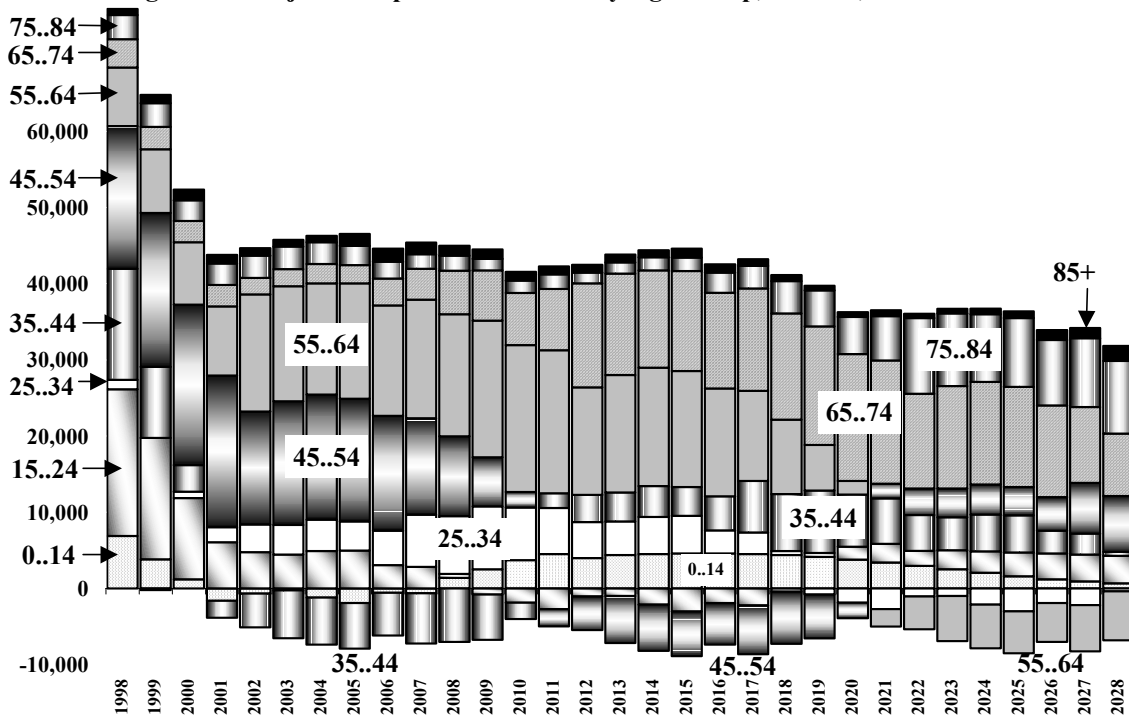
The third factor is that there are very few people in this age group today, so that even small increases in numbers means large percentage increases.

This final point turns us to consideration not of the rate of change in the 1998 to 2028 period, but rather to the absolute increment of change each year (Figure 39). In 1998, the three age groups which had the largest increase in size were the 15 to 24 age group (19,000 more people primarily as a result of migration), the 35 to 44 age group (15,000 more people primarily the result of migration and the aging of the last of the boomers into the age group), and the 45 to 54 age group (19,000 more people primarily the result of the aging of the front edge of the boomers).

With the stabilization of population growth by 2001, aging will have a much greater impact on the absolute change in the size of each age group. Over the first decade of the next century, the 35 to 44 age group will decline by about 6,000 people per year, the result of there not being enough people aging into this age group or people in the age group migrating to the province to offset the aging out of the baby boom generation. The 15 to 24 age group will increase by about 4,500 people per year as a result of migration.

The last of the boomers will be aging into the 45 to 54 age group during this decade, increasing the number of people in this age group by about 12,500 people per year. The first of the boomers will be aging into the 55 to 64 age group, adding about 15,500 people to it each year. The 65 to 74, 75 to 84 and 85 plus age groups will all increase by a relatively constant number of people each year.

Figure 39: Projected Population Growth By Age Group, Alberta, 1998 to 2028



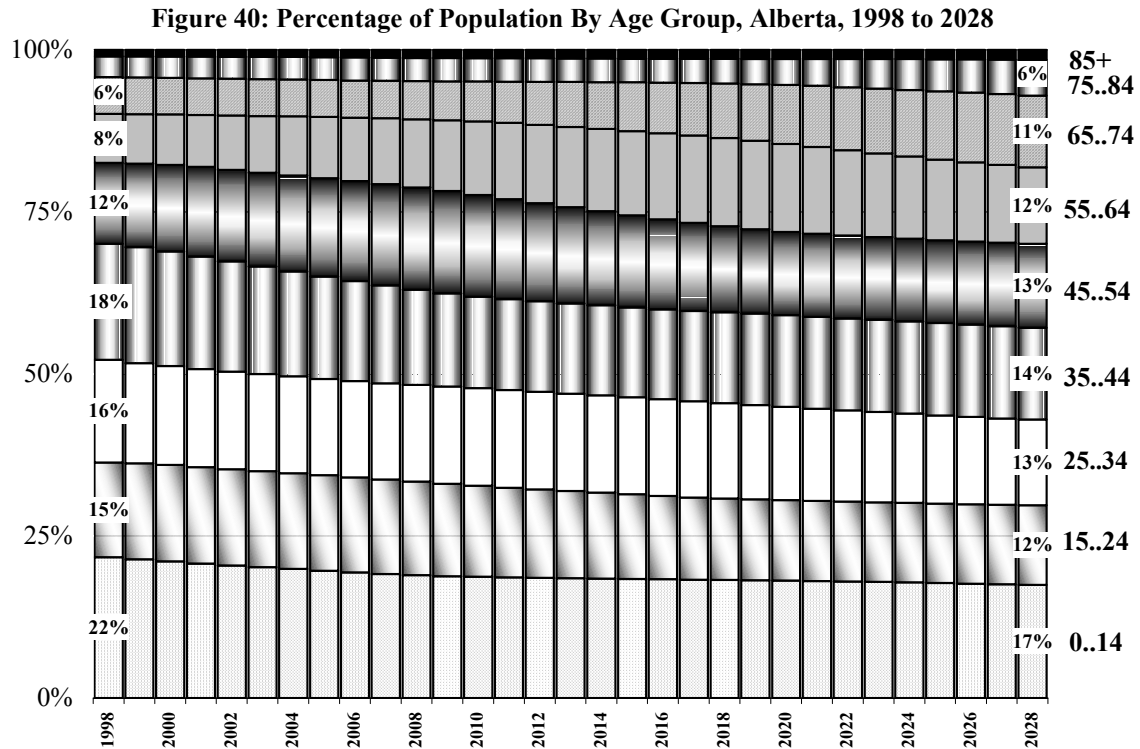
This pattern will change in the second decade of the next century. The aging of the baby boom will bring slight declines (in the range of 6,000 people per year) to the size of the 45 to 54 age group. The aging of the increasing number of babies born in the province each year, along with continued migration will bring modest absolute growth (in the range of 4,000 to 6,000 additional people per year) to the 0 to 14, 25 to 34 and 35 to 44 age groups.

The 55 to 64 age group will continue to lead in growth, increasing by approximately 15,000 people per year, as the larger second half of the baby boom ages into it. The increment of growth in the 65 to 74 age group will increase significantly, to the range of 14,000 to 15,000 additional people per year, as the front edge of the boom in turn ages into it.

In the third decade, the 65 to 74 age group will take the lead, increasing by 15,000 to 16,000 people each year as the last of the boomers have their 65th birthdays. The 75 to 84 age group will also begin to experience significant increases, adding about 10,000 people per year as a result of

the aging of the front edge of the baby boom. The aging of the last of the boomers into the 65 to 74 age group will mean a decline of about 5,000 persons per year in the 55 to 64 age group between 2021 and 2030. The 85 and older age group will add about 2000 people per year by the end of this period, with larger annual increases to occur in the fourth decade of the next century.

This focus on significant rates of change in the number of people in specific age groups does not mean that there will be rapid change in the age composition of the province's population (Figure 40). While the 65 and older population will almost double its share of the province's population over the next thirty years, from 10% in 1998 to 19% in 2028, the percent of working age will decline only slightly, from 69% of the population being between the ages of 15 and 64 in 1998 to 64% in 2028. The other 5% of the increase in the share of the older population comes from the decline in the younger population's share, from 22% in 1998 to 17% in 2028.



The picture that the population projection paints for the future of Alberta is one of a growing and aging population. Given its current relatively young age profile, and the youth of the migrants to Alberta, the aging will be a gradual process, with the issues associated with an aging population increasing steadily from 1998 on, but only becoming major after 2022.

The next quarter century in Alberta will be characterized by the growth first of the 45 to 54, then the 55 to 64, and finally the 65 to 74 age group, with the base of the demographic tree expanding, through net inter-provincial and international migration and the resulting natural increase, to help support its increasing growth in the upper branches.

XII. Conclusions and Implications

The pattern of aging shown for Alberta's population will occur whether or not there is migration: adding more than 1 million people to the province's population over the next thirty years will not halt the aging of the 3 million who already reside in the province. The future age structure of the province's population will be dominated by the aging of the million Alberta residents currently in the 32 to 51 age group – the baby boom generation. The assumption of constant mortality rates will likely cause an under-projection of the number of people in the older age groups, as mortality rates will likely continue to fall. However, as was noted earlier, the continued decline is likely to be marginal, and hence will have only a minor impact compared to that of the aging of the baby boom generation.

The changes that will occur in the age structure of the province's population will offer significant opportunities and challenges to communities in the province, from food and automobile retailing, to housing markets, public transit, recreation and health care¹³. These population projections will provide a solid basis for the examination of the implications of population growth and change on consumer markets and public services.

The relative magnitude of the issues of aging in the overall range of demographic issues will be determined by the extent of migration to the province. The lower the levels of net inter-provincial and net international migration to the province, the greater the impact of aging.

In closing, it must be repeated that this projection addresses long run trends in the province's population. It does not attempt to project cycles, and their turning points, in the province's economy in the future. Rather it looks at the average pattern that will prevail over longer periods of time. As such, the projections will not exactly match the size or composition of the province's population in any one year: on average, however, unless there are dramatic changes in the fundamental character of not only the province, but of the other provinces and countries where migrants originate, the projection will provide a valid basis for long range planning in the province.

Endnotes:

¹ The estimate of 2,912,897 is from The Urban Futures Institute Base Line Population Projection for Alberta. Statistics Canada estimate of Alberta's 1998 population is 2,913,400 (Statistics Canada, The Daily, September 24, 1998). Historical data for Alberta's population are from Statistics Canada's Annual Demographic Statistics and Census of Canada publications for referenced years. Historical population estimates for past census years will be above the values reported in the Census of Canada, as population estimates are adjusted upwards to account for people missed in the census, which is referred to as adjusting for the Census undercount.

² All references to change during a year are for the prior twelve months starting on July 1. For example, 1983 refers to the period July 1, 1982 to June 30, 1983.

³ The mode, or most frequently occurring age.

⁴ The mean age.

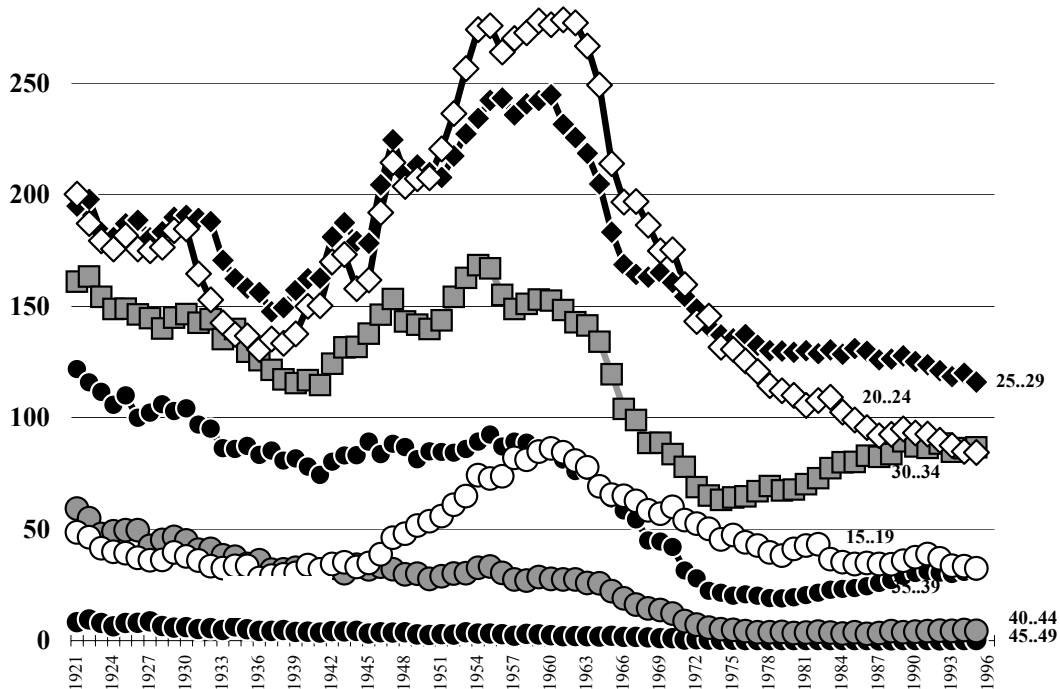
⁵ The median age.

⁶ Data on components of change in Alberta's population are from Statistics Canada's Annual Demographic Statistics and Quarterly Demographic Statistics. Statistics Canada's residuals are allocated to components.

⁷ Rather than use the rates for a single year, which could show significant variation for any one age, it is practice to average the rate for two years to get a more stable rate that is reflective of the long run relationship between age and the rate. Thus in all rates and age profiles for components of migration, the data and rates for 1996 are the average of 1996 and 1995. The reason for using data from 1996 is it is the year for which most recent data are available for demographic variables.

⁸ The most recent age-specific birth rate data for Alberta are for 1995. As Footnote Figure 1 shows, while age specific birth rates have undergone enormous change in the past seventy five years, over the 1990 to 1995 period they were relatively stable. There is little to suggest that any dramatic changes in these rates will occur in the future.

Footnote Figure 1: Alberta, Age Specific Birth Rates, 1921 to 1995



⁹ Strictly speaking, migration is comprised of people moving from region to region within a province, between provinces, and between countries. In this context, discussions of migration are limited to inter-provincial migration and international migration.

¹⁰ This is based on an examination of the pattern of economic change in the past decades. As Footnote Figures Two shows, while the number of jobs in Alberta continues to increase (by 20,800 in 1997-1998, this is almost a quarter of the 95,900 job increase that occurred in 1996-1997. As Footnote Figure Three shows, growth in average weekly earnings has also slowed, from the \$35.91 per week increase that occurred in 1995-1996, to \$13.27 in 1996-1997, and only \$8.15 in 1997-1998. It therefore is reasonable to assume that, while the province's economy is still growing, it is not doing so at such a rate as to justify continuation of the 47,000 person net in-migration that occurred in the past year. Thus the assumption of a slowing in population growth is supported by economic evidence. (Earnings and employment data from Statistics Canada's monthly survey of employment, payrolls and hours.)

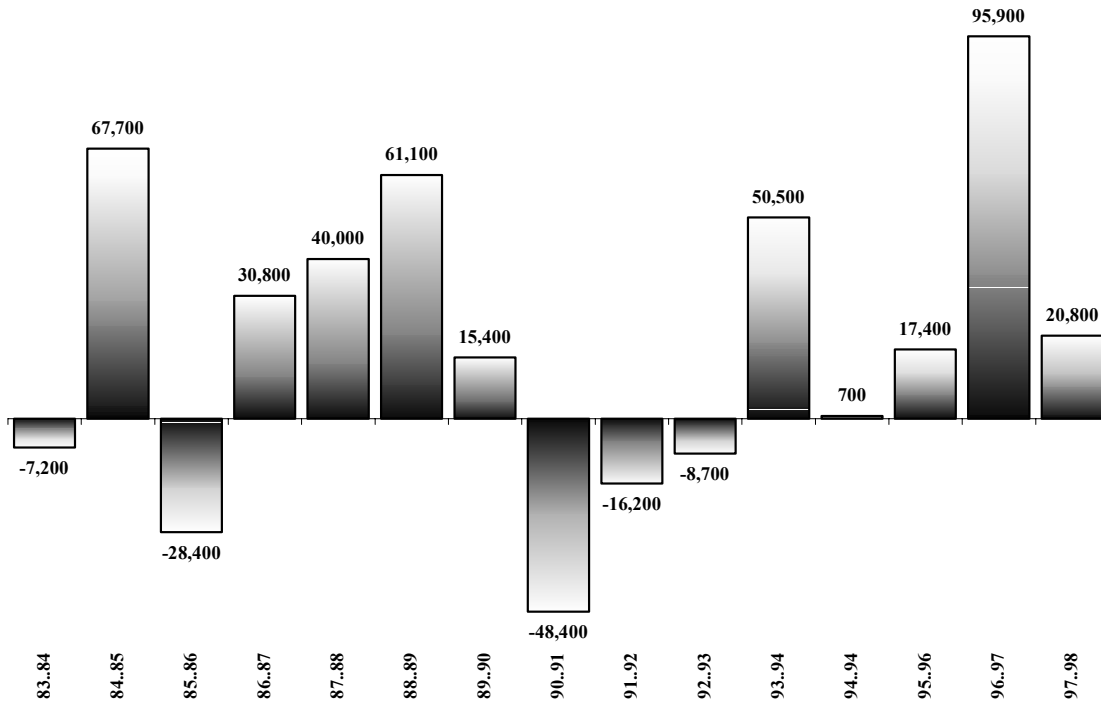
¹¹ The baseline population projection of Alberta involves the following inputs and assumptions:

- a. its current (1998) age and sex structure;
- b. the assumption that age and sex specific mortality rates remain constant at the 1996 level;
- c. the assumption that age specific birth rates, and the male/female proportion of births, remain at their 1996 level;
- d. the age and sex percentage composition of all migrant population flows is constant at their 1996 composition;
- e. the level of all migrant population flows converge to their 1972 to 1996 long term average between 1998 and 2001.

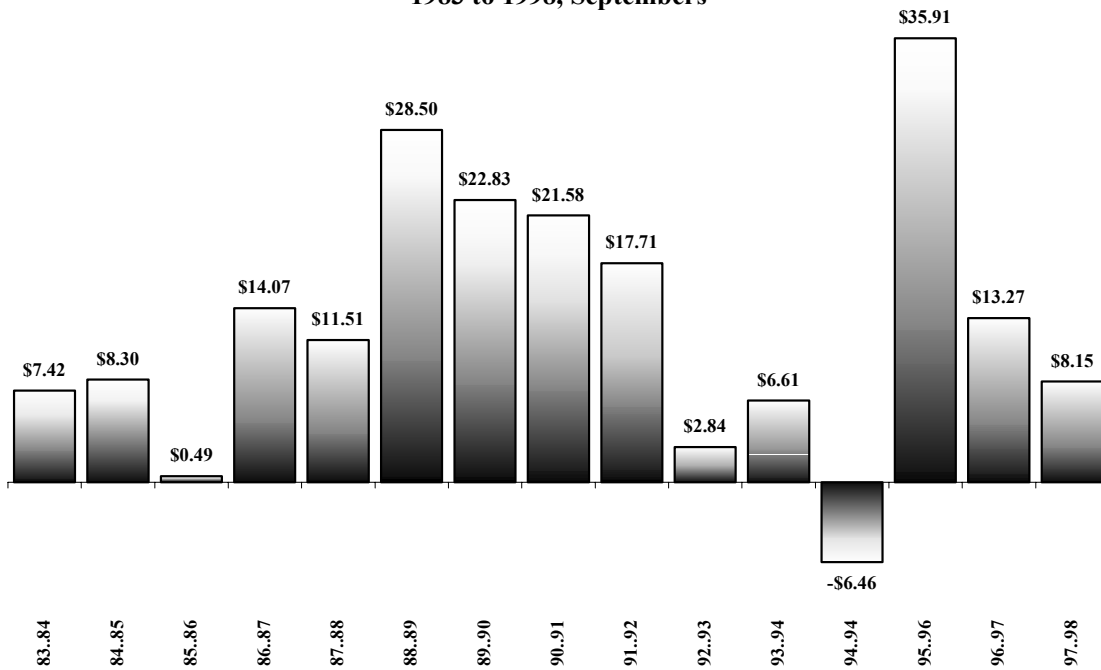
¹² There are two other published projections for the province's population, although neither extends as far as the baseline projection presented here. The baseline projection for 2011 is for a provincial population of 3,452,000. Statistics Canada's Population Projection for Canada, Provinces and Territories, 1993 – 2016 (Statistics Canada, 1994) presents a range of population between 3,177,000 and 3,697,000, with a medium projection of 3,347,000. The Province of Alberta's Alberta's Population Projections, Census Divisions 1995 – 2011 (Government of Alberta, 1997) has a range for 2011 from a low of 3,208,275 through a medium of 3,353,110 to a high of 3,479,320. Thus the base line projection presented here is almost equal to the high of the Province of Alberta's, and between the medium and high of Statistics Canada's, population projection for 2011.

¹³ Some of these are considered in The Urban Futures Institute's two forthcoming companion reports on Alberta, Housing Alberta's Future Population: Demographics and Demand, 1998 to 2028, and Housing Alberta's Seniors in the Next Thirty Years. Other issues are examined at the national level in The Urban Futures Institute's publications, including Health Choices: Demographics and Health Spending In Canada, What Can You Expect? Life Expectancy in Canada, 1921 to 2021, Just Numbers: Demographic Change and Immigration in Canada's Future, and Demographics and the Future of Housing Demand in Canada: The Myth of the Vanishing Purchaser.

Footnote Figure 2. Annual Change in Employment in Alberta, 1983 to 1998 (Septembers)



Footnote Figure 3: Annual Change in Average Weekly Earnings in Alberta
1983 to 1998, Septembers



Appendix to

**Population 4 Million:
Alberta's Population in the Next Three Decades**

**The Urban Futures Institute
Baseline Population Projection For Alberta
By Age Group and Sex**

**Population 4 Million:
Alberta's Population in the Next Three Decades**

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Appendix Page 40**

Male	1998		1999		2000		2001		2002	
0..4	102,000	7.0%	103,000	6.9%	104,000	6.8%	104,000	6.8%	105,000	6.7%
5..9	111,000	7.6%	111,000	7.4%	109,000	7.2%	108,000	7.0%	106,000	6.8%
10..14	111,000	7.6%	112,000	7.5%	114,000	7.5%	114,000	7.4%	115,000	7.4%
15..19	108,000	7.4%	112,000	7.5%	114,000	7.5%	115,000	7.5%	116,000	7.4%
20..24	109,000	7.4%	113,000	7.6%	116,000	7.6%	118,000	7.6%	120,000	7.7%
25..29	113,000	7.7%	115,000	7.7%	117,000	7.6%	117,000	7.6%	119,000	7.6%
30..34	122,000	8.3%	120,000	8.0%	120,000	7.9%	120,000	7.8%	120,000	7.7%
35..39	137,000	9.3%	137,000	9.2%	136,000	8.9%	132,000	8.6%	129,000	8.3%
40..44	129,000	8.8%	133,000	8.9%	136,000	8.9%	137,000	8.9%	138,000	8.9%
45..49	103,000	7.0%	108,000	7.2%	114,000	7.5%	119,000	7.7%	124,000	8.0%
50..54	82,000	5.6%	87,000	5.8%	93,000	6.1%	97,000	6.3%	100,000	6.4%
55..59	61,000	4.2%	64,000	4.3%	67,000	4.4%	70,000	4.5%	76,000	4.9%
60..64	50,000	3.4%	51,000	3.4%	52,000	3.4%	53,000	3.5%	55,000	3.5%
65..69	44,000	3.0%	45,000	3.0%	45,000	3.0%	46,000	3.0%	46,000	2.9%
70..74	35,000	2.4%	36,000	2.4%	37,000	2.4%	38,000	2.5%	39,000	2.5%
75..79	24,000	1.7%	26,000	1.7%	26,000	1.7%	27,000	1.7%	27,000	1.8%
80..84	14,000	0.9%	14,000	0.9%	15,000	1.0%	15,000	1.0%	16,000	1.0%
85..89	7,000	0.4%	7,000	0.5%	7,000	0.5%	7,000	0.5%	7,000	0.5%
90 plus	3,000	0.2%	3,000	0.2%	3,000	0.2%	3,000	0.2%	3,000	0.2%
Total Males	1,465,000	100.0%	1,498,000	100.0%	1,524,000	100.0%	1,543,000	100.0%	1,563,000	100.0%
Female	1998		1999		2000		2001		2002	
0..4	97,000	6.7%	98,000	6.6%	99,000	6.6%	100,000	6.5%	100,000	6.5%
5..9	105,000	7.3%	105,000	7.1%	103,000	6.9%	102,000	6.7%	101,000	6.5%
10..14	106,000	7.4%	108,000	7.3%	109,000	7.2%	109,000	7.1%	109,000	7.1%
15..19	104,000	7.2%	107,000	7.3%	110,000	7.3%	111,000	7.3%	112,000	7.2%
20..24	104,000	7.2%	108,000	7.3%	111,000	7.4%	112,000	7.4%	114,000	7.4%
25..29	110,000	7.6%	111,000	7.5%	112,000	7.4%	112,000	7.3%	114,000	7.3%
30..34	117,000	8.1%	115,000	7.8%	115,000	7.6%	115,000	7.5%	115,000	7.4%
35..39	133,000	9.2%	133,000	9.0%	132,000	8.8%	129,000	8.5%	126,000	8.1%
40..44	124,000	8.5%	128,000	8.6%	131,000	8.7%	134,000	8.8%	135,000	8.8%
45..49	99,000	6.8%	104,000	7.0%	110,000	7.3%	115,000	7.6%	121,000	7.8%
50..54	79,000	5.5%	84,000	5.7%	89,000	5.9%	93,000	6.1%	95,000	6.2%
55..59	59,000	4.0%	62,000	4.2%	64,000	4.3%	68,000	4.4%	74,000	4.8%
60..64	50,000	3.5%	51,000	3.5%	52,000	3.5%	54,000	3.5%	55,000	3.6%
65..69	46,000	3.2%	47,000	3.2%	47,000	3.2%	48,000	3.2%	49,000	3.1%
70..74	40,000	2.8%	41,000	2.8%	42,000	2.8%	42,000	2.8%	43,000	2.8%
75..79	33,000	2.3%	34,000	2.3%	35,000	2.3%	35,000	2.3%	36,000	2.3%
80..84	22,000	1.5%	23,000	1.5%	23,000	1.6%	25,000	1.6%	26,000	1.7%
85..89	13,000	0.9%	13,000	0.9%	14,000	0.9%	14,000	0.9%	15,000	1.0%
90 plus	6,000	0.4%	7,000	0.4%	7,000	0.5%	7,000	0.5%	8,000	0.5%
Total Females	1,447,000	100.0%	1,479,000	100.0%	1,505,000	100.0%	1,526,000	100.0%	1,546,000	100.0%
Both Sexes	1998		1999		2000		2001		2002	
0..4	200,000	6.9%	201,000	6.8%	203,000	6.7%	204,000	6.7%	204,000	6.6%
5..9	216,000	7.4%	216,000	7.2%	213,000	7.0%	210,000	6.8%	207,000	6.7%
10..14	218,000	7.5%	220,000	7.4%	222,000	7.3%	223,000	7.3%	224,000	7.2%
15..19	212,000	7.3%	219,000	7.4%	224,000	7.4%	227,000	7.4%	228,000	7.3%
20..24	212,000	7.3%	221,000	7.4%	227,000	7.5%	230,000	7.5%	234,000	7.5%
25..29	223,000	7.7%	226,000	7.6%	228,000	7.5%	229,000	7.5%	233,000	7.5%
30..34	239,000	8.2%	235,000	7.9%	234,000	7.7%	235,000	7.7%	235,000	7.6%
35..39	270,000	9.3%	271,000	9.1%	268,000	8.8%	261,000	8.5%	255,000	8.2%
40..44	252,000	8.7%	261,000	8.8%	267,000	8.8%	271,000	8.8%	274,000	8.8%
45..49	202,000	6.9%	213,000	7.1%	223,000	7.4%	235,000	7.6%	245,000	7.9%
50..54	162,000	5.5%	172,000	5.8%	182,000	6.0%	190,000	6.2%	195,000	6.3%
55..59	119,000	4.1%	126,000	4.2%	131,000	4.3%	138,000	4.5%	149,000	4.8%
60..64	100,000	3.4%	102,000	3.4%	104,000	3.4%	107,000	3.5%	111,000	3.6%
65..69	91,000	3.1%	92,000	3.1%	93,000	3.1%	94,000	3.1%	94,000	3.0%
70..74	75,000	2.6%	76,000	2.6%	78,000	2.6%	80,000	2.6%	82,000	2.6%
75..79	58,000	2.0%	60,000	2.0%	61,000	2.0%	62,000	2.0%	63,000	2.0%
80..84	36,000	1.2%	37,000	1.2%	38,000	1.3%	40,000	1.3%	42,000	1.4%
85..89	19,000	0.7%	20,000	0.7%	21,000	0.7%	22,000	0.7%	22,000	0.7%
90 plus	9,000	0.3%	10,000	0.3%	10,000	0.3%	10,000	0.3%	11,000	0.3%
Total Both Sexes	2,912,000	100.0%	2,977,000	100.0%	3,029,000	100.0%	3,069,000	100.0%	3,108,000	100.0%
Summary	1998		1999		2000		2001		2002	
0..14	634,000	21.7%	637,000	21.4%	638,000	21.1%	637,000	20.7%	635,000	20.5%
15..24	424,000	14.6%	440,000	14.8%	451,000	14.9%	457,000	14.9%	462,000	14.9%
25..44	984,000	33.8%	993,000	33.4%	997,000	32.9%	996,000	32.5%	997,000	32.0%
45..64	583,000	20.0%	613,000	20.6%	640,000	21.2%	670,000	21.8%	700,000	22.5%
65+	288,000	9.9%	295,000	9.9%	301,000	10.0%	308,000	10.1%	314,000	10.1%
Dependency Ratio	1998		1999		2000		2001		2002	
Youth per 1000 15 to 64	318	31.8%	311	31.1%	306	30.6%	300	30.0%	294	29.4%
Elderly Per 1000 15 to 64	145	14.5%	144	14.4%	144	14.4%	145	14.5%	145	14.5%

**Population 4 Million:
Alberta's Population in the Next Three Decades**

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Male	2003		2004		2005		2006		2007	
0..4	105,000	6.6%	105,000	6.6%	106,000	6.5%	107,000	6.5%	108,000	6.5%
5..9	106,000	6.7%	105,000	6.6%	106,000	6.5%	106,000	6.5%	106,000	6.4%
10..14	115,000	7.3%	114,000	7.1%	113,000	7.0%	111,000	6.8%	110,000	6.6%
15..19	116,000	7.3%	117,000	7.3%	118,000	7.3%	118,000	7.2%	119,000	7.2%
20..24	121,000	7.7%	123,000	7.7%	125,000	7.7%	126,000	7.7%	127,000	7.7%
25..29	121,000	7.7%	123,000	7.7%	125,000	7.7%	127,000	7.8%	129,000	7.8%
30..34	121,000	7.6%	121,000	7.5%	121,000	7.5%	122,000	7.4%	124,000	7.5%
35..39	125,000	7.9%	122,000	7.6%	121,000	7.5%	122,000	7.4%	122,000	7.4%
40..44	138,000	8.8%	138,000	8.6%	136,000	8.4%	133,000	8.1%	129,000	7.8%
45..49	129,000	8.2%	133,000	8.3%	135,000	8.4%	137,000	8.4%	138,000	8.3%
50..54	103,000	6.5%	108,000	6.7%	113,000	7.0%	118,000	7.2%	123,000	7.4%
55..59	81,000	5.1%	86,000	5.3%	91,000	5.6%	95,000	5.8%	97,000	5.9%
60..64	58,000	3.7%	61,000	3.8%	63,000	3.9%	66,000	4.1%	72,000	4.3%
65..69	46,000	2.9%	47,000	2.9%	48,000	3.0%	49,000	3.0%	51,000	3.1%
70..74	39,000	2.5%	40,000	2.5%	40,000	2.5%	40,000	2.5%	40,000	2.4%
75..79	28,000	1.8%	29,000	1.8%	30,000	1.8%	31,000	1.9%	31,000	1.9%
80..84	17,000	1.1%	18,000	1.1%	18,000	1.1%	18,000	1.1%	19,000	1.1%
85..89	7,000	0.5%	8,000	0.5%	8,000	0.5%	8,000	0.5%	9,000	0.5%
90 plus	3,000	0.2%	4,000	0.2%	4,000	0.2%	4,000	0.2%	4,000	0.2%
Total Males	1,582,000	100.0%	1,601,000	100.0%	1,620,000	100.0%	1,638,000	100.0%	1,657,000	100.0%
Female	2003		2004		2005		2006		2007	
0..4	100,000	6.4%	101,000	6.3%	101,000	6.3%	102,000	6.3%	103,000	6.2%
5..9	100,000	6.4%	100,000	6.3%	101,000	6.3%	101,000	6.2%	101,000	6.2%
10..14	109,000	7.0%	108,000	6.8%	106,000	6.6%	105,000	6.5%	104,000	6.3%
15..19	112,000	7.2%	113,000	7.1%	114,000	7.1%	114,000	7.0%	114,000	6.9%
20..24	116,000	7.4%	118,000	7.5%	120,000	7.5%	122,000	7.5%	122,000	7.4%
25..29	115,000	7.4%	117,000	7.4%	119,000	7.4%	121,000	7.4%	122,000	7.4%
30..34	115,000	7.3%	115,000	7.2%	114,000	7.1%	115,000	7.1%	116,000	7.1%
35..39	122,000	7.8%	119,000	7.5%	118,000	7.3%	118,000	7.3%	118,000	7.2%
40..44	136,000	8.7%	136,000	8.6%	135,000	8.4%	132,000	8.1%	128,000	7.8%
45..49	125,000	8.0%	129,000	8.1%	132,000	8.2%	134,000	8.3%	136,000	8.3%
50..54	99,000	6.3%	103,000	6.5%	109,000	6.8%	114,000	7.0%	119,000	7.3%
55..59	78,000	5.0%	83,000	5.2%	88,000	5.4%	92,000	5.6%	94,000	5.7%
60..64	58,000	3.7%	61,000	3.8%	63,000	4.0%	67,000	4.1%	72,000	4.4%
65..69	49,000	3.1%	50,000	3.2%	51,000	3.2%	52,000	3.2%	54,000	3.3%
70..74	44,000	2.8%	44,000	2.8%	45,000	2.8%	45,000	2.8%	46,000	2.8%
75..79	36,000	2.3%	37,000	2.3%	37,000	2.3%	38,000	2.3%	39,000	2.4%
80..84	27,000	1.7%	28,000	1.8%	28,000	1.8%	29,000	1.8%	29,000	1.8%
85..89	15,000	1.0%	15,000	1.0%	16,000	1.0%	17,000	1.0%	17,000	1.1%
90 plus	8,000	0.5%	8,000	0.5%	9,000	0.6%	9,000	0.6%	10,000	0.6%
Total Females	1,566,000	100.0%	1,586,000	100.0%	1,606,000	100.0%	1,625,000	100.0%	1,645,000	100.0%
Both Sexes	2003		2004		2005		2006		2007	
0..4	205,000	6.5%	206,000	6.5%	207,000	6.4%	209,000	6.4%	210,000	6.4%
5..9	206,000	6.5%	206,000	6.5%	206,000	6.4%	207,000	6.4%	208,000	6.3%
10..14	224,000	7.1%	223,000	7.0%	219,000	6.8%	216,000	6.6%	213,000	6.5%
15..19	228,000	7.3%	229,000	7.2%	231,000	7.2%	231,000	7.1%	233,000	7.1%
20..24	238,000	7.6%	242,000	7.6%	245,000	7.6%	248,000	7.6%	249,000	7.5%
25..29	236,000	7.5%	241,000	7.5%	244,000	7.6%	248,000	7.6%	251,000	7.6%
30..34	236,000	7.5%	235,000	7.4%	235,000	7.3%	237,000	7.3%	240,000	7.3%
35..39	247,000	7.8%	241,000	7.6%	239,000	7.4%	240,000	7.3%	240,000	7.3%
40..44	275,000	8.7%	274,000	8.6%	271,000	8.4%	264,000	8.1%	257,000	7.8%
45..49	255,000	8.1%	262,000	8.2%	267,000	8.3%	271,000	8.3%	274,000	8.3%
50..54	202,000	6.4%	211,000	6.6%	221,000	6.9%	232,000	7.1%	243,000	7.3%
55..59	159,000	5.1%	168,000	5.3%	178,000	5.5%	187,000	5.7%	191,000	5.8%
60..64	116,000	3.7%	121,000	3.8%	127,000	3.9%	133,000	4.1%	144,000	4.4%
65..69	95,000	3.0%	97,000	3.0%	99,000	3.1%	102,000	3.1%	105,000	3.2%
70..74	83,000	2.6%	84,000	2.6%	85,000	2.6%	85,000	2.6%	86,000	2.6%
75..79	64,000	2.0%	66,000	2.1%	67,000	2.1%	69,000	2.1%	70,000	2.1%
80..84	44,000	1.4%	46,000	1.4%	46,000	1.4%	47,000	1.4%	48,000	1.4%
85..89	23,000	0.7%	23,000	0.7%	24,000	0.7%	25,000	0.8%	26,000	0.8%
90 plus	11,000	0.4%	12,000	0.4%	13,000	0.4%	13,000	0.4%	13,000	0.4%
Total Both Sexes	3,148,000	100.0%	3,187,000	100.0%	3,225,000	100.0%	3,264,000	100.0%	3,302,000	100.0%
Summary	2003		2004		2005		2006		2007	
0..14	635,000	20.2%	635,000	19.9%	632,000	19.6%	632,000	19.4%	631,000	19.1%
15..24	466,000	14.8%	471,000	14.8%	476,000	14.8%	479,000	14.7%	482,000	14.6%
25..44	994,000	31.6%	991,000	31.1%	989,000	30.7%	989,000	30.3%	988,000	29.9%
45..64	732,000	23.2%	762,000	23.9%	793,000	24.6%	823,000	25.2%	852,000	25.8%
65+	320,000	10.2%	328,000	10.3%	334,000	10.3%	341,000	10.4%	348,000	10.6%
Dependency Ratio	2003		2004		2005		2006		2007	
Youth per 1000 15 to 64	290	29.0%	286	28.6%	280	28.0%	276	27.6%	272	27.2%
Elderly Per 1000 15 to 64	146	14.6%	147	14.7%	148	14.8%	149	14.9%	150	15.0%

**Population 4 Million:
Alberta's Population in the Next Three Decades**

**February 1999
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Male	2011		2016		2021		2026		2028	
0..4	112,000	6.4%	116,000	6.4%	117,000	6.2%	117,000	6.0%	117,000	5.9%
5..9	108,000	6.3%	113,000	6.2%	117,000	6.2%	119,000	6.1%	119,000	6.0%
10..14	109,000	6.3%	112,000	6.1%	116,000	6.1%	120,000	6.1%	121,000	6.1%
15..19	115,000	6.6%	113,000	6.2%	116,000	6.1%	120,000	6.1%	122,000	6.2%
20..24	129,000	7.4%	126,000	6.9%	124,000	6.5%	126,000	6.4%	128,000	6.4%
25..29	135,000	7.8%	138,000	7.6%	135,000	7.1%	133,000	6.8%	134,000	6.7%
30..34	131,000	7.6%	139,000	7.7%	142,000	7.5%	139,000	7.1%	137,000	6.9%
35..39	123,000	7.1%	133,000	7.3%	141,000	7.4%	143,000	7.3%	144,000	7.3%
40..44	122,000	7.1%	124,000	6.8%	133,000	7.0%	141,000	7.2%	142,000	7.1%
45..49	132,000	7.7%	122,000	6.7%	124,000	6.5%	133,000	6.8%	136,000	6.9%
50..54	136,000	7.8%	131,000	7.2%	121,000	6.4%	122,000	6.2%	126,000	6.3%
55..59	115,000	6.7%	132,000	7.3%	128,000	6.7%	118,000	6.0%	118,000	5.9%
60..64	90,000	5.2%	109,000	6.0%	125,000	6.6%	121,000	6.2%	115,000	5.8%
65..69	61,000	3.5%	83,000	4.6%	100,000	5.3%	115,000	5.9%	116,000	5.8%
70..74	43,000	2.5%	54,000	3.0%	72,000	3.8%	88,000	4.5%	95,000	4.8%
75..79	32,000	1.9%	35,000	1.9%	43,000	2.3%	58,000	3.0%	61,000	3.1%
80..84	21,000	1.2%	22,000	1.2%	24,000	1.3%	29,000	1.5%	34,000	1.7%
85..89	10,000	0.6%	11,000	0.6%	12,000	0.6%	13,000	0.7%	14,000	0.7%
90 plus	4,000	0.3%	5,000	0.3%	6,000	0.3%	6,000	0.3%	6,000	0.3%
Total Males	1,730,000	100.0%	1,817,000	100.0%	1,895,000	100.0%	1,962,000	100.0%	1,985,000	100.0%
Female	2011		2016		2021		2026		2028	
0..4	107,000	6.2%	110,000	6.1%	112,000	5.9%	112,000	5.6%	111,000	5.6%
5..9	103,000	6.0%	108,000	5.9%	112,000	5.9%	113,000	5.7%	113,000	5.6%
10..14	104,000	6.0%	106,000	5.9%	111,000	5.8%	115,000	5.8%	116,000	5.8%
15..19	110,000	6.4%	109,000	6.0%	111,000	5.8%	116,000	5.8%	118,000	5.9%
20..24	124,000	7.2%	120,000	6.6%	119,000	6.3%	121,000	6.1%	123,000	6.1%
25..29	130,000	7.5%	132,000	7.3%	128,000	6.7%	127,000	6.4%	128,000	6.4%
30..34	123,000	7.2%	133,000	7.3%	135,000	7.1%	131,000	6.6%	129,000	6.4%
35..39	118,000	6.9%	127,000	7.0%	136,000	7.1%	138,000	7.0%	139,000	6.9%
40..44	121,000	7.0%	121,000	6.6%	129,000	6.8%	139,000	7.0%	139,000	6.9%
45..49	132,000	7.7%	122,000	6.7%	122,000	6.4%	130,000	6.6%	134,000	6.7%
50..54	133,000	7.7%	131,000	7.2%	120,000	6.3%	120,000	6.1%	123,000	6.1%
55..59	112,000	6.5%	131,000	7.2%	128,000	6.8%	118,000	6.0%	118,000	5.9%
60..64	90,000	5.2%	110,000	6.0%	128,000	6.7%	125,000	6.3%	119,000	5.9%
65..69	65,000	3.8%	87,000	4.8%	106,000	5.6%	123,000	6.2%	125,000	6.2%
70..74	49,000	2.9%	61,000	3.3%	81,000	4.2%	98,000	5.0%	106,000	5.3%
75..79	41,000	2.4%	44,000	2.4%	54,000	2.8%	72,000	3.6%	76,000	3.8%
80..84	31,000	1.8%	33,000	1.8%	35,000	1.9%	43,000	2.2%	50,000	2.5%
85..89	19,000	1.1%	21,000	1.1%	22,000	1.2%	24,000	1.2%	26,000	1.3%
90 plus	11,000	0.6%	13,000	0.7%	14,000	0.7%	15,000	0.7%	15,000	0.7%
Total Females	1,722,000	100.0%	1,816,000	100.0%	1,903,000	100.0%	1,981,000	100.0%	2,009,000	100.0%
Both Sexes	2011		2016		2021		2026		2028	
0..4	218,000	6.3%	226,000	6.2%	229,000	6.0%	228,000	5.8%	228,000	5.7%
5..9	212,000	6.1%	221,000	6.1%	229,000	6.0%	232,000	5.9%	232,000	5.8%
10..14	213,000	6.2%	218,000	6.0%	227,000	6.0%	235,000	6.0%	237,000	5.9%
15..19	225,000	6.5%	222,000	6.1%	227,000	6.0%	236,000	6.0%	240,000	6.0%
20..24	252,000	7.3%	246,000	6.8%	243,000	6.4%	248,000	6.3%	251,000	6.3%
25..29	265,000	7.7%	270,000	7.4%	263,000	6.9%	260,000	6.6%	262,000	6.6%
30..34	255,000	7.4%	272,000	7.5%	277,000	7.3%	270,000	6.9%	266,000	6.7%
35..39	242,000	7.0%	260,000	7.1%	277,000	7.3%	281,000	7.1%	283,000	7.1%
40..44	243,000	7.0%	245,000	6.7%	262,000	6.9%	280,000	7.1%	281,000	7.0%
45..49	265,000	7.7%	243,000	6.7%	245,000	6.5%	263,000	6.7%	270,000	6.8%
50..54	269,000	7.8%	262,000	7.2%	241,000	6.3%	243,000	6.2%	249,000	6.2%
55..59	227,000	6.6%	263,000	7.2%	256,000	6.7%	236,000	6.0%	236,000	5.9%
60..64	180,000	5.2%	219,000	6.0%	253,000	6.7%	246,000	6.2%	233,000	5.8%
65..69	126,000	3.6%	169,000	4.7%	206,000	5.4%	238,000	6.0%	241,000	6.0%
70..74	93,000	2.7%	114,000	3.1%	153,000	4.0%	186,000	4.7%	201,000	5.0%
75..79	73,000	2.1%	79,000	2.2%	97,000	2.6%	130,000	3.3%	137,000	3.4%
80..84	52,000	1.5%	55,000	1.5%	59,000	1.6%	73,000	1.8%	84,000	2.1%
85..89	29,000	0.8%	32,000	0.9%	34,000	0.9%	37,000	0.9%	39,000	1.0%
90 plus	15,000	0.4%	18,000	0.5%	20,000	0.5%	21,000	0.5%	21,000	0.5%
Total Both Sexes	3,452,000	100.0%	3,633,000	100.0%	3,798,000	100.0%	3,942,000	100.0%	3,993,000	100.0%
Summary	2011		2016		2021		2026		2028	
0..14	643,000	18.6%	665,000	18.3%	685,000	18.0%	695,000	17.6%	697,000	17.5%
15..24	477,000	13.8%	468,000	12.9%	470,000	12.4%	484,000	12.3%	491,000	12.3%
25..44	1,005,000	29.1%	1,047,000	28.8%	1,079,000	28.4%	1,091,000	27.7%	1,092,000	27.4%
45..64	941,000	27.2%	987,000	27.2%	995,000	26.2%	988,000	25.0%	988,000	24.8%
65+	388,000	11.2%	467,000	12.9%	569,000	15.0%	685,000	17.3%	723,000	18.1%
Dependency Ratio	2011		2016		2021		2026		2028	
Youth per 1000 15 to 64	265	26.5%	266	26.6%	269	26.9%	271	27.1%	271	27.1%
Elderly Per 1000 15 to 64	160	16.0%	187	18.7%	224	22.4%	267	26.7%	281	28.1%