THE RISING FINANCIAL BURDEN OF BC'S AGING POPULATION

Is Immigration the Answer?

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INTRODUCTION

Since the late 1960s, British Columbia's population has been steadily aging, a trend that is expected to continue well into the twenty-first century. This paper examines the prospect of an increasing economic burden on the working-age population that may result from this trend, and assesses a major proposal for reducing this burden: increased immigration.

In the following sections, definitions of population aging are applied to the B.C. population, and the relative contributions of the causes of an aging population are appraised. Changes over time in the financial burden on the working class of the economically "dependent" segments of the provincial society are measured. Proposals to increase the annual rate of international migration to lessen these financial pressures are considered. No attempt is made to estimate how any increased financial burden arising from an aging population will be apportioned between the provincial and federal governments.

BC'S AGING POPULATION

The aging of the provincial population, as indicated by a steadily rising median age, is shown in Figure 1. In 1971, the median age of BC residents was 27.8. By 1993, this figure had climbed to 35.0, and by 2021 it is forecast to reach 41.3 (BC Government 1994).

An alternative approach to observing the aging trend is to trace, over time, the proportion of the population over sixty-five. As can be seen from Figure 2, this proportion in BC is forecast to rise slightly more than 80 per cent between 1971 and 2021. By the year 2017, the proportion of those 65 and older is projected to exceed the proportion of those aged 0-14.
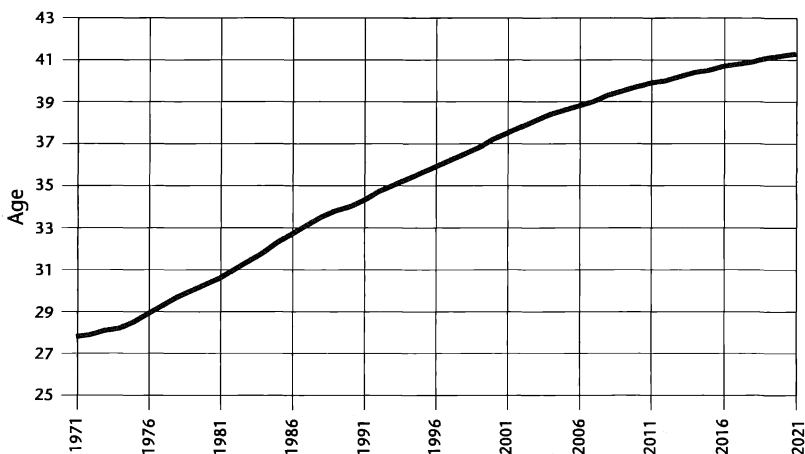
FIGURE 1   Median age of the B.C. population
SOURCE: B.C. government (1994: Table 1)

The first and principal cause of the increasing number of seniors in BC is a diminished birth rate (MacKinnon and Ip 1990). Of the various measures of birth rates, the most commonly applied is the total fertility rate, defined as the number of children that the average woman in the population can be expected to produce as she passes through the child-bearing ages of 15-49. As can be seen from Figure 3, the BC total fertility rate has fallen from 2.187 in 1971 to 1.650 in 1993. Although the rate has declined since the late 1950s, it is currently projected to remain relatively constant throughout the next twenty-five years.[1] As the birth rate falls, the number of children in the population form a smaller proportion of the total, and the proportions of other age groups, including the elderly, correspondingly increase.

The second cause of the increasing proportion of seniors in the province is the increased life expectancy of people over sixty-five (MacKinnon and Ip 1990). All other factors being constant, the longer the life expectancy of seniors, the greater their proportion of the population. Since the postwar years, the average life expectancy of a 65-year-old British Columbian has increased approximately 4 years, from just under 14 years to slightly less than 18 years (MacKinnon and

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[1] It is always instructive to trace the demographic influence of the "baby boomers," those persons whose birth dates range from 1947 to 1966. The first of this generation will turn sixty-five in the year 2012. In the twenty years following that date, an explosive growth of seniors can be expected in the province. MacKinnon and Ip (1990, 12) observe that this increase in the numbers of senior citizens in the province "will cause nothing less than a social revolution."
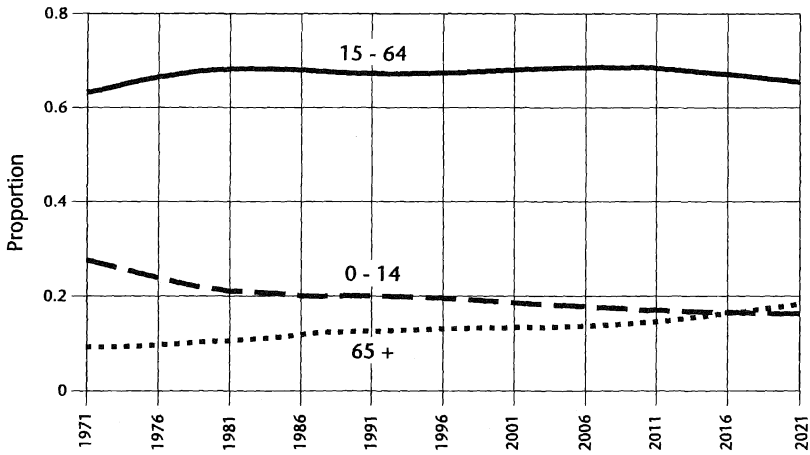
FIGURE 2   B.C. age group proportions
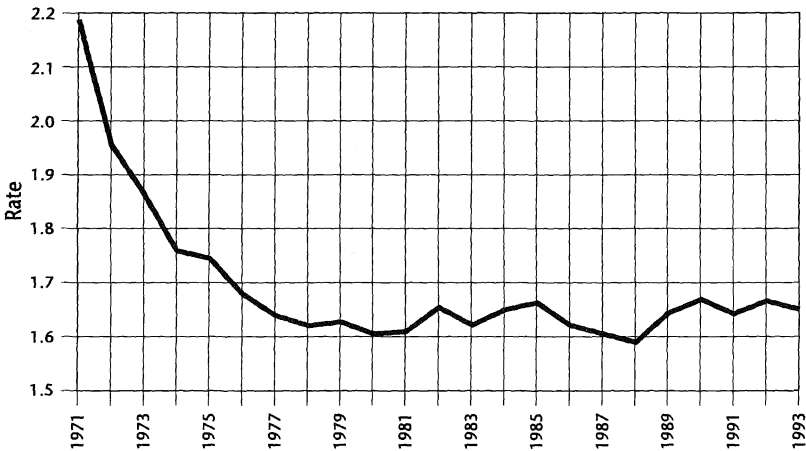   SOURCE: B.C. government (1994: Table 6)

FIGURE 3   B.C. total fertility rate
            SOURCE: B.C. government (1994: Table 1)

Ip 1990, 13). Given a significant reorientation of lifestyles towards healthy living, along with continued advances in medical technology, there is good reason to expect that longevity will gradually increase.[2]

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[2] There is, of course, a "natural" limit to the human life span (i.e., the life expectancy of an individual if he or she were subject only to the eventual critical malfunctioning of the body under the best care afforded by modern medical technology). It is a limit that is continually

A potential third cause of the increasing proportion of seniors in the province is net immigration, domestic and international, of the elderly. Given the relatively mild climates of the Victoria and Vancouver metropolitan regions, one might readily expect immigration to be a significant contributing factor in the rising proportion of elderly in BC. In fact, however, the data reveal that net immigration of persons under sixty-five more than offsets the net flow of elderly into the province. "Despite British Columbia's reputation as a destination for retirees, the effect of the flow of people in and out of the province has been to reduce rather than increase the proportion of the province's population that is over 65" (MacKinnon and Ip 1994, 13).

In sum, the primary cause of BC's aging population has been the diminished fertility rate. Declining mortality rates have played a contributing but secondary role, while net migration has slightly counteracted the aging process. An aging population caused primarily by a decreased birth rate characterizes not only BC but Canada as a whole, the US, and other developed nations of the Organization for Economic Cooperation and Development (OECD).

POPULATION AGING AND THE
PROBLEM OF ECONOMIC DEPENDENCY

Social expenditures by the various levels of government flow to each of the three age groups (0-14, 15-64, and 65+). For example, public expenditures on education and family benefits are concentrated on the youngest of the three age groups; public expenditures related to employment generation and unemployment benefits are focused on the working-age group; and expenditures on health care are principally directed to the elderly (also, government pensions flow almost exclusively to this group). Overall, however, public expenditures flow disproportionately to the young and the elderly, and the social programs that support these two age groups are primarily financed out of tax revenues and social insurance contributions generated by the working-age population.

Because of the lack of proportionality between revenues and expenditures among the three age groups, it is common practice to calculate a "dependency ratio" (DR) as a measure of the economic "burden" falling upon the working-age segment of the population. The DR is generally calculated as the sum of persons aged 0-14 and 65+ divided

subject to upward revision by demographers. A recent estimate by Wunsch and Duchêne (1986) sets the maximum at approximately 115 years.

by the number of people in the working-age population group 15-64. A graph of this standard ratio is shown in Figure 4. The graph reveals that there is no significant projected change in the burden to the working-age group throughout the first quarter of the twenty-first century and, thus, no cause for alarm.

The measure, however, has obvious shortcomings. Several members of the "dependent" group, particularly those aged 65+, are employed and are contributing revenue to the public sector; many members of the working-age population are not. In short, the measure ignores age-specific labour force participation and unemployment rates. It also ignores the non-market, volunteer contributions to society that come mainly from elderly and working-age population groups. Finally, it assumes that the young and the elderly pose an equal per capita financial burden on the working-age group. Since the proportion of the young in BC is declining, and that of the elderly is increasing (Figure 2), this last point warrants particular attention.

Taking account of all the principal social programs, the OECD (1988, 34) reported that, in 1980, per capita social expenditures in Canada were apportioned in the following manner.

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\begin{array}{ll}
\text{0-14} & \$2,462 \\
\text{15-64} & \$1,772 \\
\text{65+} & \$6,535
\end{array}
$$

Per capita expenditures for the elderly in 1980 were 2.7 times that of the 0-14 age group. Assuming this same ratio to apply currently in British Columbia, the decline in the proportion of the 0-14 age group would have to be 2.7 times the rise of the proportion of the elderly in order for the total outlay of public expenditures to remain unchanged. Clearly, this is not the case. The declining proportion of the young in the province is not sufficiently significant relative to the increasing proportion of the elderly to maintain a constant outlay of public expenditure.

We may now recalculate the dependency ratio by weighting each of the three groups in accordance with its share of per capita expenditures. The resulting "weighted" DR, shown in Figure 4, reveals more accurately the measure of the fiscal burden on the working-age population and provides much more cause for concern about the aging of the British Columbian population. The weighted dependency ratio is relatively constant until the end of the first decade of the twenty-first century, and then rises significantly. These are the years when the baby boomers will move into the elderly age group.
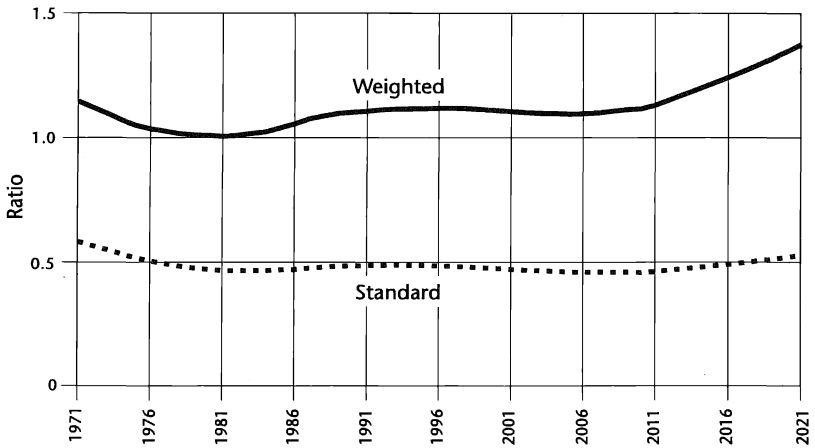
FIGURE 4   B.C. standard and weighted dependency ratios

Two additional considerations reinforce the concerns raised by the weighted DR. First, both the standard and the unweighted dependency ratios ignore any changes in the age composition *within* the three age groups. This is of critical importance, in that we can expect the per capita expenditures on health care to the 65+ age group to increase as the group itself ages. For example, in Canada in 1974, per capita public health expenditures on the elderly were 4.5 times those on the non-elderly, aged 0-64. The ratio of per capita expenditures on the elderly 75+ to the non-elderly, however, was 6.7 (OECD 1988, 33). In BC, approximately 44 per cent of hospital days in 1986 were for patients who were 75+ (Evans et al. 1989).

The proportion of the elderly (65+) that is 75 and older is shown in Figure 5. The proportion peaks at 43.5 per cent in the year 2004 and declines thereafter to 36.7 per cent in 2020, rising in the year following to 37.1 per cent. The important point, however, is that the per capita expenditure weights for the construction of the weighted DR shown in Figure 4 were established from 1980 data, when the proportion of the elderly 75+ was only 34.0 per cent. Since no adjustment has been made for the aging of the population *within the elderly cohort*, the weighted DR in Figure 4 is conservative in its warning about the financial implications of an aging population. In other words, the volume of expenditures for health care for the elderly and the resulting burden on the working-age population are even greater than is implied by the weighted DR.
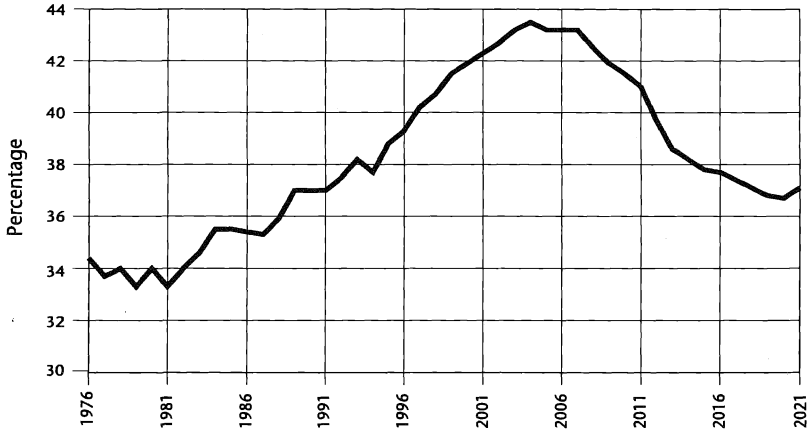
FIGURE 5   Percent of B.C. elderly aged 75+
SOURCE: Adapted from B.C. government (1994: Table 6)

The weighted DR also ignores the increasing ratio of women to men within the elderly cohort. The life expectancy of females in BC, both at birth and at age 65+, has been increasing more rapidly than has that of males. The higher ratio of females to males in the older age groups, as shown in Figure 6, is likely to result in a rise in per capita public expenditures on the elderly. MacKinnon and Ip (1990) point to two primary reasons for this. First, elderly women tend to be poorer than do elderly men.[3] The median income of elderly men in the province is nearly twice that of elderly women. Elderly women have a labour force participation rate approximately a third that of elderly men and are very likely to have lower pension benefits (if any). Second, elderly women in the province are more than twice as likely as are elderly men to be living alone. This is a consequence not only of women's longer life span, but also of the fact that married women tend to be younger than their husbands. Seniors living on their own, regardless of sex, are likely to require greater public expenditures than are seniors living with others.

In sum, the standard dependency ratio, as shown in Figure 4, is misleading, as it allows only for the impact of demographic change on the dependency burden. The increase in this burden is shown more

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[3] The poverty of elderly women relative to elderly men is not, of course, a function of aging per se but of social conditions in general (Beaujot 1991). This problem is further discussed in McDaniel (1986) and Gonnot (1990).
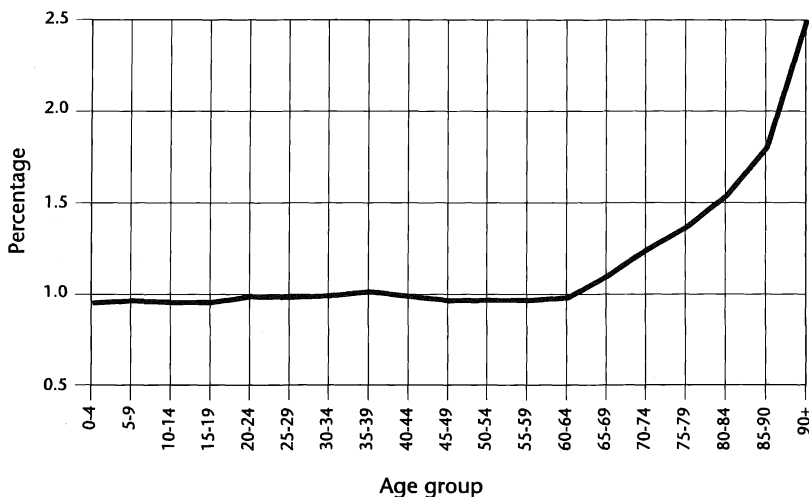
FIGURE 6   B.C. ratio of females to males, 1993
           SOURCE: Adapted from B.C. government (1994: Table 9)

clearly by the weighted dependency ratio, which takes into account the implied restructuring of per capita public expenditures over time from the young to the elderly. Even so, the increase in the dependency burden shown by the weighted DR is understated, for it ignores both aging within the 65+ age group and the increasing proportion of single women within that group.[4]

IS INCREASED IMMIGRATION THE ANSWER?

From the above discussion, it is evident that British Columbia, in common with most regions throughout the OECD, is faced with the prospect of a growing economic burden on its working-age popula-tion. International migration has been increasingly viewed as a means to arrest this trend (Zlotnik 1993). If the numbers of the working class can be expanded through increased immigration, it is argued, then the

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[4] An additional concern stems not from the increased volume of the public expenditures likely to be needed but from its redistribution from the young to the elderly. As mentioned, expendi-tures on the young tend to be largely educational. These expenditures represent a form of social investment: the more education the young acquire, the more productive they are likely to be in the labour force and the greater the revenues flowing to the government, which then has a greater ability to finance a range of social programs. On the other hand, health care expendi-tures to the elderly, while socially desirable and morally justifiable, do not represent the social investment that do education expenditures. This aspect of restructuring is likely to add to the political problems that the required shift of social expenditures to the elderly will engender.

burden on this class can be spread over more people.[5] There are two major objections to using international migration to this end. One is primarily demographic, the other is administrative; both have obvious political implications.

Defining an elderly dependency ratio (EDR) as the ratio of the population aged 65+ to that aged 20-64, Wattelar and Roumans (1991) have, for a number of countries (including Canada), simulated the long-run implications of using international migration to attain three different objectives: (1) the maintenance of the EDR at approximately 3; (2) the maintenance of a constant population of people aged 20-64, irrespective of the EDR; and (3) the maintenance of a constant net migration rate, with the objective of producing an EDR of about 3 by the year 2050. The results of their simulations can be seen in Figure 7.
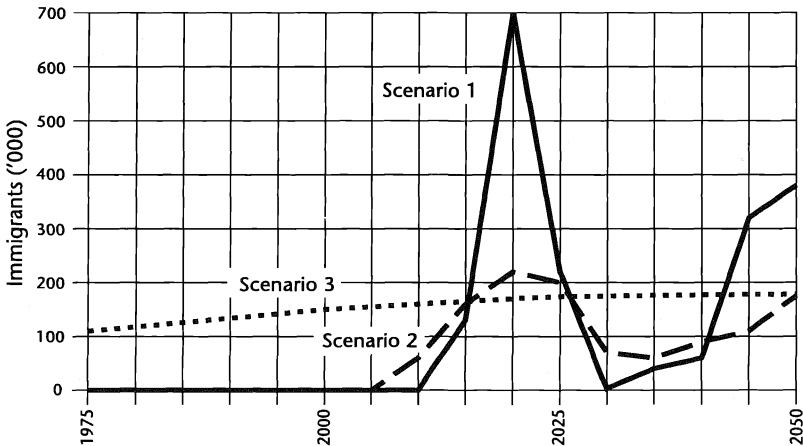

FIGURE 7   Canadian immigration scenarios
            SOURCE: Wattelar and Roumans (1991)

To maintain stability in either the EDR or in the working-age population, Wattelar and Roumans show that a series of self-perpetuating migration cycles is required.[6] The maintenance of a constant EDR

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[5] In 1992/93, the provincial population was expanded by 41,600 via net interprovincial migration; net international migration expanded BC's population in the same period by 31,100. International migration, however, is expected to exceed interprovincial migration into the province in 1995/96 and to continue to dominate throughout the next twenty-five years.

[6] The results of the simulation are not unique to Canada; similar results were obtained for Belgium, Austria, and Spain.

would lead to enormous immigration peaks in order to make up for the considerable "shortfalls" of population, which could no longer guarantee the desired dependency ratio. "Compensatory" immigration might in certain years amount to 5 to 10 times more than recent gross immigration (. . . 700,000 for Canada). These massive inflows would, on our assumptions, double the population by the end of the period, immigrant workers themselves becoming elderly and needing the support of younger people, which would in turn prompt a call for further immigration. (Wattelar and Roumans 1991, 62)

As can be seen from Figure 7, the maintenance of a constant number of adults in the working-age bracket substantially reduces the cycles of immigration but does not eliminate them.

To avoid the problem of fluctuations in international migration altogether, the authors simulate a third scenario, which produces a constant immigration rate. The rate is set to produce an elderly dependency ratio of at least 3:1 up to the year 2050. However, setting such a figure

is always very delicate. If the immigration policy of scenario III is applied with too high a ratio, it can in the long run give a result close to scenario I, i.e. doubling the population by 2050. This would happen by resorting to an annual rate of immigration of 1 per cent per year instead of 0.5 per cent for Belgium and Canada and 0.7 per cent for Austria and Spain at the respective fertility levels of 1.6 or 1.5 children per woman. This significant difference between the results obtained is due to the fact that population structures in the industrialised countries still reflect past gains and currently have a less flat age pyramid than that awaiting them in the next century. (Wattelar and Roumans 1991, 62)

It is to be noted that each of the above scenarios ignores all undocumented (illegal) population movements, existing and potential, as well as immigrants seeking asylum or political refugee status. Nor is it apparent that the authors accounted for the effects of the family unification provisions of Canadian immigration law. Age-specific immigration, such as that advocated by Foot (1986), is not easily achieved, particularly in view of the aforementioned immigration law. As Stoffman (1993, 6) observes,

Those who advocate rejuvenation through immigration forget that immigrants do not come to Canada as individuals but rather as

families. A young married couple that emigrates to Canada will have dependent children. The husband and wife probably will sponsor their parents, who will be middle-aged and nearing the years when they may begin to draw heavily on health care and income support programs. Those parents may well sponsor their own parents — the grandparents of the original immigrants — who are likely to be past retirement age when they arrive in Canada. As for the original immigrants, they will get a year older every year just like everyone else. Canada may well be a better country because they came, but it will not be a younger one.

In view of the above, can one support the argument that more immigration can counter the aging process? Perhaps, if it can be shown that immigration either substantially increases the productivity of the labour force or significantly lowers unemployment. Either possibility would result in a greater volume of economic production per capita and, arguably, would permit a larger transfer of resources from the working segment of the population without, on the average, decreasing its standard of living.

However, the results of a recent study by the Economic Council of Canada (ECC) (1991) do not lend strong support to either of these possibilities. The ECC concludes that an immigrant's human capital (education and training) benefits the immigrant almost exclusively, with little or no positive spillover effects for resident Canadians. In view of the substantial international mobility of capital, the ECC also concludes that the volume of foreign financial capital flowing into Canada in response to investment opportunities is not significantly altered by immigration levels. Overall, the study estimates that the impact of immigration on per capita disposable incomes, although currently positive, is very small. A doubling of immigration from its average level over the last twenty-five years would raise the rate of growth of per capita income over the next quarter century by only about 0.06 per cent per year.[7]

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[7] This positive aspect of immigration, although negligible, is one that is based on the ECC's estimate of the impact of domestic market size on national productive efficiency. Two approaches were adopted: (1) an international cross-section regression analysis designed to measure the influence of various factors (including market size) on output per capita and (2) a simple survey of the literature on economies of scale, industry by industry. The study arrives at an "optimal" population for Canada in the neighbourhood of about 100 million people. To the extent that this calculation is based on market size, the figure is presumably tenuous now that Canada is in the process of gaining full access to US and Mexican markets under the North American Free Trade Agreement. Further, with the exception of the inclusion of a variable for arable land in (1), both approaches, unfortunately (and altogether typically), ignore any

The ECC found that the effects of immigration on unemployment are almost certainly negligible over the long run. Even a temporary positive impact on unemployment was found to be unlikely, unless the increase in immigration was very rapid.[8]

SUMMARY AND CONCLUSIONS

British Columbia's population is currently undergoing a process of aging that is projected to continue well into the twenty-first century. The principal determinant of this process is the province's decreased fertility rate, which has resulted in a corresponding decrease in the proportion of children in the population. Although the decline in the proportion of children eases the economic burden of the provincial labour force, the decline is not occurring at a rate sufficient to offset the public-sector expenditures required by the growing proportion of elderly in the province.

A commonly constructed measure of the burden of an aging population is the dependency ratio. As traditionally constructed, this ratio shows little reason for concern over the next quarter century; however, it has a number of shortcomings. One of its principal disadvantages is its implicit assumption that the young and the elderly pose an equal per capita financial burden to the working-age group. When the dependency ratio is "adjusted" to reflect the differences in each group's respective share of per capita expenditures in the form of major government programs, the dependency ratio reveals significant cause for concern about BC's aging population. Even so, the adjusted ratio is still conservative, for it does not include adjustments for aging within the 65+ group and the increasing proportion of single women in this group. Persons over 75 and single elderly women are likely to require government maintenance expenditures that exceed the per capita average for the 65+ group.

One proposed solution to the increased economic burden on the working-age segment of the population is to increase immigration in order to expand the numbers of persons in the labour force. Recent

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intrinsic linkage between the economy and the natural environment on which it critically depends. That is, no account whatever is taken of the environmental (and consequent economic) effects of increasing the present population three to four times.

[8] These conclusions were drawn from four types of evidence: (1) statistical associations across countries and regression analyses through time, relating size of population and its rate of growth to the rate of unemployment; (2) results of simulations within "big models"; (3) detailed considerations of the economic literature on unemployment; and (4) results of empirical testing of an economic theory of unemployment.

demographic and economic studies, however, do not support immigration as an effective instrument with which to counteract the increasing fiscal burden of an aging population. Future policy research with regard to the fiscal implications of an aging population should explore other options. They might include raising the age of eligibility for retirement benefits, scaling benefits to financial need, and promoting financial self-reliance through measures designed to increase financial contributions that are eventually realized as retirement income.