THE DEVELOPING WORKFORCE PROBLEM:
Confronting Canadian Labour Shortages in the Coming Decades

J.D. McNIVEN

with Michael Foster

January 2009

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Dr. McNiven has been the CEO of a small technology company and has been a member of a number of corporate and government boards, including the Blue Cross of Atlantic Canada and the federal government's International Trade Advisory Committee. He was a member of the federal government's Royal Commission on National Passenger Transportation, which reported in 1992. He has written widely on public policy and economic development issues, and is the co-author of three books. His most recent research work has been in natural resource policy, the impact of broadband on rural businesses, and the relationship of demographic changes to regional economic development. He continues to teach on a part-time basis.

Michael Foster is the President of Canmac Economics Ltd. He has more than 25 years of consulting experience in economic modelling, business strategy and feasibility analysis, and economic impact research. Over this time, Dr. Foster has conducted hundreds of economic studies and has built and still maintains a large econometric model (200+ equations) used by the Nova Scotia Department of Finance for forecasting and policy analysis. Dr. Foster holds a PhD in regional economics and econometrics from Dalhousie University, and has taught courses in statistics, econometrics, and money and banking at Dalhousie and Saint Mary's University in Halifax, and at the University of Cape Breton. He has been president of the Atlantic Association of Applied Economists and has published articles in a number of professional and industry journals and periodicals.

EXECUTIVE SUMMARY

Sometime toward the middle of the next decade, and for the first time in at least a century, the number of people willing and available to work in Canada will be smaller than the number of jobs potentially available for them. After that point in time, a general labour shortage — not just in specific geographic areas or for particular skilled trades, but throughout the economy and in all provinces — will become a normal fact of Canadian economic life that will continue for as far ahead as demographers are able to forecast. There will still be unemployed people, but their numbers will be more than offset by unfilled job vacancies. Simply put, the number of young people entering the labour force is insufficient to sustain economic growth in the years ahead at levels that prevail today.

The problem Canada faces is one of demographics. In the 1970s and 1980s, the Canadian economy was restructured to meet the challenge of the entry of the huge baby boomer generation into the employed labour force. With the demographic changes that have taken place since then — a declining fertility rate and declining numbers of future labour force entrants — this design is no longer working. Indeed, continuing to adhere to it threatens Canadians' standard of living, and could lead to unrest, outmigration, and slow-to-nonexistent economic growth coupled with high inflation. Modelling the effects of these demographic shifts on the Nova Scotia economy and society out to 2026 shows that they are likely to be significant, featuring an aging, declining population, dwindling numbers in the traditional labour force ages (15–65), and lower labour force participation rates.

If Canada were facing this demographic challenge in isolation, it might be easier to adapt to the situation. But most of the developed world faces similar challenges. The coming decades will witness a global competition among the developed countries for labour of all kinds, and the problem will only get worse as workforces in rapidly developing countries such as China begin to age.

There are only three generic ways to close the gap between the demand for and supply of labour in Nova Scotia in the years ahead:

- *Find more people* — that is, increase the population, by raising the birth rate or by increasing migration from other provinces and immigration from abroad. But the birth rate is unlikely to change, other parts of Canada would be facing the same challenge, and immigration from abroad would have to occur at far beyond traditional levels.
- *Increase labour productivity* at a faster rate than the historical average, by encouraging the growth of higher-paying industries at the expense of low-productivity (largely low-wage)

industries, improving business practices and processes, and increasing the skills and education levels of the workforce. But this would only delay the inevitable.

- *Increase the labour force participation rate*, by encouraging those who have given up working or who have never worked to become employed or by discouraging early retirement and encouraging older workers to remain in the labour force longer — no easy task.

A mixture of these approaches might be more practical, but it would involve a rethinking of government policies related not only to work and the workforce, but also to education, certification, pensions, pay practices, benefits, and capital investment, among others. It would also imply changes in business attitudes toward older workers, the disabled, visible-minority hiring, productivity improvements, work practices, and the deliberate offshoring of low-productivity and low-paying operations, among other things.

What is clear, however, is that Canada, and Nova Scotia, cannot afford to do nothing. If nothing changes, in 2026 one job in every eight in Nova Scotia and in the rest of Canada will go begging. In that case, the market, as it is presently conditioned by business and government, will definitely "solve" the problem for us, but not, perhaps, in a way we might like.

INTRODUCTION

Sometime toward the middle of the next decade, and for the first time in at least a century, the number of people willing and available to work in Canada will be smaller than the number of jobs potentially available for them. After that point in time, a general labour shortage — not just in specific geographic areas or for particular skilled trades, but throughout the economy and in all provinces — will become a normal fact of Canadian economic life that will continue for as far ahead as demographers are able to forecast. There will still be unemployed people, but their numbers will be more than offset by unfilled job vacancies.

This workforce shift has already started, with unemployment dropping in places where it has been stubbornly high for decades. Some of this decline in unemployment can be attributed to Canada's relatively strong economic growth over the past few years, but the major contributing factor is demographic change. Simply put, the number of young people who are entering the labour force is insufficient to sustain economic growth in the years ahead at levels that prevail today.

Confronting this demographic and economic conundrum will require a paradigm shift in the importance we assign to various practices and behaviours in our economy, as was the case beginning in the late 1960s, when the baby boom generation began to flood into the labour force. Then, a major redesign of the rules and practices that surrounded the labour market became necessary. The redesign focused on expanding the size of the entry-level job market and sacrificing or delaying productivity gains in favour of job gains. Older workers were encouraged to retire early, and sometimes fired, in favour of younger workers. Universities and community colleges were expanded to absorb some youth and to keep them out of the workforce. Development policies were centred on job creation, as were a myriad community development make-work projects.[1]

To a large extent, the Canadian labour market still reflects the changes that were made to accommodate the baby boomers. Yet, Canada now finds itself having to cope with the opposite situation from that which prevailed from the 1960s through the 1980s. Today, the number of new entrants into the labour force is declining across the country, and older workers increasingly are choosing to accept the advertising notion of "Freedom 55" and retire early. What, then, are appropriate responses to a generalized labour shortage over the next few years? Should they discourage older workers from retiring early? Should they provide universal, affordable access to day care? Should they require benefits

1 The problem of the influx of baby boomers into the labour market persisted through the 1970s and 1980s. As the Nova Scotia deputy minister of development during the 1981–88 period, I experienced pressures to counter unacceptably high rates of youth unemployment in that province. Yet, no matter what policy was tried, there was little one could do to absorb the tide of baby boomers.

to be paid to part-time workers? Should they discourage low-wage jobs and the companies that pay them? Should they go so far as to abolish the requirement that children stay in school until a certain age?

Clearly, as we move toward the second decade of the twenty-first century, the coming generalized shortage of available workers will present challenges to the Canadian economy quite unlike those that characterized the previous century. The aim of this paper is to show how we arrived at this juncture and what we should do to face the difficulties that lie ahead and keep the economy growing at a pace that means rising standards of living for all Canadians.

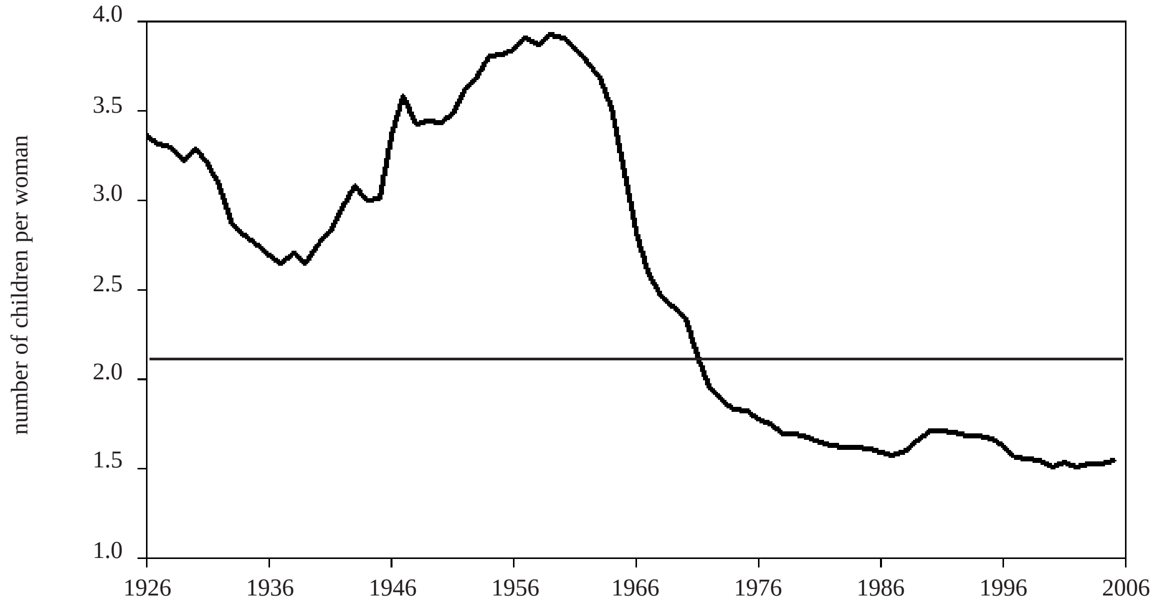
How Did We Get to This Point?

The underlying problem of the challenges the Canadian economy will face in the years ahead is one of demographics: the study of the basic characteristics of a population, including its size, age distribution, and location, and the needs related to such characteristics. Demographic studies can help to suggest where schools, hospitals, and even fast-food restaurants should be located and what kinds of vacations people take, and they can help to explain such diverse elements as crime rates and employment patterns. Demographics also helps us to understand that, as personal income increases — whether for individuals or averaged across the society as a whole — family size tends to decline (see, for example, Matthews 2006, chap. 2), although urbanization also likely plays a role in this phenomenon. If family size drops to the point where fertile women bear, on average, fewer than 2.1 children, the society in which they live can no longer replace itself. Eventually, not only will more people leave the workforce than enter it, but the population as a whole will begin to decline in number. Thus, demographic change can have a profound effect on a country's employment prospects and its future economic and social well-being.

Two more specialized demographic ingredients are necessary to understand the challenge Canada faces: the fertility rate over time and the size of the individual age cohorts in the population. The demographic situation in all parts of Canada has been dominated for several decades by the baby boom generation — the surge in births between 1946 and 1964 (see Figure 1). This surge was followed by a dropoff in the fertility rate and, consequently, in births, that began after 1960. At first, the fertility rate dropped back to early postwar levels and then, with the introduction of the birth control pill, it plummeted below replacement levels, where it has remained ever since. The recent Canadian fertility rate has fluctuated around 1.5 — in effect, on average, Canadian women give birth to slightly more than two children for every three needed for replacement, a trend that has gone on for more than three decades. Had the fertility rate remained at postwar levels until today, there would have been no "baby bust" in the 1970s and beyond, and Canada's population would have very different characteristics.

The second ingredient in Canada's demographic mix is the timing of changes in the fertility rate. The fertility rate of the baby boom years of 1946 through 1964 means that the cohorts — the totality of the people born each year — of those years were larger than those before or since. In short, the baby boomers have dominated the Canadian economy and politics ever since the 1960s. Canada needed more schools in the 1960s, more universities in the 1970s, more jobs in the 1980s, more houses in the 1990s, and, in 2006, the first cohort of baby boomers turned 60 years of age and became eligible for benefits under the Canada Pension Plan. For the next two or three decades, this age group will

Figure 1: ***Total Fertility Rate, Canada, 1926–2005***



Source: Adapted from Statistics Canada: <http://www.statcan.ca/english/freepub/91-003-XIE/2007001/figures/figure5-en.htm>.

push seniors' concerns and needs increasingly to the forefront of the political agenda. The sheer number of baby boomers as consumers and the truism that older people vote proportionately more than younger ones mean that both the markets and governments will continue to respond to this age group.

In addition to its effects on the Canadian economy and politics, the size of the baby boom generation also has implications for Canada's future workforce — defined roughly as those between the ages of 15 and 65. The largest baby boom cohort, the group born at the tail end of the boom in 1964, turned 15 in 1979, is turning 44 in 2008, and will be 65 in 2029. Since the rest of the baby boomers are older than this cohort, it becomes apparent that Canada's workforce is aging. Indeed, when the first cohort that retires at age 65 is larger than the new group of young people entering the workforce in any given year, the workforce will begin to shrink. This point will be reached very soon — Nova Scotia could reach it as early as this year.

The National and Global Competition for Labour

If Canada were facing this demographic challenge in isolation, it might be easier to adapt to the situation. But this is not the case: most of the developed world faces similar challenges, despite variations in fertility rates, effective retirement ages, immigration, and other factors. The coming decades will witness a global competition among the developed countries for labour of all kinds, and the problem will only get worse as workforces in rapidly developing countries such as China begin to age.[2] As Paul Hewitt, former director of the Global Aging Initiative at the Washington-based Center for Strategic and International Studies, has put it, "[o]n a global scale, the major social crises of the twenty-first century will be the by-product of labor shortages" (2002).

Research in Canada, the European Union, and the United States reveals some of the common aspects of this emerging situation. In Canada, the results of a study by the Policy Research Centre at the University of New Brunswick on the effects of these demographic trends on workforce dynamics in New Brunswick (Ruggeri and Zou 2005) parallels those we present in this paper for Nova Scotia. According to press reports, a similar study of Ontario by the Conference Board of Canada (not yet released as of this writing) suggests that the province is likely to experience a shortfall of 325,000 workers by 2025, despite its attracting the lion's share of immigrants,[3] while another Conference Board study predicts that Quebec will have a shortfall of 292,000 workers by 2025 (Conference Board of Canada 2007). A study by the C.D. Howe Institute of the population implications of migration and Aboriginal demographics in Saskatchewan, although it does not bear on this topic specifically, suggests that the working-age population in that province will remain stable from 2005 to 2026 (Guillemette and Robson 2007). While this forecast compares favourably with the declines predicted for the workforce in Nova Scotia and elsewhere in the country, the lack of growth of the workforce in Saskatchewan will retard economic growth in that province and lead to labour shortages sometime after 2020.

International research shows that, in 2005, Japan became the first country to experience a decline in its working-age population, in part because of the weakness of its baby boom in the 1950s and in part because of its low immigration rate (Aglietta et al. 2005, 6). Other countries, such as Russia and the Baltic republics, might also be experiencing this problem, but in their cases it is being masked

2 Indeed, fertility rates are falling in every region of the globe; in 2007, the world average was 2.7. See "World Population Highlights," *Population Bulletin* 62 (3): 2–3.

3 "Ontario's impending labour crunch," *Globe and Mail*, October 6, 2007.

by the high unemployment caused by their transition from communist economic systems.[4] In Estonia in the early 1990s, for instance, about half the workforce was unemployed, and the task of integrating the country into an EU-oriented economy took a good decade; now, the problem of a shrinking labour force is beginning to dominate economic concerns there. In Russia, some cities reportedly have introduced official holidays called "procreation days" in order to stimulate the birth rate.[5]

In the European Union, the fertility rate tends to fall around 1.7, part-way between the US and Canadian rates, but this figure masks a wide divergence among countries, with France having a higher-than-average rate, and Spain, Germany, and Italy having lower-than-average ones. Internal migration from the eastern EU westwards and continued legal and illegal immigration also add to the mix of pressures on the workforce, but the trend is toward a convergence of birth rates (lower) and immigration policies among EU countries (Aglietta et al., 2005, 6). At the same time, the tendency for EU welfare states to promote early retirement has led to younger workforces and higher rates of dependency (children plus retirees) and more downward pressure on labour force participation rates. In some areas, the demographic changes are particularly severe: as a result of a declining population, rural parts of the former West Germany and much of the former East Germany are, in effect, returning to nature, with thousands of abandoned houses being torn down; in some cases, municipalities and even whole states are struggling just to meet their mandated programs (Kroehnert, Medicus, and Klingholz 2006).

In the United States, while a relatively high fertility rate of 1.9 (as opposed to Canada's 1.5) and high immigration, both legal and illegal, have ameliorated the workforce challenge to some degree, the job-growth machine that is the US economy has kept the labour market tight through much of the south and west, the fastest-growing regions of the country. Continued high labour demand, from whatever cause, will just add to the competition for workers that Canada will face in the years ahead. The effect of the demographic shortfall that the United States faces can be seen in the following report from Iowa:

> Speaking in Mason City on Jan. 19, 2001, (then Gov.) Vilsack said state projections showed 368,000 Iowans retiring in the next 10 years and 198,000 new jobs being created — a total of nearly 570,000 jobs to be filled. Yet there would be only 114,000 new workers to fill those positions, he said. "Who is going to farm the land? Who is going to teach our children? Who is going to care for our medical needs?' he said. (Skipper 2006)

4 Interview with Professor Kalev Katus, Estonian Demographic Institute, Tallinn, June 2006.

5 "Have a baby, win a prize," *New York Times*, August 26, 2007.

The Case of Nova Scotia

In Canada, although each province has a different profile and different workforce needs and prospects, the demographic challenge that Nova Scotia faces has implications with broad relevance for the rest of the country.[6]

To determine the likely effects of demographic shifts on the Nova Scotia economy and society as a whole, one needs to establish a reference point, or base-case scenario, of what the province's economy and demographic situation will look like out to 2026.[7] The idea of a base case is to present the effects of demographic changes in a "business-as-usual" environment that allows one to examine the workforce changes to see what the scope and nature of potential solutions might look like. The projections in the base case, therefore, are largely extensions of what happened over the past decade and longer. The scenario assumes, broadly, that there will be no major changes in public policy, in the rate of economic growth, or in such key demographic indicators as the mortality rate.[8] The key assumptions underpinning the base case, which reflect a "business-as-usual" scenario and incorporate little change from the average experience of the past two decades, are that

- Nova Scotia will experience net migration of zero, which ignores a small net average outmigration over the past two decades;
- productivity growth in the province will average 0.9 percent, roughly the same as for the 1994–2004 period;
- the Canadian and US economies will grow at a low-to-average rate of 2.5 percent per year; and
- neither the federal nor the provincial government makes policy changes that significantly affect the base-case results.

Some of the projections underlying the base case are as follows:[9]

- Nova Scotia's population will slowly decline by 43,000, or 4.6 percent, from 938,000[10] in 2004 to 895,000 in 2026. Since the base case assumes no net migration, all of this population change will

6 Alberta's booming economy puts it ahead of other provinces in terms of labour shortages, although, as the full effect of the workforce problem is still a few years off for most of the country, for now it is able to draw on the labour force of other provinces to fill its needs.

7 This base case was developed by Canmac Economics Ltd. in 2006 from its proprietary demographic model as the basis for a commissioned study. Note that some indicators are available only out to 2016.

8 Even if the birth rate were to jump significantly from its current level, it would not affect this scenario, since children born in 2008 will not enter the workforce until after 2026.

9 All the data for the projections used in this paper are derived from the Canmac demographic model after the application of the base-case assumptions. Recently released 2006 census and population data were not incorporated.

10 All population figures in these bullets are rounded to the nearest thousand.

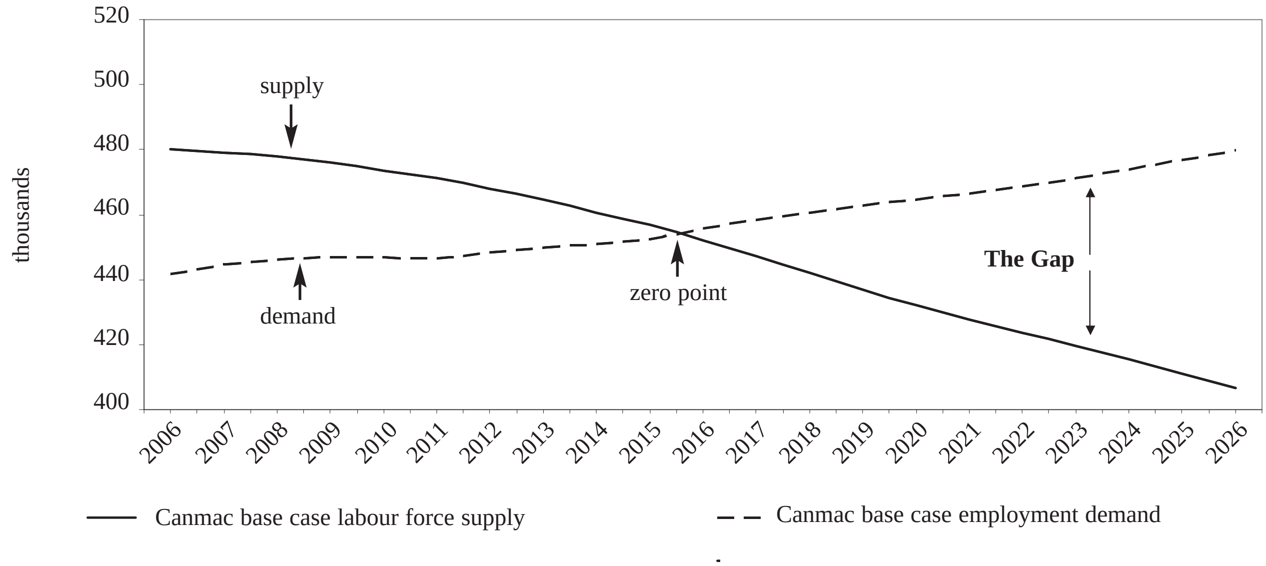
be a result of natural decrease, with the province experiencing 179,000 births and 221,000 deaths between 2004 and 2026. The number of births will drop over time as females of child-bearing age exit their fertility years in larger numbers than replacements enter; at the same time, deaths will increase as the overall population ages.

- The number of seniors (those age 65 and older) in Nova Scotia's population will jump from 128,000 in 2001 to 218,000 in 2026, an increase of 70.8 percent.
- Nova Scotia's population of primary and secondary school children will decline by 31.5 percent from 169,000 in 2001 to 116,000 in 2026.
- The university-age population in Nova Scotia will decline by 29.8 percent from 73,000 in 2001 to 51,000 in 2026.
- The number of Nova Scotians in the traditional labour force ages (15–65) will decline by 12.6 percent from 638,000 in 2001 to 558,000 in 2026; this decline is almost three times as much as that of the province's population as a whole.
- Labour force participation rates in Nova Scotia will decline from 63.2 percent in 2004 to 55.7 percent in 2026.

The large-scale economic effects of these demographic shifts will be significant. For one, the aging population will mean an increase in the proportion of retired seniors and, more important, a decline in the labour force participation rate, resulting in a contraction of the labour force. To see how this works, consider that an unemployment rate of 8 percent, as is roughly the case now, means that 92 percent of people in the workforce are employed, while the rest essentially are surplus to employers' needs. If the workforce is reduced by more than 12 percent by 2026, as projected, there will be a future labour shortfall even if the Nova Scotia economy were to remain stationary in terms of growth and related employment. Nova Scotians are unlikely, however, to want a zero-growth economy for the next 20 years, let alone one that has to shrink in order to fit a reduced labour force. Since the overall population will shrink by only 4.6 percent over the same period, that means per capita income would have to decline if conditions surrounding the workforce did not change.

Figure 2 presents a graphic representation of this workforce challenge. The "supply" line shows the labour force available to fill jobs at any given point in time, and is based on participation rates over the past few decades for different age groups of Nova Scotians, which, as noted above, will change as the baby boomers begin to retire. The underlying estimates out to 2026 are updated as the demographics of entry-level and retirement-age cohorts change. Note, however, that this "supply" line is an optimistic forecast, as it does not take into account that economists consider an unemployment rate of 3 percent to be full employment (due to such "frictional" factors as the unwillingness of some people to move, while others are unemployable, between jobs, ill, or injured). Economists prefer to use what they call the "non-accelerating inflationary rate of unemployment" (NAIRU), which is about 5 to 6 percent, or just below the current unemployment rate in Nova Scotia (in Halifax, the current rate is around 5 percent). So, depending on how one measures unemployment, Nova Scotia will run out of its non-inflationary labour supply in the next couple of years, its normal (including frictional unemployment) labour supply in four to five years, and go to zero unemployment in less than eight years.

Figure 2: ***Labour Supply and Demand Projections, Nova Scotia, 2006–26***



Source: Canmac Economics Ltd. model.

The model presented in Figure 2 uses the notion of zero unemployment, as it is the most optimistic in terms of workforce shortages. The “demand” line shows the number of jobs that will need to be filled if Nova Scotians want the province’s gross domestic product (GDP) to grow at its historical average rate of 2.5 percent out to 2026. The number of jobs is based on the relationship between economic growth and employment growth over the past decade, and effectively includes the average increase in the productivity rate for the province. In effect, this relationship is the result of the complex system of public and private work rules and regulations, taxation policies, and business successes and failures in a growing economy. It is a long-term average, since the relationship is not static year by year. For instance, companies tend to “body bank” at the onset of a recession and to stretch their remaining workforce thin, avoiding new hires, as a recession ends, both of which have short-term effects on the relationship between economic growth and employment growth. The “demand” line in Figure 2 is based on no or little change in business and government behaviour in the coming decades — it is a “business-as-usual” scenario that ignores both booms and recessions.

As Figure 2 shows, the “supply” and “demand” lines cross and Nova Scotia reaches zero unemployment in 2015 — less than eight years away. Moreover, the situation does not turn around after 2015, but becomes a permanent and increasingly more difficult feature of the provincial economy. For the sake of convenience, one can term this mismatch between labour supply and demand “The Gap.” In reality, however, “The Gap” cannot exist: the “demand” line past the zero point is a pretend line, since there cannot be more jobs contributing to growth in the economy than there are workers available. If nothing changes in the factors that make up these lines, the jobs available and the growth rate implicit in the “demand” line will have to turn negative and then decline in order to fit somewhere at or near the “supply” line as time goes by. This will begin probably before the point at which unemployment goes to zero in late 2015. A recession before this date could push the zero point off somewhat, but an economic boom in other parts of Canada could hasten it, if only because of increased outmigration. The pretend “demand” line going beyond 2015 is useful, however, to illustrate the demographic challenge that lies ahead. The public policy goal, therefore, is to prevent the lines from crossing — to close “The Gap” — at least as far out as 2026, the outside limit of the timeframe under consideration here. In effect, ways need to be found to push the zero point to the right in Figure 2.

Closing "The Gap": Generic Solutions

The implications of not closing "The Gap" between labour supply and demand would be serious. Stagnation and decline would adversely affect nearly all sectors of Nova Scotia's economy. It would affect the ability of the provincial government to pay for existing social services, let alone provide new ones. Property values and, therefore, house prices and construction would show no growth, or even decline, dragging down municipal revenues. Retail sales could flatten as proportionately more people retire to live on pension incomes that are lower than those they earned on the job. Businesses' costs would rise as they compete for labour in a declining pool of available people. The scene is not one of crisis or disaster, but of a gradually deteriorating economy and quality of life.

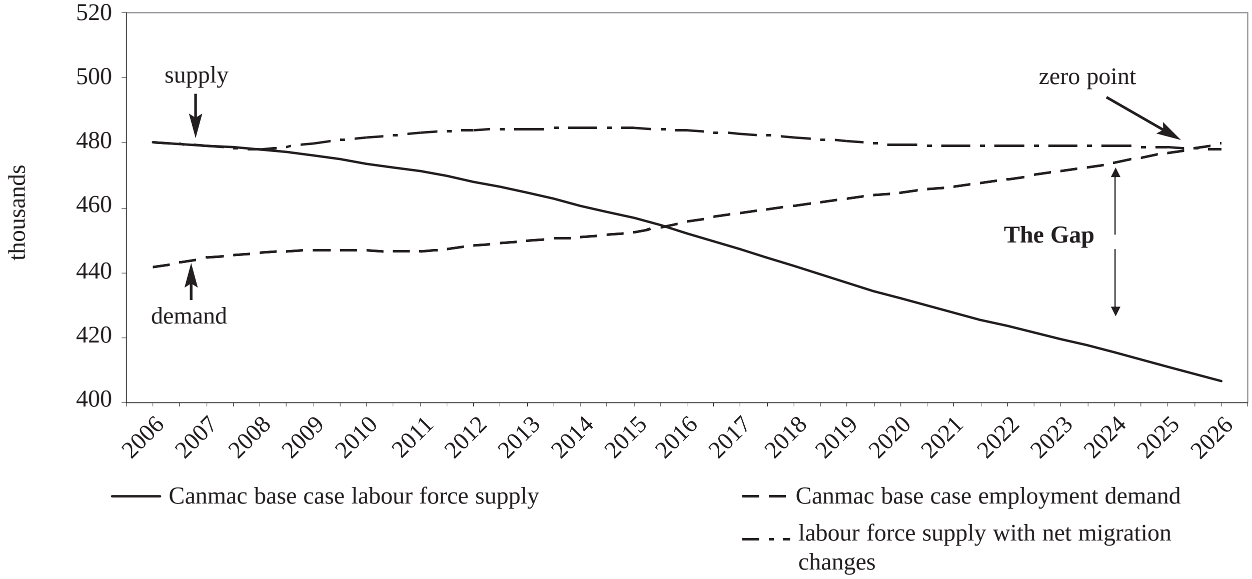
There are only three generic ways to close "The Gap" — generic, because all the specific things that governments and businesses can do fit under these three categories. It is like looking at a deck of cards or a chess table: there is a limited number of pieces with a limited number of powers, but the detailed combinations of them are endless. Likewise, the possible policy actions by governments or the competitive actions by businesses are endless in dealing with the workforce challenge. While the focus here is on Nova Scotia, the same general principles apply to the other provinces, all of which face the same demographic challenge.

Find More People

The first of the three generic solutions is to *find more people* — that is, to increase the population. This would have the effect of raising the "supply" line in Figure 2, pushing the zero point farther into the future. Increasing the population would come from raising the birth rate or increasing migration from other provinces and immigration from abroad. The birth rate is unlikely to change without some serious incentives, but even if the rate increased immediately, the results would not be felt in the supply of labour for at least 15 years or until this cohort leaves school. Migration from other provinces might help, though only at the expense of other parts of Canada, since all provinces would be facing the same challenge at about the same time. Immigration from abroad also might help, but most developed countries are already facing, or soon will face, the same labour force shortages as Canada.

As Figure 3 shows, closing "The Gap" solely through immigration is possible — all Nova Scotia would need to do is find 6500 workforce immigrants per year, starting now, for the next 18 years, which would move the zero point out to 2026. That, however, would be a tall order. It would require, first, a far higher level of immigration to the province than is currently the case; second, that all these

Figure 3: ***Closing "The Gap" between Labour Supply and Demand, Nova Scotia, 2006–26: Total Reliance on Immigration***



Source: Canmac Economics Ltd. model.

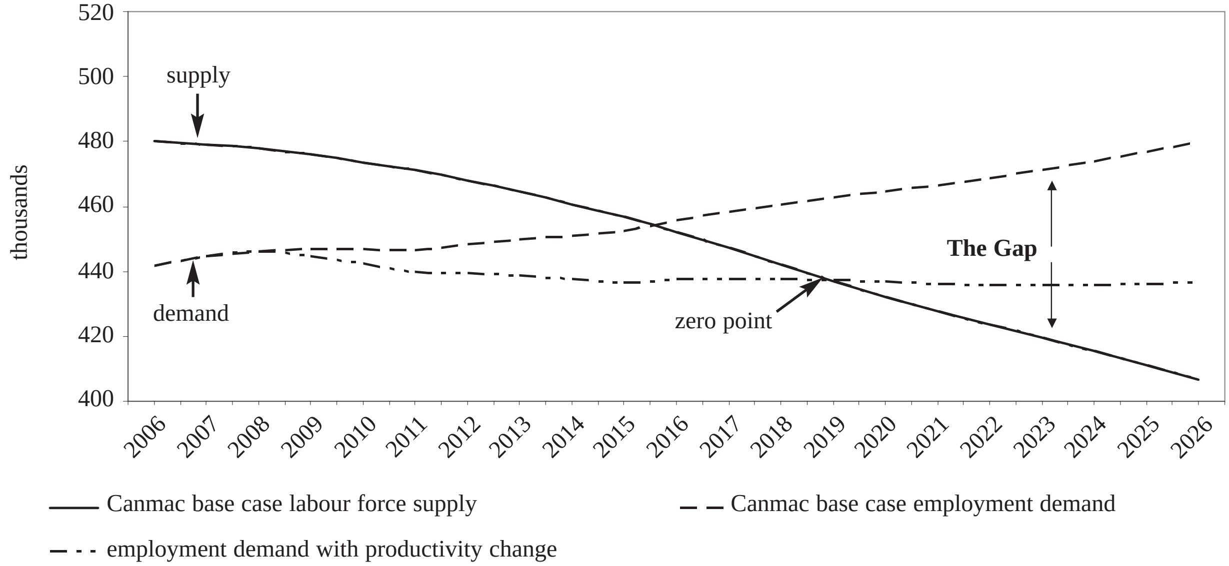
immigrants stay permanently in the province, rather than migrating once again to other provinces or elsewhere; and third, that they bring no one else with them. Historically, each immigrant of working-force age who comes to Nova Scotia has been accompanied by an average of 1.2 dependents under age 15 or over age 64. So, Nova Scotia actually would have to attract 14,300 (6500 x 2.2) total immigrants per year to obtain the number of immigrants of working-force age required to fill "The Gap." Even if the retention rate were 100 percent, this would require a total of 257,000 immigrants over the next 18 years — a number far beyond historical levels and one likely to lead to considerable social and cultural stress.

Increase Productivity

The second solution is to *increase productivity* at a faster rate than the historical average. This would have the effect of lowering the "demand" line in Figure 2, since greater productivity, while holding economic growth to its historical average, would lower the demand for new labour. Productivity growth could come from encouraging the growth of higher-paying industries at the expense of low-productivity (largely low-wage) industries, improvements in business practices and processes, and increasing the skills and education levels of the workforce.

It is a fundamental economic truism that the key to sustainable long-run growth is productivity improvement. Productivity is easily, and roughly, defined as the total value of the goods and services produced in the economy divided by the number of people employed in the economy; similarly, in a company, it might be defined in terms of sales per employee. It is through productivity increases

Figure 4: ***Closing "The Gap" between Labour Supply and Demand, Nova Scotia, 2006–26: Total Reliance on Productivity***



Source: Canmac Economics Ltd. model.

that wage levels rise on a sustainable basis. Productivity increases are seductive as a solution, since they mean that Nova Scotians can do more with less, including gaining more income with less labour. Productivity growth implies high wage growth because it increases the effectiveness of the labour supply — in effect, doing things in new ways with new tools results in production of greater value. Productivity growth is seen primarily as affecting the private sector, but in a province such as Nova Scotia, with so much public sector employment, attention should be paid to this part of the workforce as well.

Productivity growth has not been seen as an unambiguous virtue in Nova Scotia, as it has meant that the traditional surplus of labour would not be absorbed, and might be increased. Since the 1920s, the dominant feature of Nova Scotia's economy has been one of structural unemployment and its "cousin," outmigration. The emergence of the baby boomers into the workforce in the 1970s and 1980s only added to the pressure to protect existing employment and add new jobs. It was rational for the province then to be concerned about the effects of technology and productivity on job growth. It no longer is so.

In our model, we factor an average productivity growth rate into the "demand" line (see Figure 4). For the past decade, the productivity growth rate in Nova Scotia, at 0.9 percent per year, has been below the Canadian average of 1.14 percent.[11] So, adding 0.1 of a percentage point to the growth

11 Depending on the time period, different numbers for productivity growth can be found, but no matter what numbers are used, the gap between the Canadian average growth rate and the Nova Scotian rate is similar in these comparisons (discussion with Andrew Sharpe of the Centre for the Study of Living Standards, January 17, 2008).

rate — that is, increasing productivity by 11 percent over the existing rate — could help to close "The Gap," although it would still leave Nova Scotia's productivity only 88 percent of the national average, and the province would continue to fall behind in terms of productivity, but at a slower rate. Increasing Nova Scotia's annual productivity growth rate by as much as 0.5 of a percentage point would push it some 23 percent higher than the Canadian average, but that would raise the question of how to accomplish such a very ambitious goal. Further, as Figure 4 shows, even if such an increase in the productivity growth rate could be achieved, it would simply push the zero point back to 2019, presuming Nova Scotia could jump to the front of the Canadian productivity growth pack almost immediately. This result from the model was surprising, as we had assumed beforehand that productivity would be a strong factor in overcoming the workforce challenge, not the weakest.

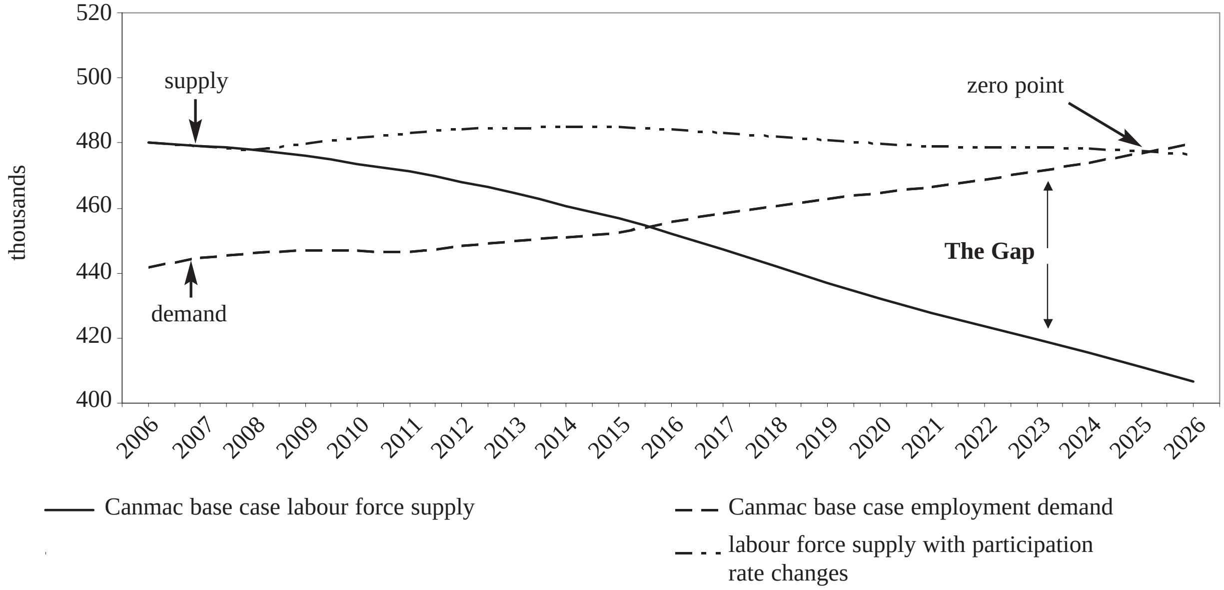
Increase the Labour Force Participation Rate

The third solution is to *increase the labour force participation rate*, by encouraging those who have given up working or who have never worked to become employed or by encouraging older workers to remain in the labour force longer — by replacing "Freedom 55" with, say, "Freedom 75." This would have the effect of raising the "supply" line in Figure 2. Nova Scotians who might otherwise retire or leave the workforce to raise children could be encouraged — through improved access to child care, for example — to stay on or to return if they have already left. Disadvantaged groups, such as the disabled, could also be attracted to particular jobs.

Labour force participation rates are a function of the number of people who are working plus those who want to work but do not (the unemployed) divided by all those over age 14 who could be working. Because the definition of labour force participation does not cut off at or around retirement age, if the number of retirees relative to the working and unemployed grows, then the participation rate will fall. This rate has an important bearing on the overall effect of demographics on the economy, since it directly determines the overall supply of labour.

In 2005, Nova Scotia's labour force participation rate was almost 64 percent, the male average being five percentage points above and the female five points below this average. This means that, of all the population age 15 and older, three-fifths were working or looking for work. Over the preceding decade, female participation rates gained 6.5 percentage points, while male rates increased only 1.7 points, suggesting near-equality in participation by 2015, especially as male retirement begins to increase (Canmac Economics Ltd.; Nova Scotia, Department of Finance calculations, 2006). Labour force participation varies by age group, of course, with 15-to-19-year-olds and those age 65 and older having very low rates. As the population ages and the proportion of retirees increases, the participation rate will drop — by 2026, it will be in the 56 percent range, if nothing changes. Interestingly enough, even if the participation rate were raised to a spectacular 0.5 percent growth per year, as shown in Figure 5, it would only keep the participation rate at 61 percent, or slightly below the current rate, by 2026.

Figure 5: ***Closing "The Gap" between Labour Supply and Demand, Nova Scotia, 2006–26: Total Reliance on Participation Rates***



Source: Canmac Economics Ltd. model.

There are several ways to increase the labour force participation rate. One way is to increase the participation rate of those ages 15 to 19, although, in an economy that is increasingly knowledge based, encouraging this age group to find employment rather than increasing their education level is probably not a good long-term option; it certainly would not help to improve labour productivity. Increasing the participation rate of females is no longer an option since theirs is already close to that of males, and is assumed to be equal in the model. So other sources of workers will have to be found.

Another way to increase overall labour force participation is to increase it among segments of the population whose participation rate historically has been lower than that of the rest of the population of working-force age. In Nova Scotia, two such groups are Aboriginals and African-Canadians. The former, almost entirely Mi'kmaq, is spread over a score of communities and organized into 13 First Nations. The total First Nations population in Nova Scotia is roughly 15,000 or about 2 percent of the population, according to the 2001 census. The African-Canadian population, spread historically over some 30 communities but increasingly concentrated in metropolitan Halifax, is roughly the same size. In total, then, First Nations and African-Canadian people in Nova Scotia together make up roughly 4 percent of the population. These two groups also have a slightly higher fertility rate than the rest of the population. Another small but growing segment of the population is the disabled — growing, in part, because many disabilities are age related and in an aging population they will occur with increasing frequency.[12] There are, of course, many types of disabilities, but not all are sufficient to keep a person who has one out of the workforce, but job matching for this group would be a

12 Of all disabled people in Nova Scotia, 38 percent are age 65 and over, while 53 percent of those age 65 and over are disabled (Statistics Canada 2006a, table 3.4.1).

complex task. In the end, however, the small numbers of Aboriginals, African-Canadians, and the disabled that could be added to the existing labour force suggest that, while doing so is desirable for its own sake and would alleviate some of the pressures on the workforce, it offers no panacea for the demographic challenges facing the Nova Scotian economy.

A third way to increase the labour force participation rate is to delay the age at which those already employed leave the workforce. Even though Canadians are living longer, they are not working longer. In part, this is a hangover from the economy of the 1980s. Men, in particular, are retiring even earlier than ever before. There has been a recent uptick in the proportion of men age 65 and older re-entering the workforce, but the effect is not large.[13] In Japan, the official retirement age is 55, but because of poor pensions the effective retirement age is around 70. In Canada, the decline of defined-benefit pension plans, insufficient savings in registered retirement savings plans, and the inadequacy of public pensions to sustain middle-class living standards might create the same effect. In Nova Scotia, in the days when the majority of people worked on farms, the idea of working until it was impossible to do so was not uncommon. Since the introduction of public pensions, pioneered in Germany in 1889 under Bismarck, it has become a social fixture in the developed countries that formal retirement in urban jobs is both necessary and desirable. Yet, while increasing labour force participation rates could help to alleviate the workforce challenge, the only practical way to achieve this goal is to discourage early retirement and encourage Nova Scotians to stay in the workforce longer, which would be no easy task.

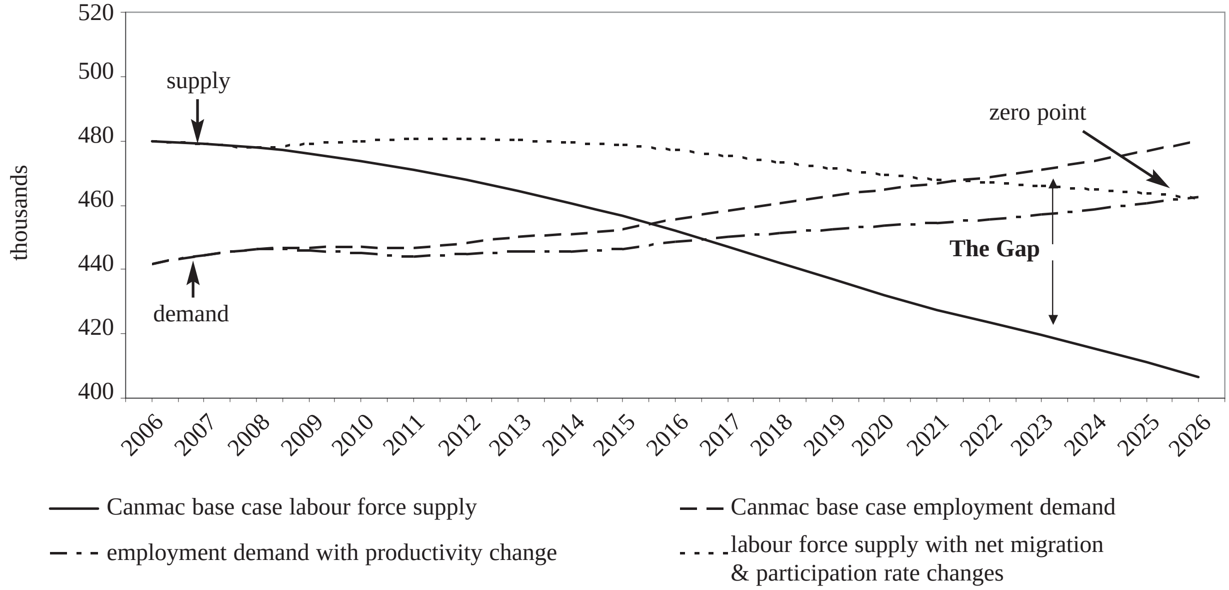
A Combination of Approaches

Another possible way to close “The Gap” between labour supply and demand is to try a combination of the three generic solutions just discussed. It is clear that productivity gains alone will be insufficient to meet the challenge, and increasing immigration and labour force participation rates would require too large a measure of social and political change to be feasible in and of themselves. A mixture of these approaches would probably be the most practical strategy, but this would entail significant changes to the way the economy operates. Figure 6 shows the results of a mixed approach; in this case, we have not tried to “pick winners” but simply to illustrate how such an approach might work. This example assumes the addition of 2500 immigrants to the workforce per year, a 0.2 percentage point increase in annual productivity growth over the rate of increase that prevails today, and a 0.2 percentage point increase in the now-declining labour force participation rate. This approach could delay the zero point — the point at which labour supply can no longer meet demand — until 2026.

This is a tough challenge and will involve a rethinking of a lot of government policies, not just those directly related to work and the workforce, but to education, certification, pensions, pay practices,

13 Among 65-to-69-year-olds, participation rates of men declined from 24.5 percent in 1976 to 16.4 percent in 1996, rebounding to 21.4 percent in 2004, while those for women increased from 6 percent in 1975 to 8 percent in 1996 to 11 percent in 2004 (Statistics Canada 2006b, 116).

Figure 6: ***Closing "The Gap" between Labour Supply and Demand, Nova Scotia, 2006–26: Reliance on a Sample Mixed Approach***



Source: Canmac Economics Ltd. model.

benefits, capital investment, and on and on. It also implies changes in business attitudes towards older workers, the disabled, visible-minority hiring, productivity improvements, work practices, and the deliberate offshoring of low-productivity and low-paying operations, among other things. This is a lot of makeover work to do in a relatively short time and no end of problems for the next generation of business and government leaders to solve.

CONCLUSION

The workforce challenge Canadians face is, first and foremost, one of structural and paradigm shifts in the economy. In the 1970s and 1980s, the Canadian economy was restructured to meet the challenge of the entry of the huge baby boomer generation into the employed labour force. The result was reasonably successful, but it required a new look at everything from pensions to capital investment, attempts at technology control, certification rules that kept people in training and out of the job market, early and forced "retirement" schemes, and so on. With the demographic changes that have taken place since then, however, it has become clear that this restructuring is no longer working. Indeed, continuing to adhere to it threatens Canadians' standard of living, and could lead to unrest, outmigration, and slow-to-nonexistent economic growth coupled with high inflation. It is not a question solely of the need for changes to government policies, but to business and management practices as well. The way the Canadian economy functions needs a makeover, not because it is failing, but because it is becoming outmoded.

The paradigm shift that realizes that a restructuring is necessary could lead to all kinds of actions that might be seen as wrong, crazy, or just not in keeping with all the work that was done in the past. But the challenge that confronts us is a serious one. We have to start by recognizing that Canadians are entering a world in which labour shortages are permanent, that this not just a phase — like that of the baby boom — to be passed through: the problem will not go away in our lifetimes. Further, the difficulty of making sense of the new paradigm and of rising to the challenge we face is compounded by our having become so comfortable with the way our economy and society currently function. This paper thus hopes to encourage readers to recognize the problem and to begin to think about how it might be resolved.

The paper has presented a model that allows us to look at the scope and nature of possible solutions to the workforce challenge. In a way, much of the exercise is one of attacking myths — that the problem could be solved, perhaps even easily, by relying solely on increasing immigration, productivity, or labour force participation. These approaches, or a combination of them, would help, but none is a magic solution. What is clear, however, is that Canada, and Nova Scotia, cannot afford to do nothing. If nothing changes, in 2026 one job in every eight in Nova Scotia, and in the rest of Canada, will go begging. In that case, the market, as it is presently conditioned by business and government, will definitely "solve" the problem for us, but not, perhaps, in a way we might like.

REFERENCES

Aglietta, Michel, et al. 2005. “Scenarios for Global Ageing: An Investigation with the INGENUE 2 World Model.” ENEPRI Research Report 9. Brussels: European Network of Economic Policy Research Institutes. July.

Conference Board of Canada. 2007. “From Baby Boom to Labour Crunch: Quebec’s Impending Labour Shortage.” *Executive Action*, December.

Guillemette, Yvan, and William B.P. Rbson. 2007. “Realistic Expectations: Demographics and the Pursuit of Prosperity in Saskatchewan.” *Backgrounder* 107. Toronto: C.D. Howe Institute. November.

Hewitt, Paul S. 2002. “Retirement Trends Foster Global Stagnation.” Press Release. Washington, DC: Center for Strategic and International Studies. April 5.

Kroehnert, Steffen, Franziska Medicus, and Reiner Klingholz. 2006. *The Demographic State of the Nation: How Sustainable Are Germany’s Regions?* Berlin: Berlin Institute for Population and Development.

Matthews, Deborah Drake. 2006. “Can Immigration Compensate for Below-Replacement Fertility? The Consequences of the Unbalanced Settlement of Immigrants in Canadian Cities, 2001-2051.” PhD thesis, University of Western Ontario.

Ruggeri, Joe, and Yang Zou. 2005. “From Labour Surpluses to Labour Constraints in New Brunswick.” In *Rendez-Vous Immigration 2004: Immigration in New Brunswick, Issues and Challenges*, edited by Hélène Destrempes and Joe Ruggeri. Fredericton, NB: University of New Brunswick, Policy Studies Centre.

Skipper, John. 2006. “Iowa faces labor shortage in next few years.” *Globe Gazette* (Mason City, IA), September 3.

Statistics Canada. 2006a. *Participation and Activity Limitation Survey 2006: Disability in Canada*. Cat. 89-628-XWE2007002. Ottawa.

———. 2006b. *A Portrait of Seniors in Canada*. Cat. 89-519-XPE. Ottawa.

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