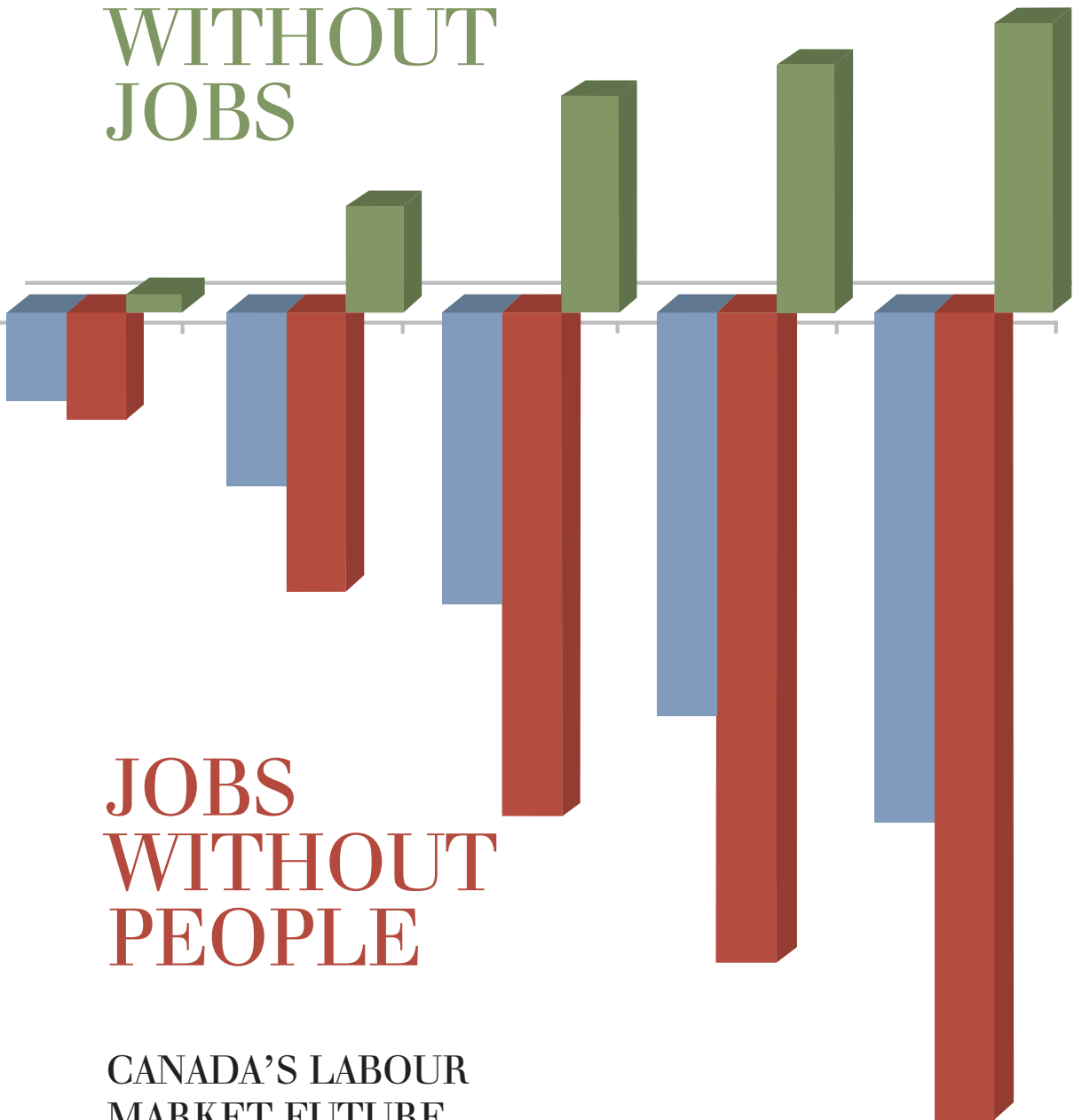


PEOPLE
WITHOUT
JOBS



JOBS
WITHOUT
PEOPLE

CANADA'S LABOUR
MARKET FUTURE

Rick Miner, Ph.D.
March 2010

MINER

MANAGEMENT CONSULTANTS

www.minerandminer.ca

ACKNOWLEDGEMENTS

First, a sincere thank you to all those colleagues who took the time to review earlier versions of this report. Your willingness to provide supportive and critical comments was most appreciated and contributed significantly to the form and content of the final document. Because of the enormity of their involvement, I would like to publically recognize two of these colleagues. David Cameron provided invaluable writing and editorial assistance. He has an astonishing ability to make complex issues understandable and help readers

comprehend the relevance of what has been discovered. It is a talent that deserves to be recognized. Suzanne Dwyer is an exceptional researcher who can not only “find things” but creates visual images that tell a story and complement David’s written communication skills. To both of you, thanks does not adequately cover the contributions you have made, but it is provided as a way of recognizing your significant involvement.

EXECUTIVE SUMMARY

While much of the world is understandably focused on the current recession, there is a looming demographic and labour market crisis which has the potential to shake the very foundations of our society and economy.

THIS CRISIS ARISES FROM THE INTERSECTION OF TWO MEGA-TRENDS: AN AGING POPULATION AND AN EMERGING KNOWLEDGE ECONOMY.

Our population is aging; as the baby boomer generation advances into the age of normal retirement, there will be a significant decline in the proportion of our population in the prime working years (15 to 64). Using Human Resources and Skills Development Canada and Statistics Canada data, the projected shortfall in the availability of workers is shown to rise to at least 1.4 million and to as high as 3.9 million by 2031, depending on our levels of population growth. Even in the midst of a recession, we have to understand that a labour shortage looms.

Unfortunately, this is only half of the bad news. At the same time as our population is aging, the requirements of the labour market are changing. With the emergence of the knowledge economy, the proportion of the labour force requiring some form of education or training beyond high school will increase dramatically. Using a variety of Canadian and U.S. estimates, it is concluded that

by 2031 we will need 77% of our workforce to have post-secondary credentials (apprenticeship, university, college, industry, professional). Overall, we now stand at about 60%, with our younger population (25 to 34 years of age) at just over 66%.

So, we will need both a larger workforce and increased skills. For potential solutions, increasing the size of the population (immigration) with more skilled workers could help, but it will not solve the problem. Increasing the participation rates of those currently under-represented in the labour force is another option that needs to be explored, as do ways of accelerating graduations, increasing employer-provided training, improving literacy rates, and creating a more unified educational system. But what is most clearly needed is a change in our society's attitude towards post-secondary education. We have to accept attainment of post-secondary education or training as the expectation for all but a small minority of Canadians.

Without effective action, we face a future with large numbers of unskilled workers looking for jobs that require skills they do not possess, and a large number of jobs that will go unfilled. The time for action is now. It will take planning, hard work, cooperation, and difficult decisions to secure our future. An alternative outcome is simply unacceptable.

PEOPLE WITHOUT JOBS | JOBS WITHOUT PEOPLE

CANADA'S LABOUR MARKET FUTURE

One of the most dramatic and far-reaching transformations of Canada's education system was foreshadowed by the arrival of the baby boomer generation, beginning in the U.S. in 1946 and a year later in Canada. They kept arriving for another seventeen years or so, to be followed by a second bulge as the children of the boomers, the so-called baby boom echo, swelled the system once again. In the process, Canada's provincial educational systems were utterly transformed: new schools were opened almost on a daily basis, the high school curricula were completely revamped, new universities were established, affiliated institutions gained their independence, and new and unique systems of community colleges came on the scene. In 2011-2012, just over a year from now, the first of the baby boomers will reach the age of 65 and most will retire, although the lure of "Freedom 55," particularly for those in the public sector, has already started that process.

Just as the arrival of the boomer generation transformed Canada's educational systems, the pending retirements promise to present Canada, its provinces and territories, with challenges to public policy that will prove to be no less severe. As this paper will show, Canada – indeed most countries in the developed world – is about to encounter a set of demographic changes so profound that, if appropriate policy responses are not devised, and quickly, they have the potential

to shake the very foundations of our society and our economy. Some countries have already begun to adapt in response to this challenge (EFMD, 2007). Canada cannot afford to be left behind.

This paper reviews what we know about the demographic changes in store, analyses the implications for Canada's labour force, and discusses a range of policy options that governments, industry, and our post-secondary institutions will have to consider. It also identifies an urgent challenge that is about to face our post-secondary system, a challenge that has not been part of the policy discourse to date.

A word of warning before we begin our detailed analysis. Right now, it is perhaps understandable that the world has its attention focused on the prospects of economic recovery, after the calamity of the recent recession. As understandable as it may be, it would be truly unfortunate if the focus on economic recovery were to blind us to the demographic reality that lies just around the corner. We know the economy will recover, hopefully sooner rather than later. Ironically, if it takes a little longer, we may have a little more time to confront the demographic change that literally stares us in the face. Indeed, what we have to understand is that if we do not meet the challenge of an aging population, we may discover we have limited our ability to accelerate economic growth.

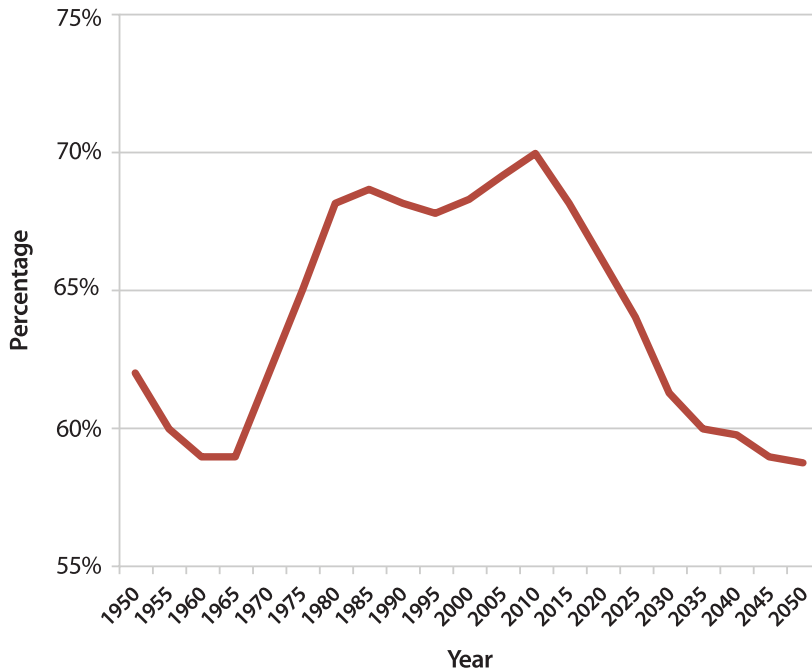
OUR AGING POPULATION

Let us begin by confronting what we know about the impact of the aging boomer generation.

Figure 1 (Barnett, 2007) presents a graphic

work (15 to 64) and out into retirement (65 and beyond). It is no coincidence, therefore, that the increase in the working age population began in

Figure 1. Percentage of Total Canadian Population, 15 - 64 Years of Age



Source: Russell Barnett, Bank of Canada Review, Summer 2007, p.7

representation of the historical and future impact of the aging population on Canada’s workforce. The proportion of our population in the prime working years (15 to 64) increased from below 60% in the mid 1960s to near 70% by 1980, with a projected peak of 70% by 2010/2011. After 2011, Canada’s population in these prime working years will decline dramatically, falling to 61% by 2030, and continuing to decrease thereafter, to reach 59% by 2050.

There is nothing magic about these projections. We are simply watching the baby boom “bulge” in the population work its way through the years of childhood, into the prime years of productive

1965, 19 years after the birth of the first baby boomer, and will begin to decline in 2011 when that same baby boomer reaches the age of normal retirement at 65.

Projections, of course, are not predictions. Circumstances can change. The birth rate could, for whatever reason, increase. Immigration could shift Canada’s demographic reality. But we need to keep in mind that the vast majority of those who will make up Canada’s labour force in 2030 have already been born and are now living in our midst. Yes, things can change, but only by degree.

The basic structure of Canada’s labour force of the coming decades is already in place and is not amenable to more than incremental change without dramatic policy modifications.

WHAT WE HAVE TO CONFRONT IS THE FACT THAT WHILE THE TOTAL POPULATION OF CANADA WILL CONTINUE TO GROW, MUCH OF THAT GROWTH WILL CONSIST OF PEOPLE OVER 65 YEARS OF AGE. WHAT THIS MEANS IS THAT THERE WILL BE FEWER AND FEWER PEOPLE IN THE LABOUR FORCE.

Yet that shrinking labour force will have to support a larger and larger number of people who will need

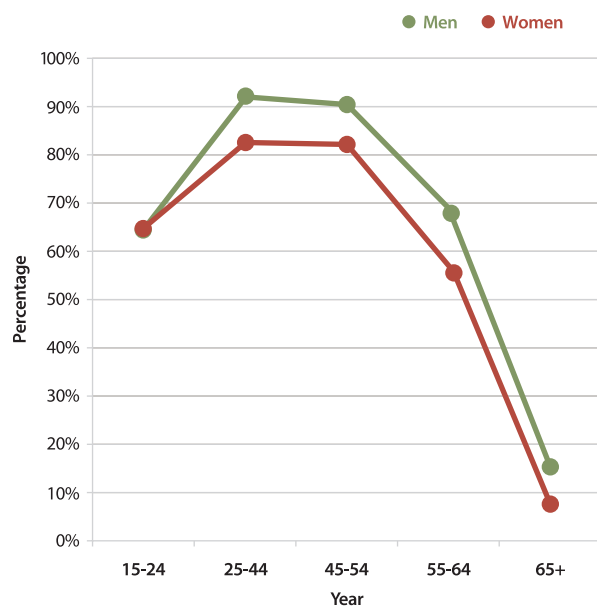
and expect a variety of services, some of which will become very expensive. Health care, pensions, and old age assistance, for example, will have to be paid for by a shrinking population of working citizens. In fact, Canada's dependency ratio, the proportion of the population under 15 and over 65, will increase from 44% in 2006 to 61% by 2031 (Statistics Canada, 2005). The provincial variations are even more frightening. In some provinces (NFLD, NS, NB, SASK) this ratio will be 69% to 70%. The implications of this reality will be manifold. It is a future that we must take seriously and prepare for. Planning must start now, not tomorrow.

The demographic shift that is upon us will result in a continuous decline in workforce participation rates. According to Dugan and Robidoux (1999, p.49), "...looking ahead, the ... participation rate will continue to fall gradually as a result of downward pressure from demographic changes. By 2015, it is estimated it will be at about 63 per cent..." with an overall fall of 8%.

Figures 2 and 3 present a more current analysis, using 2008 data. This was done by taking current labour force participation rates, and calculating the impact of the projection of an aging population. In Figure 2 (Statistics Canada, 2009a) we see how these rates vary by age and gender. The highest rates for both men and women occur between the ages of 25 and 54, with participation rates dropping significantly after 55 and falling to just over and under 10% for men and women respectively at the historic age of retirement (65+). The lower rates for younger people (15 to 24) simply reflect the fact that many of them are still in high school or enrolled in a post-secondary program.

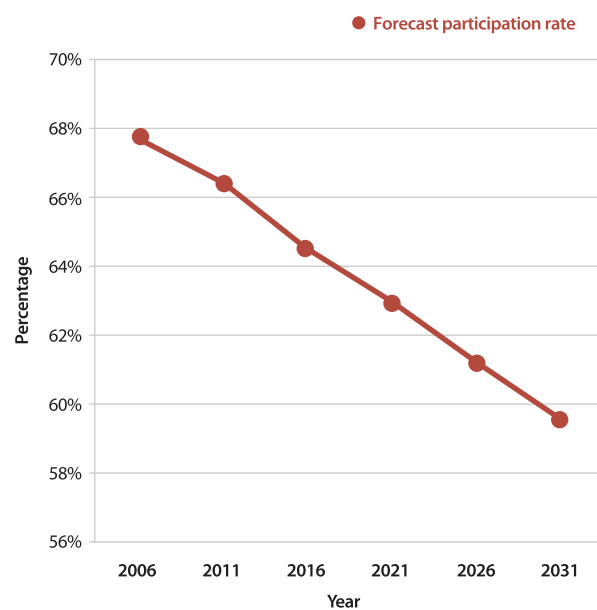
Clearly, gender makes a difference, reflected in the consistently lower participation rates for women as compared to men. In Figure 3 we use the same approach to calculate the projected change in the labour force participation rates for

Figure 2. Canada Participation Rates by Gender and Age: 2008



Source: Statistics Canada, 2009a

Figure 3. Canada Labour Force Participation Rate Changes: 2006 to 2031



Source: Created using Statistics Canada data

Canada, indicating a decline from 68% in 2006 to just below 60% by 2031.

Using this approach, the current participation rate for Canada turns out to be almost identical to that calculated for Canada by Dugan and Robidoux (1999).

So, we can safely assume that Canada is about to face a dramatic change in the structure of the workforce as the population continues to age, and an increasing proportion of the population reaches the normal age of retirement. What is less obvious is what the impact of these changes will be on the lives and well-being of the population. Will they create problems? If so, how serious will they be, and when will they occur? To get a clearer picture of what the future portends, we need to know more precisely what the population of Canada will look like and, more particularly, what the size of the labour force will have to be to maintain our economic viability.

Before proceeding a word of caution is in order. When a national analysis is conducted one runs the risk of unintentionally ignoring provincial variations. Obviously, as will be pointed out, there are significant demographic and educational attainment differences from province to province that will tell a slightly different story at the provincial level. Such an analysis has been done for Ontario (Miner, 2010). However, others can use their provincial labour force participation rates, educational attainment levels and demographic shifts to approximate where they stand compared to the Canadian results which will be provided.

IMPACT ON THE LABOUR FORCE

Statistics Canada (2005) produced six population projections covering the years from 2005 to 2031. Three of these projections have been selected to represent high (scenario 6), medium (scenario 3) and low (scenario 1) population assumptions. These results change based on differing immigration, emigration, birth and death assumptions.

For our labour market demand calculations, two approaches were employed. The first was to use Human Resources and Skills Development Canada (HRSDC, 2007) labour force demand projections through 2015, an 0.8% increase to 2021 and then assume a very modest growth rate of 0.7% through 2031. The second option was to use the demographic projections and employ a historic workforce participation rate to determine the labour force demand. While the estimates for both methods were similar, the first option was selected because it resulted in a more conservative

estimate of labour force demand. Also, as was shown in the Ontario study (Miner, 2010), the impact of the current recession had little impact on the longer-term labour force projections.

On the basis of the information contained in these data, we can now begin to see (Figure 4) the projected impact of the demographic changes on the Canadian labour force. We begin with the blue line, which portrays the total population aged 15 and above, using Statistics Canada's medium population projection. Next come the three lines portrayed in shades of red. These are taken from the three population projections, but have been converted into labour force estimates of supply or availability. This was done by applying the 2008 labour force participation rates by age and gender to the three estimates of growth in population aged 15 and over (high, medium and low). At this point, one can observe that the

measure of labour force availability is sensitive to the population projection used. By 2031, the high population growth rate yields a projected availability of workers of some 21.1 million Canadians. This would fall to 19.9 million for the medium growth rate, and 18.6 million for the low growth rate.

Now we come to the most telling feature of this graph. The green line represents the projected demand for labour based on our labour force demand calculations (HRSDC, 2007). By 2011, there will be a demand for 19.4 million workers. This will increase to 22.6 million by 2031. The remarkable feature of these projections is that demand for labour is projected to outstrip supply under all three projections of labour availability. The reason, of course, takes us back to the fact that the population is aging, the baby boom population “bulge” is about to enter the traditional age of retirement, and Canada’s labour force participation rate is therefore going to fall. The inevitable result, if something is not done to change things, is that the demand for labour will increasingly outstrip supply.

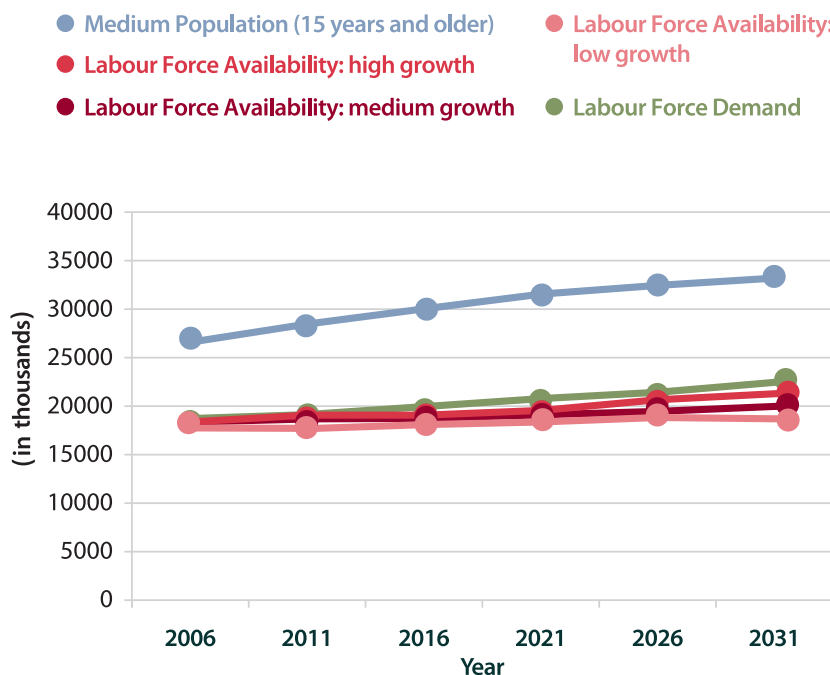
The same data are shown in a different way in

Figure 5, which depicts the actual shortfalls in the supply of labour under each of the three assumptions of labour force growth. The implications of the high growth assumption are relatively modest, at least in the early years.

By 2011, the high growth assumption yields a deficit of just 361,000 workers. This would swell to more than 584,000 if the slow growth assumption were to materialize, but this is probably still a manageable situation. The situation changes dramatically, however, as we move farther into the future and the impact of the aging boomers cuts more deeply. By 2021, for example, the medium growth assumption yields a workforce deficit of some 1.5 million. By 2026, this rises to 2.1 million, and by 2031 it goes to 2.7 million. A high population growth rate modifies this projection considerably, but the deficit in the labour supply still reaches more than 1.4 million by 2031. A low growth outcome would have catastrophic consequences, with the deficit between labour force supply and demand passing the 3.9 million mark. Any of these outcomes, and certainly the medium or low population

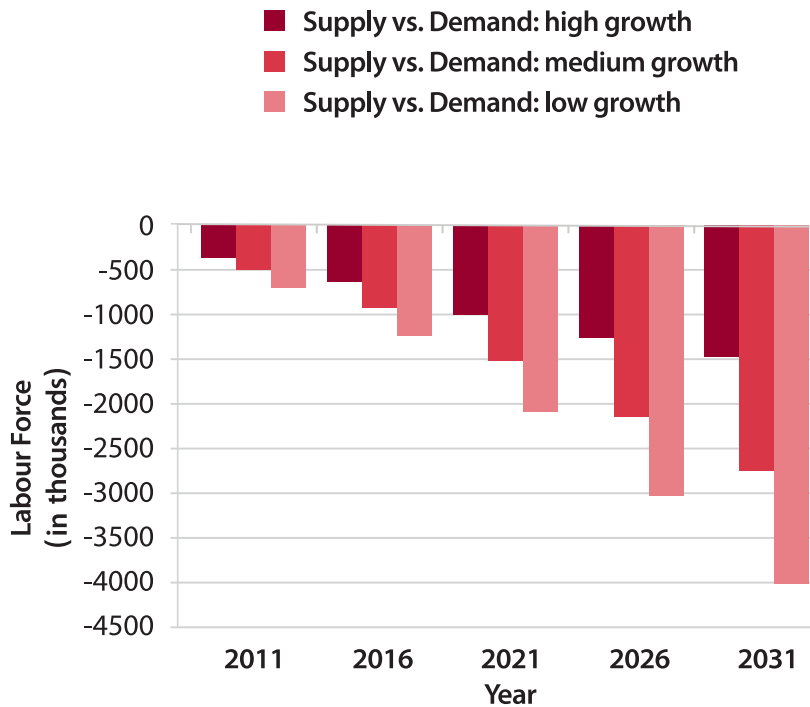
assumptions, would have most serious implications for Canada’s economy, implications that would last years into the future. So, we have now established the nature and magnitude of the impending challenge to our labour supply as the aging baby boom generation moves into retirement. This will have difficult consequences for society and the economy. But those difficulties will be compounded by another phenomenon that is developing apace: the emergence of a knowledge economy and the premium it places on a skilled labour force.

Figure 4. Canada Population and Workforce Projections: 2006 - 2031



Source: Statistics Canada and HRSDC

Figure 5. Canada Labour Force Supply and Demand: High, Medium and Low Population Growth Projections



THE EMERGING KNOWLEDGE ECONOMY

Thus far we have established that Canada’s future economic success will require an expanded workforce achieved by means of an increased population and/or participation rate. But the question now becomes: what kind of workforce? It is beyond the scope of this analysis to explore in detail provincial variations or the actual jobs that will be required in the future. Many of them do not even exist at present. What we do know is that an increasing proportion of the jobs that will exist will require a level of education or training beyond secondary school, be it an apprenticeship, a diploma, a degree, a certificate, an industry

credential, or a professional qualification. To keep the analysis as simple as possible, we consider all forms of post-secondary education or training to have achieved the skilled threshold. So, how many skilled workers will Canada need?

The federal department of Human Resources and Skills Development Canada in 2007 provided what might be taken as the minimum requirement. They said “About 65% of all new jobs created over the next five years are expected to require some form of post-secondary education/training” (Service Canada, 2007, p.3). An earlier study by the Government of British Columbia put the level

somewhat higher: "Forecasts for employment by education and training ... indicate that three quarters (75%) of new and replacement jobs ... will require at least some post-secondary education and/or training equivalent" (BC Ministry of Skills, Training and Education, 1997, p. 1). A more recent study (Ministry of Advanced Education and Labour Market Development, 2009) in British Columbia put the proportion of skilled workers required in the future at 76.2%.

A similar sentiment, if not exactly quantified, was echoed in a recent study by the Obama administration in the U.S. "In general, the U.S. appears to be shifting towards jobs that require workers with greater analytical and interpretive skills – skills that are typically acquired with some post-secondary education" (Executive Office of the President Council of Economic Advisors, July 2009, p. 21). Moreover, the study noted (p. 22), "Undoubtedly, some of the fastest growing jobs over the next decade have yet to be identified.... For example, in 2003 a quarter of ... [current] jobs ... were not even listed among the Census Bureau's occupational codes in 1967."

On a more predictive note, the futurist Adam Gordon (2009) has listed 23 jobs that do not currently exist but will in the next decade or so. Gordon's future jobs include nano-mechanic, old age wellness manager, memory augmentation surgeon, weather modification police, waste data handler, social networking worker, and personal brander. The point is not whether these precise jobs will actually emerge in the future. The point is that they, or jobs like them, are the jobs of the future and will require more than a high school graduation certificate. Keep in mind that 20 years ago the Internet was virtually unknown.

Still, in the United States, Holzer and Lerman (2007) predicted that fully 78% of job openings between 2004 and 2014 will require education or training beyond high school. And in the same

vein, the U.S.-based Lumina Foundation (2009, p. 2) predicted that without change to a more educated workforce, there will be a shortage of 16-million post-secondary educated adults in America by 2025.

THE ONTARIO MINISTRY OF EDUCATION (2005) CONCLUDED THAT 81% OF THE NEW JOBS CREATED IN THE PROVINCE BETWEEN 1996 AND 2001 REQUIRED MANAGEMENT TRAINING, APPRENTICESHIP TRAINING, OR A COLLEGE OR UNIVERSITY DIPLOMA OR DEGREE.

What is truly amazing is that while these studies vary in the details of their analysis, they all agree on the nature and direction of the changes that are occurring and can be expected to continue and accelerate. What is also revealed is the fact that there are actually two types of "new" jobs being created. One is the type envisaged by Adam Gordon and documented in reference to the U.S. occupational codes. These are jobs that are truly new, that literally did not previously exist. The second type are jobs that have changed so much over time that while their names may or may not remain, the actual work done and the training required are so different as to qualify them as new. It has been estimated that jobs evolve approximately every 15 years. After 15 years a job that could be done by an unskilled worker will require skilled training as the result of technological change, increased responsibility, and/or different processes or systems.

What this all comes down to is confirmation that a more highly educated and trained workforce will be needed. What we need now is to address the question of how much. What proportion of the workforce will need to be skilled and what proportion unskilled? What assumptions can we reasonably make about Canada's future skill requirements?

CANADA'S FUTURE SKILL REQUIREMENTS

We begin by taking the most conservative of the projections of Canada's skilled workforce requirements by Human Resources and Skills Development Canada (Service Canada, 2007), which put the proportion of new jobs that will require skilled workers at 65%. Since all the other predictions are higher, and some significantly so, it is assumed that this rate will increase to 70% by 2011 and that it will increase by 0.5% (half a percent) every year to reach 80% by 2031. Even here, the 2031 assumption is lower than the conclusion reached by the Ontario Ministry of Education and only slightly above the British Columbia and U.S. predictions that were for a much earlier time frame. Hence, the projections are seen to be "conservative." These data are presented in the first line of Table 1 below.

achievement. What is even more impressive is that in the age group 25 to 34, fully 66.6% had attained that level (CCL, 2009, p.119). Norrie and Lin (2009) propose that with even a younger Ontario group (ages 20 to 24), the percentage might be 70% if one assumes all students complete their credentials. Hence, an estimate in the mid to high 60s seems to be reasonable. Based on that knowledge, we can reasonably assume that the impact of the younger, better educated workforce will gradually work its way through the population, increasing the overall level of education and training even if we did nothing more. On this basis, we can assume that by 2031 some 66% of the workforce will have a post-secondary credential. Yet again provincial differences exist. Using 2006 census data we find the provincial post-secondary

Table 1: Labour Force Skill Assumptions

	2006	2011	2016	2021	2026	2031
New Job Skill Requirements	65.0%	70.0%	72.5%	75.0%	77.5%	80.0%
Labour Force Skill Availability	60.0%	62.0%	63.0%	64.0%	65.0%	66.0%
Overall Labour Force Skill Requirements	60.0%	63.4%	67.4%	71.9%	74.3%	76.7%

The second line in Table 1 shows our actual current and projected skilled labour force. Based on 2006 Canadian census data, the Canadian Council on Learning (CCL) reported that six out of ten, i.e. 60%, of Canadians between the ages of 25 to 64 "...had completed some form of PSE..." (2009, p. 113). This placed Canada among the highest in the world in terms of educational

attainment rates for those 25 to 64 vary from 53% to 62% with NFLD, NB, MAN and SASK on the low side and BC, ALB, ONT, QUE and NS on the high side (Statistics Canada, 2009b).

From here we calculate the third line of the table, which is an estimate of the proportion of skilled workers required. This is essentially a blend of the first two lines, based on the

assumptions that most new jobs will be filled by skilled workers but that some unskilled workers will continue to be required. Thus, by 2031 about 77% of the workforce will need to have post-secondary education or training.

The question now, of course, is whether the projected demand for skilled workers is in balance with the projected supply or, as the case may be, to what extent and in what direction is there an imbalance.

SUPPLY AND DEMAND: A LOOMING IMBALANCE

To answer these questions, we need to separate out the projections for skilled and unskilled workers. We do this by separately combining the skill requirements using the three population scenarios (high, medium and low) provided by Statistics Canada (2005) with the skill requirements portrayed in Table 1. With these data we can calculate the skilled and unskilled workers that will be required through 2031. Figures 6 and 7 show the results of this analysis for the medium and high growth scenarios respectively.

In both cases, the red bars represent the total labour force shortage (below the line). These are the same results as shown earlier in Figure 5. The green and mauve bars represent the shortage or surplus of skilled (mauve) and unskilled (green) labour shown separately. As we can plainly see, a new dimension becomes evident. What we see at once is far more complex and alarming.

Figure 6. Canada Labour Force Balance: Medium Population Growth

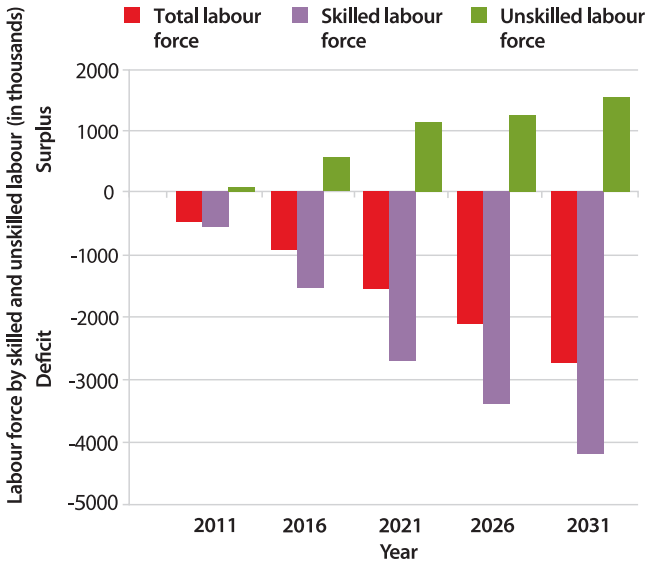


Figure 7. Canada Labour Force Balance: High Population Growth



SHORTAGE IN THE MIDST OF SURPLUS

UNLESS WE TAKE EFFECTIVE ACTION TO INCREASE THE PROPORTION OF SKILLED LABOUR IN OUR ECONOMY, WE FACE A FUTURE WITH LARGE NUMBERS OF UNSKILLED WORKERS LOOKING FOR JOBS THAT REQUIRE SKILLS THEY DO NOT POSSESS.

This is the clear consequence of combining the current trend in education and training with the movement towards a knowledge-based economy.

If we take the medium population growth model shown in Figure 6, we see that by 2016 there will be almost 550,000 unskilled workers (green bar) who will not be able to qualify for the skilled vacancies that will exist. Again, unless something is done to correct the situation, this figure will rise to 1.1 million by 2021. At the very same time, we will have some 1.5 million skilled vacancies (mauve bar) by 2016. This figure will grow almost exponentially to well over 2.6 million by 2021 and approach 4.2 million by 2031. To repeat, if we stay on our present trajectories, and assuming the medium population growth model, which seems to be our current direction, we are headed to a situation where large numbers of people will be looking for work but cannot find it because they lack the skills required. At the very same time, an even larger number of jobs will go unfilled because there are not the skilled workers qualified to fill them. This exact situation has recently been highlighted in a Canadian Press article (Kelley, 2009) where high technology companies in Waterloo,

Ontario, have vacancies they cannot fill in the middle of a recession.

The high population growth model shown in Figure 7 may appear at first sight to be somewhat more manageable, given the lower level of overall labour market shortages projected (red bar). But on closer examination, the situation may not be so simple since there would also be a much larger group of unskilled workers seeking work. The social consequences of such a situation are barely imaginable. The results of the low population growth model were calculated but not shown for the simple reason that they are unacceptably alarming.

What these data demonstrate is that there are two challenges emerging simultaneously. On the one hand, we need to find ways to increase Canada's labour force and/or its participation rate to compensate for the consequences of the baby boomers' retirements. At the same time, we need to find ways to increase the skill levels of the workforce in order to adapt to the transition to a more knowledge-based economy. Can we do this? We begin the search for solutions by examining some of the options that can be considered.

If we are to meet the challenge that faces Canada, we have to look at two ways of addressing the problem. One is to find ways to increase the population base. The second is to increase the workforce participation of skilled workers. The two, of course, are not mutually exclusive. We turn first to the challenge of increasing Canada's workforce population.

THE SEARCH FOR SOLUTIONS: GROWING OUR WORKFORCE

INCREASING IMMIGRATION HAS OFTEN BEEN PROFFERED AS A MEANS OF INCREASING THE TOTAL NUMBER OF WORKERS. DRAMATICALLY INCREASING THE NUMBER OF NEW CANADIANS COULD MITIGATE THE PROBLEM PROVIDED THEY HAD THE NECESSARY SKILLS.

However, experience reveals some real limitations to this as a possible strategy. For one thing, immigrants are disproportionately represented in our large urban areas (Toronto, Montreal, and Vancouver) and we have yet to find ways to encourage them to reside in areas that have greater demographic challenges. Second, there are often difficulties getting foreign credentials recognized as equivalent to Canadian standards. Language skills can be a barrier, as can difficulty obtaining relevant Canadian work experience. Indeed, the reasons behind the difficulties facing many immigrants in their transition to productive employment have much to do with the very issue we are here addressing: the movement to a knowledge-based economy. In an earlier era, immigrants with a strong back, a healthy body and a willingness to work hard could find employment even if not at the level for which they had been trained. Those jobs are now

disappearing. Knowledge is now at a premium, and the reason many people were recruited or encouraged to come to Canada has been based on their education and training. But our own institutional barriers serve as roadblocks to their integration.

Table 2 brings this issue into sharper focus. Using 2007 data (Statistics Canada, 2008a) and comparing individuals at the peak of their employable years (25 to 54), what becomes clear is that immigrants do not fare as well as native-born Canadians in terms of their employability. While on average 88% of all Canadians are in the labour force, the proportion for recent immigrants is 73%. Even after ten or more years in Canada, the rate of workforce participation for established immigrants is marginally below that for native-born Canadians. The conclusion is clear: simply recruiting more immigrants as we are now doing will not solve our problem. For increased immigration to contribute to increasing our overall labour force participation, the immigrants admitted would need to have educational or training credentials, language capabilities, and work experience that are much more readily accepted so that little, if any, additional qualifications are required. Moreover, they need to be younger, so that they will be in the workforce for a longer period of time. We must also recognize

Table 2. Immigrant vs. Canada Labour Force Participation Rates: 25 - 54 Years of Age

	Canadian ¹	Immigrant ²		
		Very Recent	Recent	Established
Labour Force Participation Rate	87.9%	73.3%	82.3%	86.8%

¹ Born in Canada, ² Very Recent = 5 years or less; Recent = 5 to 10 years; Established = 10 years or more, Source: Statistics Canada, 2008a

that we will not be the only country interested in obtaining more skilled citizens.

A second approach to getting more people in the workforce might be to increase participation rates among groups that are currently under-

Developmental (32.7%), Mobility (53.6%), Memory (40.2%), Agility (52.8%) and Psychological (45.2%).

The growing labour force participation by women has been one of the most profound social phenomena of recent years. In 1976, only

Table 3. Canada Aboriginal Labour Force Participation Rates

Age (years)	Population		
	Total Population ¹	Aboriginal Population	Difference
15 - 24	65.6%	52.0%	13.6%
25 - 54	85.7%	75.8%	9.9%
55 - 64	59.7%	53.3%	6.4%

Source: Statistics Canada, 2008b ¹ Includes the Aboriginal population which makes the difference less

represented. The most prominent of these groups are aboriginals, women, and persons with disabilities.

Table 3 (Statistics Canada, 2008b) shows that regardless of age, the participation rate for aboriginals is significantly lower than for the rest of the population, from six to 14 percentage points lower, depending on the age group compared. Although provincial variations exist, this could be an important source of additional workers, especially since the aboriginal population is growing faster than the general population.

Another group currently under-represented in the labour force consists of people with disabilities. Using 2006 census data, the participation rate for persons with disabilities between the ages of 15 and 64 was only 54.9%. For all other Canadians it was 77.8%, a difference of 22.9%. There is obviously room for growth here. The rates vary widely depending on the type of disability. For example, the labour force participation rates by disability (Statistics Canada, 2008c) include: Hearing (64.1%), Seeing (49.9%), Learning (47.6%),

54.0% of women aged 25 to 44 were in the labour force. For those aged 45 to 54, it was only 48.1%. In contrast, by 2008 those proportions had risen to 82.1% and 81.7%. That is a truly remarkable change in economic and social behaviour, and contributed substantially to the country's overall success. But looking back at Figure 2, we are reminded that the labour force participation rate for women still lags behind that for men in all age categories. There is obviously still some room for growth here.

Increasing participation rates for currently under-represented groups clearly has the potential of at least ameliorating the coming shortages in the labour force, even if it will not completely solve the problem. As Dale Kirby (2009, p. 1) has argued: "With the demographic reality of an aging population and the secondary school population declining, Canada must devote attention to increasing the educational attainment levels for disadvantaged and under-represented groups in order to meet the growing social and economic challenges."

Another potential source of additional workers exists among our young people. If we could modify our educational system to allow students to move through to graduation more quickly, without sacrificing the quality of their education or training, we could get them into the labour force more quickly. Admittedly controversial, it is an option that should at least be considered. How might it work?

The current structure of our high school and most of our post-secondary academic programs is inherited from an agrarian past when students were out of school during the summer months so they could help on the farm. The pattern of two semesters in school and the summer off is now often justified by the need for students to find employment during the summer to help pay for their tuition for the coming school year. But if university students, for example, spent only two of their summers in school, they could be out of school and in the labour force a year earlier. Of course there would be costs associated with such an accelerated program, but there would also be savings. There would need to be adjustments to our student aid support, as recommended by the Canada Millennium Scholarship Foundation (Berger, Motte and Parkin, 2009), in order to avoid increasing the level of student debt and attracting students from lower socio-economic groups. And there would have to be changes in faculty compensation and workload arrangements to facilitate year-round operation. But the savings from increased efficiency could also be substantial. It is at least an idea that is worth further exploration.

Similarly, efficiencies might also be obtained by encouraging the various players and provinces involved in the post-secondary education system

to work more closely together for the benefit of students. Credit transfer arrangements are often a nightmare for students who want or need to move between universities or between a college and a university or vice versa. Some provinces do this better than others but there is still considerable room for improvement in this regard. The upshot is that students often spend much longer than necessary getting to graduation in the program they have finally chosen because their prior learning experiences were not fairly and effectively recognized.

Another possibility would be to increase the number of joint college-university programs. There is a recent and interesting trend by which Ontario colleges are becoming “finishing schools” for four-year university graduates. Students are increasingly completing a degree and then enrolling in a one- or two-year postgraduate certificate or diploma program in a college. One can expect this trend to emerge in other provinces as well. The concern is not that such arrangements are somehow wasteful and therefore should not be available. Quite the contrary. They reflect a recognition by students that an academic education is often not enough, that an employable skill is also required. The concern is that this skill component could be built into the program, obviating the need for an extra year, or two, before employment. In the United States, there has been a renewed debate over the “reinstatement” of the old three-year B. A. (Goldstein, 2009). A similar and recent call (Clark, Moran, Skolnik and Trick, 2009) has also been heard in Canada. This change, coupled with a college skills program, might be an option to consider.

There is also a need to improve relations

between high schools and both universities and colleges. While high school graduation rates have generally improved in all provinces, averaging around 75%, there is still a need to do better. Attrition is attributed to students not being effectively engaged in their schooling (Willms, Friesen and Milton, 2009) and not seeing its value for their future lives. Are there not ways to get the various players to work more effectively together for the benefit of students, so that the barriers that currently exist between the components of the system are at least reduced, if not eliminated? The goal should be to make the transition from one component of the system to another as seamless as possible. Among the possibilities to be considered might be joint programming, teacher exchanges, prior learning assessments, etc. What we have to recognize is that students who drop out of school are much more likely to be unemployed. Many will find their way back to school eventually, whether high school, college, or university, but in the meantime they have lost valuable time and the economy has lost valuable skills. Given the high levels of interprovincial student mobility and the need for Canada to increase its educational attainment levels, in order to remain competitive, isn't it now time for some federal leadership?

Of course, one obvious means of increasing participation in the labour force is to address the very cause of the problem in the first place: the impending retirement of the baby boom generation. Referring back to Figure 2, it is evident that participation rates start falling in the 55 to 64 age group and virtually disappear after the age of 65. Given the ever-increasing size of this group, even small increases in

participation rates would have a very substantial impact on the availability of labour. For example, using the medium population growth model for 2031, if the participation rate increased by just five percentage points for those aged 55 and older, then 695,000 people would be added to the labour force. The trick, of course, is to find a way of doing this without resorting to draconian measures. Perhaps changes to the tax system would work. Or perhaps a scheme by which people might be assisted in making the transition to retirement gradually, so they could enjoy greater leisure but not drop out of the workforce entirely. Perhaps mentoring programs could assist in the gradual transfer of skills to a younger generation. Might entrepreneurial programs help to develop a whole new generation of "grey" business persons who could work according to their own schedule? Would making age discrimination illegal help? Can pension arrangements be changed?

Not all of these ideas will prove to be feasible or even acceptable, but the list of possibilities is sufficiently long that it is reasonable to assume that we can, in fact, increase the size of Canada's labour force to compensate for the aging population. Some combination of changes to our immigration policies, accelerated learning and training experiences for young people, positive improvements in the involvement of historically under-represented groups and higher participation rates among the older portion of our workforce may indeed yield positive results. But then we have to face the second challenge. We have to find ways to ensure that a larger proportion of this labour force is qualified as skilled.

THE SEARCH FOR SOLUTIONS: GROWING OUR SKILLED WORKFORCE

While we cannot say precisely what skills will be required in Canada's economy of the future, we do know that more and more of those in the labour force will need an education or training that goes beyond high school. Historically, technological advances have increased rather than decreased the need for both the volume and type of skilled labour. This means an apprenticeship, college, polytechnic, university or industry certificate must become the norm for the vast majority of Canadians.

FOR SOME, THE GREATEST HURDLE IN REACHING THIS GOAL WILL BE TO ACCEPT THE REALITY OF ITS NECESSITY.

We know that people with higher levels of education earn more, are healthier, are less likely to be involved in crime, and are more satisfied with their lives. Yet too many people are either unaware of this, or do not accept its relevance for them. Too many high school students drop out before graduation. Our graduation rates are too low at 75%. In short, we have to change attitudes and expectations. We have to get more people to see further education not as an expense but as a necessity.

Canadian industry is clearly both part of the problem and part of the solution. It has not been as fully engaged in its training responsibilities as it could be. According to the Canadian Council on Learning, employer-sponsored training was virtually stagnant between 1997 and 2002 (CCL, 2007). According to the same source, one-third of Canadian workers report unmet training needs in their workplace (CCL, 2007, p.3).

Canadian firms spent only 1.5% of their payroll on training (Campbell and Hughes, 2009). The U.S. average is 2.25%. Historically, British Columbia, Alberta, Saskatchewan, Manitoba, Nova Scotia, and New Brunswick seem to spend more than the rest (Peters, 2004).

When asked, employers provide explanations. They fear poaching by other firms, they cite the lack of government assistance, and they claim not to be aware of training options. The list goes on: lack of time; difficulty in calculating the return on investment in training; the high cost of customized training; a belief that training is not the responsibility of business; and a claim that employees are not really interested (Hughes and Grant, 2007).

Employees also share responsibility for the low investment in training. Even when given the opportunity to take advantage of further education or training, employees often take a pass. They indicate further training is not needed, they claim they were not aware of their options, they say the costs are too high, they also claim they do not have enough time, they lack confidence in their abilities, and they sometimes claim that training is not a priority for them or they simply are not interested.

We also have a large group of young people who will remain unemployed or at best fill occasional, unskilled jobs because they have chosen to terminate their learning too soon. They are mostly male. They dropped out of school before graduation. They are from lower socio-economic families. They are not sure of the benefits of further schooling and, indeed, they are uncertain about their own future. And they often lack good role models.

Here we confront one of the two fundamental problems that we have to address and resolve if we are to grow the skill level of our labour force. We have to change the attitudes of many in our society, both employers and employees. Indeed, this is a challenge that has to be taken up by all sectors of society: government, business, unions and non-unionized employees, and our educational institutions. The challenge is to move the proportion of skilled workers from the existing level of 60% to at least 77%. And we have to accomplish this by 2031 or so. This will take planning, hard work and cooperation.

And it has to start now.

There is a second problem that we will also have to overcome. We have an appalling rate of illiteracy in this country. Using Statistics Canada data, ABC Canada estimates that four out of 10 Canadians aged 16 to 65 struggle with low literacy rates to the point that their ability to advance their skills training is inhibited. The illiteracy rate among immigrants is six in 10 (ABC, 2009). So we have to add illiteracy to the list of barriers to our ability to upgrade our workforce. Yet only 2.2% of our workplace training expenditures are devoted to basic skills training (CCL, 2007, p. 3).

CONCLUSION: THE NEED FOR ACTION

WE HAVE A TWO-FOLD TASK AHEAD OF US.
WE NEED TO INCREASE OUR LABOUR FORCE,
AND WE NEED TO INCREASE THE PROPORTION
OF THE LABOUR FORCE WITH POST-SECONDARY
EDUCATION OR TRAINING.

There is a lot to be done and not a lot of time in which to do it. The Council of Ministers of Education of Canada has recognized that "Canada must develop an accessible, diversified and integrated system of adult education learning and skills development that delivers training when Canadians need it" (Learn Canada 2020, April 2008, p. 1). Yet, as Dale Kirby observed, "Despite considerable rhetoric about the need for a learning society and the importance of lifelong learning for Canada to remain or become a competitive knowledge-based economy, the progress in effectively supporting adult and older learners has been disconcertingly slow. Adult education participation levels in Canada appear to have remained

relatively stagnant since the early 1990s...." (Kirby, 2009, p. 10). Kirby is right.

Our European neighbours seem to have got the message. The European Foundation for Management Development (EFMD) states "The economy and competitiveness of the companies will much depend on the skills of the workforce. It is mainly in the mind of high skilled workers that we can find innovative solutions and competitive advantage" (EFMD, January 2007, p. 10). Some in Canada get the message, as well. An article by the Canadian Policy Research Network put it this way: "The social and economic importance of encouraging adults to engage in continuous learning throughout their working lives is undisputed" (Myers and de Broucher, June 2006, p. 1).

One recent experience in Ontario sheds some light on the challenge we will face. Ontario's Second Career program has enrolled 20,939 students as of October 2009 (Ministry of Finance, 2009). This program provided one- and two-year educational opportunities, in public and private

colleges, to assist workers who lost their jobs as a result of the recent recession. While things improved later on, the process of getting them in and through programs was painful. There were obvious literacy issues, students were often unprepared, there were territorial battles between various elements of the system, and there were inefficiencies caused by unclear organizational mandates. Nonetheless, in one year more than 20,000 unemployed workers who needed retraining were enrolled. Our projections indicate that over a 25-year period, and based on the Canadian medium population growth projections, we will need to train, retrain, or recruit some 4.2 million workers. That translates into an increase of 168,000 post-secondary “graduates” per year. Of course this will require a significant commitment on the part of many, but we would expect many providers,

growth assumptions, and the needed skill requirements to determine the balance between retraining and growth. In the initial years, retraining unskilled workers should take precedence, both since the resource is readily available and the need is obvious. Unemployment can be reduced and the skill requirement satisfied simultaneously. But there will also be a need to increase the total labour force, through a combination of increasing participation rates and/or an increase in the total workforce population. Nonetheless, if we do our job, by 2026 we will have largely exhausted the pool of unskilled labour that is available for retraining and will have to rely totally on growing the size of the labour force.

In the midst of an economic recession, with significant budget deficits and rising unemployment, it may be difficult for some to accept

Table 4. Skilled Labour Force Sources (Medium Population Projection)

Year	Skilled Workers Needed in Year			Sources of Skilled Workers	
	With No Skill Training Change	If Previous Year Skill Training Needs Met	“Graduates” per year	Retraining Unskilled Workers	Increase Labour Force Participation Needed
2011	560,853	560,853	112,171	87,972	472,881
2016	1,464,115	903,262	180,652	461,776	441,486
2021	2,643,861	1,179,747	235,949	567,840	611,907
2026	3,402,515	758,654	151,731	167,262	591,392
2031	4,204,177	801,662	160,332	218,668	582,995

colleges, universities, polytechnics, employers, associations, unions and private educators to take up the challenge.

We now need to address not just the need for the growth of the total labour force, but also the need for an increased proportion of skilled workers. In Table 4, we use the medium population

the fact that there is a very different, and very problematic future looming on the horizon. The fact of the matter is that unless we adopt proactive policies now, we will face a world in which there will be a lot of people without jobs and simultaneously an even larger number of jobs without people. This is surely not a world

anyone can, or should, look forward to. The current recession may actually provide a breathing spell, giving us a little more time to prepare for the inevitable labour market shortages and surpluses that await us. We know that the recession will pass, as all recessions do, but what we have to accept is that the demographic changes that are coming cannot be wished away. They are real, and their implications are both imminent and frightening. The current recession may affect the timing of our response, but it

cannot affect it by very much. By 2011, the problem will begin to appear. And if we delay our response, then we will find that when we are ready to grow we will be constrained by a workforce that is out of balance with the needs of our economy. The time for action is now. Delay at this point could cost us an important strategic and competitive advantage, if others understand and act on the implication of the emerging knowledge economy and demographic shifts before we do.

REFERENCES

- ABC Canada Literacy Foundation, (2009). *ABC Literacy Facts*. Retrieved from: http://www.abccanada.org/en/adult_literacy/facts.
- Barnett, R. (Summer, 2007). Trend Labour Supply in Canada: Implications of Demographic Shifts and the Increasing Labour Force Attachment of Women. *Bank of Canada Review*.
- Berger, J., Motte, A., and Parkin, A. (Eds.), (2009). *The Price of Knowledge: Access and Student Finance in Canada* (4th ed.). Canada Millennium Scholarship Foundation.
- British Columbia. Ministry of Education, Skills and Training, (1997). *Skills Training and Education and the British Columbia Labour Market: Challenges and Opportunities*. Retrieved from: http://www.llbc.leg.bc.ca/public/PubDocs/bcdocs/294136/Future_Skills_Needs.pdf
- British Columbia. Ministry of Advanced Education and Labour Market Development, (August, 2009). Ten-Year Employment Outlook for British Columbia COPS B.C. Unique Scenario, 2001 - 2017. Retrieved from: http://www.aved.gov.bc.ca/labourmarketinfo/reports/COPS_BC_Unique_Scenario_2007-2017%20.pdf
- Campbell, A. and Hughes, D.P., The Conference Board of Canada, (2009). *Learning and Development Outlook 2009*. Retrieved from: <http://www.conferenceboard.ca/documents.aspx?did=3162>
- Canadian Council on Learning, (2009). *2008-2009 Post-Secondary Education in Canada Meeting our Needs?* Retrieved from: http://www.ccl-cca.ca/pdfs/pse/2009/pse2008_english.pdf
- Canadian Council on Learning. Lessons in Learning, (March, 2007). *Canada's Biggest Economic Challenge: Improving Workplace Learning in Canada*. Retrieved from: http://www.cclcca.ca/ccl/reports/lessonslearning/linl20070315_improving_workplace_learning.htm
- Clark, I., Moran, G., Skolnik, M. and Trick, D. (2009) *Academic Transformation: The Forces Reshaping Higher Education in Ontario*. McGill-Queens University Press.
- The Conference Board of Canada, (2007). *Ontario's Looming Labour Shortage Challenges Projections of Labour Shortages in Ontario and Possible Strategies to Engage Unused and Underutilized Human Resources*.
- Council of Ministers of Education of Canada, (April, 2008). Learn Canada 2020 Joint Declaration Provincial and Territorial Ministers of Education. Retrieved from: <http://www.cmec.ca/Publications/Lists/Publications/Attachments/187/CMEC-2020-DECLARATION.en.pdf>
- Dugan, B., and Robidoux, B. (Summer, 1999). Demographic Shifts and Labour Force Participation Rates in Canada. *Canadian Business Economics*.

EFMD. European Foundation for Management Development, (2007). *Ageing Workforce: What Future for The Knowledge Worker?* Retrieved from: http://www.efmd.org/attachments/tmpl_1_art_070219sqku_att_070219xvqb.pdf

Executive Office of the President of the United States. Council of Economic Advisors, (July, 2009). *Preparing the Workers of Today for the Jobs of Tomorrow.*

Retrieved from: http://www.cfr.org/publication/19850/preparing_the_workers_of_today_for_the_jobs_of_tomorrow.html

Goldstein, E. (8 November, 2009). Renewed Debate Over the 3 Year B.A. *The Chronicle of Higher Education.*

Gordon, A. (13 August, 2009). *Jobs of the Future, Science and Technology Enabled Employment for 2020 -2030.*

Retrieved from: <http://futuresavvy.net/2009/08/jobs-of-the-future-technology-enabled-employment-for-2020-2030/>

Holzer, H., and Lerman, R. Skills 2 Compete Workforce Alliance, (2007).

America's Forgotten Middle-Skill Jobs Education and Training Requirements in the Next Decade and Beyond.

Retrieved from: <http://www.skills2compete.org>

Human Resources and Skills Development Canada (2007). *Looking-Ahead: A 10-Year Outlook for the*

Canadian Labour Market (2006-2015). Retrieved from http://www.rhdcc-hrsdc.gc.ca/eng/publications_resources/research/categories/labour_market_e/sp_615_10_06/page00.shtml

Hughes, D.P., and Grant, M. The Conference Board of Canada, (2007). *Learning and Development*

Outlook 2007. Retrieved from: http://www.wln.ualberta.ca/seminar_resources/learning_devt_outlook2007.pdf

Kelley, S. (12 November, 2009). Jobs Disconnect in RIM's hometown. *The Canadian Press.*

Kirby, D. (April, 2009). Widening Access: Making the Transition from Mass to Universal Post-Secondary Education in Canada. *Journal of Applied Research and Learning*, No. 2, Article 3.

Lumina Foundation for Education (February, 2009).

A Stronger Nation Through Higher Education How and Why America Must Meet a "Big Goal" for College Attainment.

Retrieved from: <http://www.luminafoundation.org/publications>

Miner, R. (February, 2010) *People Without Jobs Jobs Without People: Ontario's Labour Market Future.*

Retrieved from <http://www.collegesontario.org/research/other/people-without-jobs-jobs-without-people-final.pdf>

Ministry of Finance, (2009). *Ontario Economic Outlook and Fiscal Review, Background Papers.*

Queen's Printer for Ontario. Retrieved from: <http://www.fin.gov.on.ca>

Ministry of Education, (2005). *Ontario Learns - Strengthening our Adult Education System.*

Queen's Printer for Ontario. Retrieved from: <http://www.edu.gc.on.ca/adultedreview/ontariolearns.pdf>

Myers, K., and de Boucher, P. (June, 2006). Too Many Left Behind: Canada's Adult Education and Training System. *Canadian Policy Research Network Inc. Research Report*, w/34.

Retrieved from: <http://www.cprn.org/doc.cfm?doc=1479>

Norrie, K. and Lin, S. (November, 2009). Post-secondary Education Attainment and Participation in Ontario. *Higher Education Quality Council of Ontario.*

Retrieved from: <http://www.heqco.ca/SiteCollectionDocuments/FINAL%20PSE%20Attainment%20Research%20Note%20ENG.pdf>

Peters, V. Statistics Canada, (2004). *Working and Training: First Results of the 2003 Adult Education and Training Survey.* Retrieved from: <http://www.statcan.gc.ca/pub/81-595-m/81-595-m2004015-eng.pdf>

Service Canada, (2007). *Job Futures World of Work.* Retrieved from: <http://www.jobfutures.ca/en/brochure/JobFuture.pdf>

Statistics Canada. (December, 2005). *Population Projections for Canada, Provinces and Territories.*

Retrieved from <http://dsp-psd.pwgsc.gc.ca/Collection-R/Statcan/91-520-XIB/91-520-XIB-e.html>

Statistics Canada (2008a) *Labour market outcomes of immigrants aged 25 to 54, by period of landing, Canada*

Retrieved from: <http://www.statcan.gc.ca/pub/71-606-x/2008003/t/5203944-eng.htm>

Statistics Canada, (2008b). *Labour Force Activity (8), Aboriginal Identity (8B), Age Group (13A), Sex (3), and Area of*

Residence (6A) for the Population 15 Years and Over of Canada, Provinces and Territories 2001 and 2006 Census - 20% Sample Data.

Retrieved from: <http://www12.statcan.ca/english/census06/data/topics/RetrieveProduct>

[Table.cfm?ALEVEL=3&APATH=3&CATNO=&DETAIL=0&DIM=&DS=99&FL=0&FREE=0&GAL=0&GC=99&GID=614143&GK=NA&GRP=1&IPS=&METH=0&ORDER=1&PID=92101&PTYPE=88971&RL=0&S=1&SUB=0&ShowAll=No&StartRow=1&Temporal=2006&Theme=74&VID=0&VNAMEE=&VNAMEF=](http://www12.statcan.ca/english/census06/data/topics/RetrieveProductTable.cfm?ALEVEL=3&APATH=3&CATNO=&DETAIL=0&DIM=&DS=99&FL=0&FREE=0&GAL=0&GC=99&GID=614143&GK=NA&GRP=1&IPS=&METH=0&ORDER=1&PID=92101&PTYPE=88971&RL=0&S=1&SUB=0&ShowAll=No&StartRow=1&Temporal=2006&Theme=74&VID=0&VNAMEE=&VNAMEF=)

Statistics Canada, (2008c). *Labour Force Participation and Unemployment Rates by Disability Type, Canada, 2006*.
<http://www.statcan.gc.ca/pub/89-628-x/2008007/t/5201154-eng.htm>

Statistics Canada, (January, 2009a). *Labour Force Participation Rates by Sex and Age Group*.
Retrieved from: <http://www40.statcan.ca/l01/cst01/labor05-eng.htm>

Statistics Canada (2009b). Highest level of educational attainment for the population aged 25 to 64. Retrieved from:
<http://www12.statcan.ca/census-recensement/2006/dp-pd/hlt/97-560/pages/page.cfm?Lang=E&Geo=PR&Code=01&Table=1&Data=Count&Sex=1&StartRec=1&Sort=2&Display=Page>

Willms, D.J., Friesen, S., and Milton, P. Canadian Association of Education, (2009). *What did you do in School Today? Transforming Classrooms Through Social Academic and Intellectual Engagement*. Retrieved from:
http://www.cea-ace.ca/media/en/WDYDIST_National_Report_EN.pdf

ABOUT THE AUTHOR

DR. RICK MINER has over 35 years experience working in Canada's post-secondary sector. He was most recently the President of Seneca College, and before that held senior

administrative positions at the University of New Brunswick and Saint Mary's University. He is now a principal at Miner and Miner Management Consultants (minerandminer.ca).

MINER

MANAGEMENT CONSULTANTS

www.minerandminer.ca