SP-615-10-06E

STRATEGIC POLICY RESEARCH DIRECTORATE

Looking-Ahead:

A 10-Year Outlook for the Canadian Labour Market (2006-2015)

REPORT

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October 2006

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This paper is available in French under the title *Perspectives du marché du travail canadien pour la prochaine décennie, 2006-2015.*
La version française du présent document est disponible sous le titre *Perspectives du marché du travail canadien pour la prochaine décennie, 2006-2015.*

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In Memoriam

Wayne George Roth (1949-2006)

During the development of this 10-year outlook, we learned of the passing of our dear friend and colleague Wayne G. Roth. Wayne has been involved with the Canadian Occupational Projection System (COPS) since its inception in 1982. Over the years, Wayne has been deeply involved in the COPS partnership and the production of several *Job Futures*, a document that delivers career counselling information to young people. This report, *Looking-Ahead: A Ten-Year Outlook for the Canadian Labour Market (2006-2015)*, is dedicated to his memory.

Highlights

The Canadian labour market is currently quite healthy...

After struggling for the greater part of the 1990s in the wake of restrictive monetary and fiscal polices aimed at stabilizing inflation and quelling budgetary deficits, the Canadian labour market has now been performing well for several years, as revealed by key indicators: employment has grown at an average annual rate of 2.0% over the past 10 years, the participation rate in 2005 was near its record high at 67.2%, and the employment rate reached a record level of 62.7%. In addition, the unemployment rate fell to 6.8% in 2005, thus reaching its lowest annual average level on record; that trend has continued in recent months, with the rate dropping to 6.1% in May 2006.

...and is expected to remain buoyant over the next decade

Total employment is expected to grow at an annual average rate of 1.1% over the 2006 to 2015 period. Although this represents a slowdown relative to the 2001-05 period (when the rate of growth was 1.8%), the Canadian economy should still create about 1.9 million new jobs over the next 10 years.

This employment forecast is primarily influenced by projected changes in economic activity. Over the next five years, Canada's real gross domestic product (GDP) is expected to advance at an average annual rate of 2.9%, before slowing down somewhat to reach 2.6% over the following five-year period (2011-15). The major factor behind this deceleration is a slowdown in the underlying growth potential of the economy, as sluggish overall population gains will constrain labour force growth. The aging of the population will have an additional dampening effect on labour force growth as a result of retirements.

No widespread labour shortages are expected to emerge over the next ten years

As inflation has largely remained within the Bank of Canada's target band (1% to 3%) for many years now, it is expected that the Bank will be able to set monetary conditions that allow demand to grow in line with the slower growth in potential. As a result, no sustained generalized shortage of workers is anticipated in the Canadian labour market.

The share of employment in service-producing industries is expected to continue on its upward trend well into the future

Over the next 10 years, employment growth in the service sector (1.2%) is expected to outpace that in the goods-producing sector (0.8%), continuing a long running trend. This is largely the result of stronger labour productivity growth in the goods-producing sector, as manufacturers are expected to continue improving efficiency in order to remain competitive in the face of the lofty Canadian dollar and intense international competition. In fact, GDP growth in the goods-producing sector (3.0%) is expected to slightly outpace that of the service sector (2.7%) over the next ten years.

Employment growth is expected to be strong in the health, computer system design and professional services sectors

Among services, employment growth should be particularly strong in the health, computer system design and professional services sectors. This vigorous growth will be mainly the result of increased public spending in health care made possible by the improved financial position of governments, to the continued shift towards a knowledge-based economy and to increased investment in research and development.

Within the goods-producing sector, high energy prices will continue to spur investment spending and output in the oil and gas sector, while the computer and electronic products, other transportation equipment (especially aerospace), and fabricated metals manufacturing industries will benefit from strong global demand and high corporate profits. In contrast, the auto and parts sector is expected to struggle in the face of faltering auto demand in North America, as are the forestry industry and the wood products manufacturing industry, which will be affected by the weakening of residential construction.

The majority of future job openings will be the result of retirements

With the retirement of many baby-boomers, the majority of job openings over the forecast period will stem from the need to replace retired workers. Over the 2006-15 period, it is expected that about 1.7 million new non-student jobs will be created as a result of increasing economic activity (expansion demand), while close to 3.8 million existing positions will be freed up by retirements. In other words, about 70% of all job openings during that period will be associated with the need to replace retired workers, up from an average of about 51% over the last ten years. Retirements will account for an even higher share of total job openings over the longer term.

Two thirds of all job openings over the period from 2006 to 2015 are expected to be in occupations usually requiring postsecondary education or in management

Over the 2006-15 period, about two thirds (65.9%) of job openings resulting from both expansion demand and retirements are expected to be in occupations usually requiring postsecondary education (university, college or apprenticeship training) or in management, up slightly from 63% over the last ten years.

The highest rate of expansion demand is expected to be in occupations that require a university diploma (annual average rate of 1.6%), spurred by the continued shift to a knowledge-based economy and by increased public spending in the health care sector. In contrast, the pace of employment growth in the lowest skilled occupations (requiring only on-the-job training) is projected to be much weaker (annual average rate of 0.6%). Overall, high-skilled occupations will account for about 70% of all new jobs created over the 2006 to 2015 period, compared to 60% over the last ten years.

About 2.4% of workers are expected to retire each year over the 2006-15 period, up from an average of 1.9% over the last ten years. Retirement pressures will be strongest where the usual age of retirement is lower and where a larger proportion of the workforce is approaching that age – as is the case within management occupations and in those usually requiring postsecondary education. More specifically, 2.8% of workers in management occupations and 2.5% of those in occupations usually requiring university education are expected to retire each year during the 2006-15 period. Key occupations that will face strong retirement pressures include elementary/secondary school teachers and registered nurses, as well as managers in public administration, health, education, social and community services.

The educational attainment of Canada's labour force will continue to rise over the next 10 years, albeit at a slower pace than in the past

The labour force with postsecondary education is projected to remain the fastest-growing component of labour supply. More specifically, the number of labour force participants holding a university degree is expected to rise by 2.2% annually on average over the 2006-15 period, comprising 24.4% of the labour force by 2015, up from 21.8% in 2005 (and 13.7% in 1990). On the other hand, the labour force with less than high school education is expected to continue to decline over the medium term (by an average of 1.0% per year).

Although the educational attainment of the labour force will continue to advance, the rate at which it does so will slow down. The baby-boomers were much more educated than their parents. The children of the baby-boomers are also more educated than their parents, but by a narrower margin.

School leavers will remain by far the main source of new labour supply in the Canadian economy

It is often claimed that immigration will account for all of Canada's net labour force growth in the coming decades. Indeed, over the forecast period, population aging leads to diminishing rates of growth for the population of working age and for the labour force, and these growth rates would be weaker in the absence of new immigration. However, students coming out of the education system – "school leavers" – will remain, by far, the primary source of new supply for the labour market, averaging approximately 550,000 new entrants a year over the next decade.

There is currently limited evidence of imbalances among broad skill levels...

Evidence suggests that the strong rise in demand within high-skilled occupations has been adequately met by a rising supply of qualified workers. Real wages by broad skill level relative to the economy-wide average have been fairly constant since 1997, while unemployment rates by broad skill level relative to the average have not shown any discernable trends since 1987. Accordingly, these indicators suggest the absence of significant imbalances between the skills demanded by employers and the availability of qualified labour, across broad skill levels.

...but imbalances could emerge in the future

Employment growth is expected to outpace labour force growth across all skill levels, resulting in unemployment rate declines. Although unemployment rates for all skill levels are expected to decline, movements in unemployment rates relative to the economy-wide average are expected to diverge somewhat over the 2006-15 period, suggesting the emergence of excess demand situations over the next 10 years.

Managers and occupations requiring a college education are expected to experience greater than average unemployment rate declines as employment growth is expected to be stronger than labour force growth. The aging of the population could exert some pressure on those two skill levels. In contrast, for occupations usually requiring at least a high school education and those requiring on-the-job training, employment gains are expected to outpace labour force gains at a lower-than-average rate, resulting in a lower decline in their unemployment rates. In occupations requiring at least a university education, the unemployment rate is expected to decline in line with the economy-wide average.

There are currently situations of imbalances in the labour market in some occupations...

Although there is currently limited evidence of imbalances between the broad skill levels demanded by employers and the availability of qualified labour, this can hide instances of imbalances at a more detailed occupational level, with excess supply in some occupations coexisting with excess demand in others. In fact, numerous occupations are currently considered to be in a state of either excess demand or excess supply.

...with management and the health sector being especially affected

Currently, the largest number of occupations showing signs of shortages at the national level is concentrated in management occupations and in the health sector. Pressures are particularly acute for physicians, therapy and assessment professionals (e.g. physiotherapists), head nurses and nurse aides. Other health occupations, such as registered nursing assistants, audiology technicians, physiotherapy technicians and medical radiation technologists, are also facing pressures.

Among other occupations showing signs of shortages are those related to oil and gas drilling and services, home builders and renovators, contractors and supervisors in trades, computer engineers and software engineers.

Occupations deemed to be currently in excess supply are mostly in low-skilled categories facing deteriorating labour demand conditions. For example, organizational restructuring, automation and advances in computer technology are reducing the demand for office equipment operators. Technological advances in navigation, communications and fish tracking, along with harvest quotas, will slow employment growth for fishing vessel skippers and fishermen/women. For machine operators in textile processing and industrial sewing machine operators, international competition is the main contributor to declining demand. Finally, the difficulties experienced in forestry, agriculture and electric and electronic equipment industries have had a negative impact on some occupations in those sectors.

Given current trends in supply and demand, occupations in management and in the health sector will continue to face significant labour market pressures

Given current trends in supply and demand, numerous occupations will continue to face significant labour market pressures over the medium term. Several of these occupations are concentrated in the health sector – physicians, head nurses, supervisors, nurse aides, etc. The expected excess demand in those occupations tends to result from factors that restrain supply growth, such as long training time (for example, up to seven years or more of university schooling for physicians) and the limited capacity of educational institutions to accommodate large increases in enrolments.

Other occupational groupings expected to experience future labour market pressures include management occupations (e.g. managers in public administration and human resources managers). Shortage pressures in human resources and business service professionals are expected to persist as employers continue to put great emphasis on recruiting and retaining quality employees. Pressures are also expected to continue over the next 10 years for oil and gas well drillers, servicers, testers and related workers, as a result of an increase in demand associated with large capital spending projects related to tar sands development projects in Alberta.

Introduction to the 10-year Outlook

Each year, the Strategic Policy Research Directorate (SPRD) of Human Resources and Social Development Canada (HRSDC) produces a detailed 10-year labour market forecast at the national level. HRSDC uses forecasting models to identify likely trends over the medium term in the level, composition and sources of labour demand and labour supply, and in the industrial and occupational distribution of employment. A key objective is to identify occupations where the current and projected states of supply and demand suggest that imbalances could develop or persist over time.

The information derived from such projections helps in addressing some of the important policy issues facing HRSDC, including population aging, the expected slowdown in labour force growth and the future skill requirements of the economy. The information about future trends in the labour market can also be useful for workers, students and immigrants in their employment and education decisions. As well, the same information can be of value to employers in developing their human resources strategies. Of high interest to many is whether the broad trends in labour demand and supply that have been observed in recent years will continue in the future or whether significant changes can be expected.

More specifically, the report tries to answer the following questions:

- How many jobs are expected to be created over the next decade?

- In which industries and occupations will the new jobs emerge?

- What will be the impact of retirements on job openings?

- What kind of education is required to fill the new positions?

- Will the new supply be sufficient to meet this new demand?

- What occupations will face significant labour market pressures?

The report also looks at the performance of Canada's labour market over the past 15 years in order to compare the outlook with recent experience. The macroeconomic forecast that underlies the labour market outlook includes actual economic data up to 2005.

The report fills an important gap, as no other publication currently provides a comprehensive picture of the Canadian labour market. Many public and private organizations in Canada produce reviews of economic conditions and develop short- and medium-term forecasts. However, very few of them focus their reviews and forecasts on the labour market, and none undertake a detailed outlook by industry, skill level and occupation.

These projections are among the most comprehensive in the world because they forecast prospective growth in both demand and supply by occupation. After all, imbalances occur not just because there is strong job growth in an occupation but because that job growth exceeds the likely growth in supply. A comprehensive forecast of demand takes into account not just the locus of economic growth and the types of jobs that will be created but also the age structure of the workforce and retirement trends in order to see how many jobs will open up because existing workers will retire.

Although no generalized shortage is anticipated in the sense of demand pressures being so strong and so widespread that inflationary pressures will start to develop, that does not mean that in some occupations, there are not any jobs without people or any people without jobs. There is simply too much flux in the economy to think that supply and demand will be in balance in every occupation. Adjustments, such as changes in relative earnings, can even out imbalances over time by influencing changes in both labour demand and labour supply, but they are slow to take place. Accordingly, our projections provide quantitative guidance about potential future pressures and imbalances at a detailed occupational level over the medium term; they do not take into consideration the mechanisms that may alleviate the gaps between demand and supply, such as changes in wages and labour market information.

It is important to note that the purpose of this outlook is not to predict employment levels with as small a margin of error as possible. All forecasts are conditional upon a set of demographic, macroeconomic, industrial and labour market assumptions, at least some of which could turn out to be erroneous. At the same time, however, the information content of the broad trends on which the assumptions are based should be of value. Updating the forecast on an annual basis also makes it possible to integrate recent developments that are pertinent to occupational projections.

Finally, this detailed 10-year outlook is presented for the national level only. At this point, only forecasts of demand by province are produced as provincial supply data are not reliable enough at the level of detail needed to carry out comprehensive projections of labour market imbalances by province.

Historical Overview / Current Situation

Historical Overview of the Canadian Labour Market

The Canadian labour market is more diverse with more women, older workers and immigrants…

The composition of the Canadian labour market has changed significantly in recent decades, with the number of women, older workers and immigrants being far greater than in the past. This transformation reflects changes in various demographic factors – births and deaths ("natural" increase), immigration and emigration (or net migration). Between 1987 and 2005, as a result of declining fertility rates, population aging (increased number of deaths) and rising immigration levels, the contribution of natural increase to total population growth fell from 66% in 1987 to 34% in 2005. Accordingly, in 2005, net migration accounted for 66% of the increase in total population.

There has been a shift in the age profile of Canada's population. In the mid-1960s, near the end of the baby boom, the population distribution by age was pyramid-shaped. In 1987, the baby boomers (then between ages 21 and 40) accounted for 35% of the total population. In 2005, the baby boomers (now between ages 39 and 58) still represented a significant share of the population, but the base of the age pyramid continued to narrow, a clear indication that the fertility rate had fallen below the replacement level. Given longer life expectancies, the share of older people in the population has increased quickly, resulting in the median age of the population rising from 31.8 years in 1987 to 38.5 years in 2005.

Source: Statistics Canada, Annual Demographic Statistics, 2005

Source: Statistics Canada, Annual Demographic Statistics, 2005
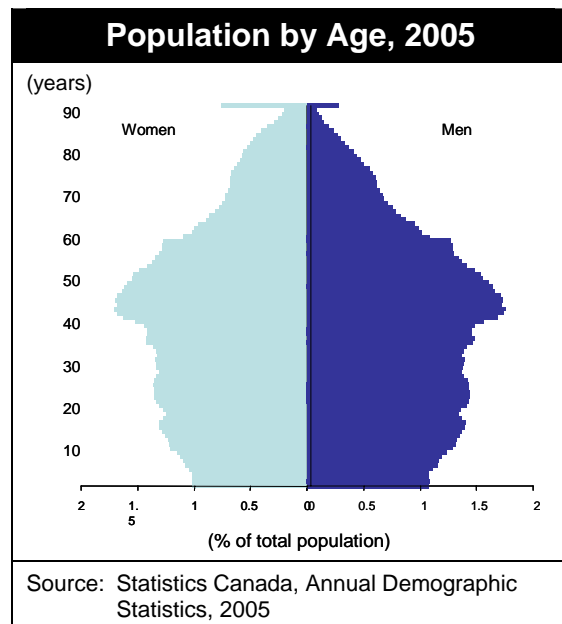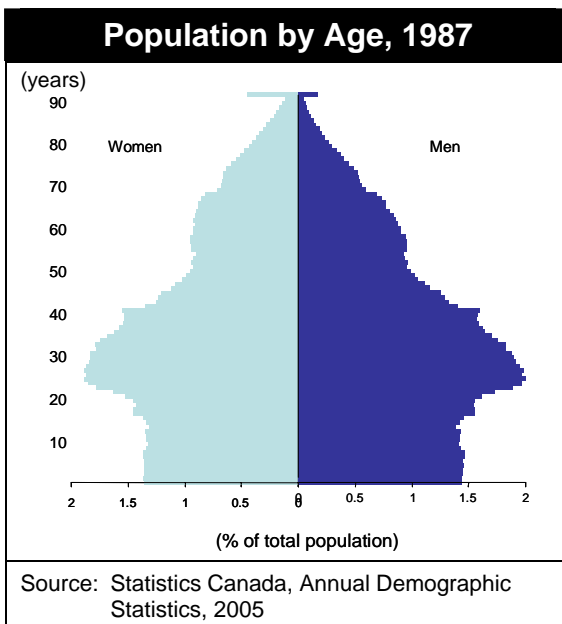
Population aging has also had a significant impact on the labour force profile, with the median age rising from 33.4 years in 1987 to 39.3 years in 2005. The percentage of older workers (55 years and older) in the labour force rose – from 10% to 14% between 1987 and 2005 – while that of young people (aged 15 to 24) dropped from 22% to 16%. Participation rates of older workers increased from 26.9% in 1987 to 31.5% in 2005, contrasting with the decline for youth workers (participation rate of 65.9% in 2005). As for the "core" group (people aged 25 to 54), the participation rate rose from 82.6% to 86.3%, primarily reflecting the increased participation of women in the labour market.

The share of women in the labour force has risen over the past 17 years, from 43% in 1987 to 47% in 2005. The participation rate of women reached 61.8% in 2005, from 56.5% in 1987, while the male participation rate fell from 76.8% in 1987 to 72.8% in 2005. Overall, the aggregate participation rate was close to its record level in 2005.

Employment, Unemployment and Participation Rates, 1977-2005

* Unemployment rate computed as ratio of the unemployed to adult population

Source: Statistics Canada, Labour Force Survey
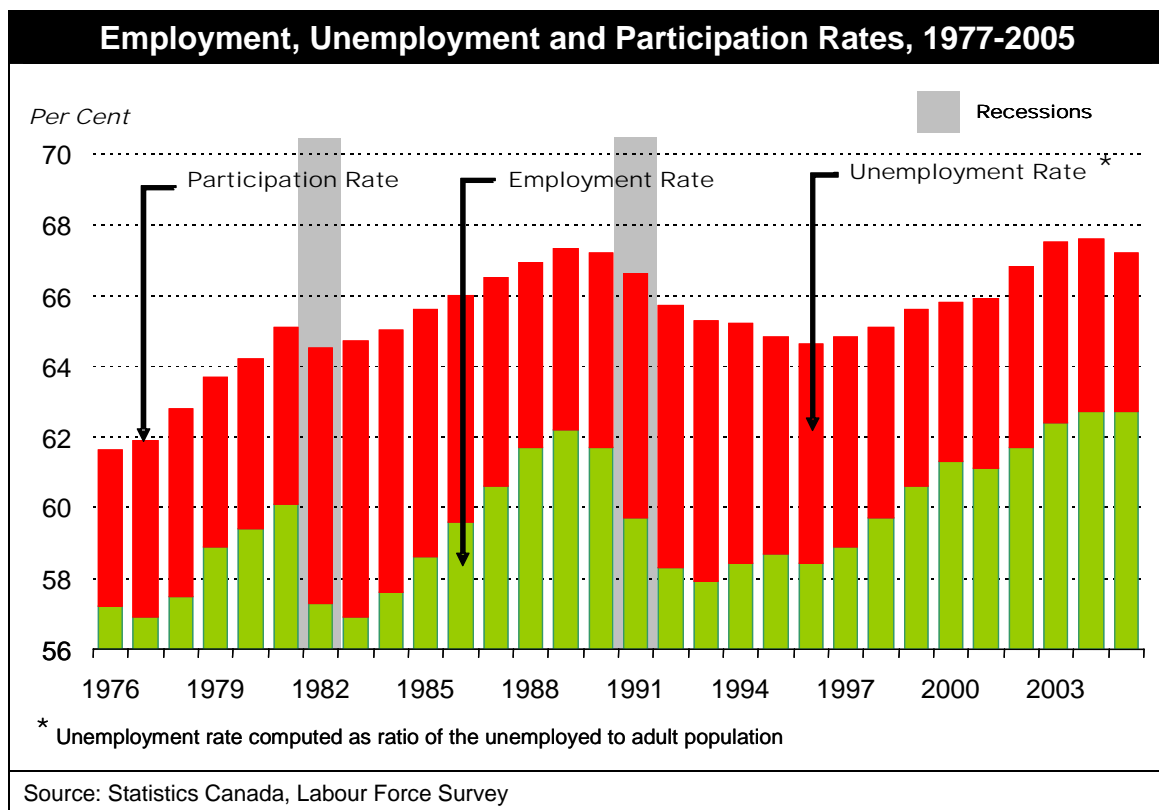
…and has been quite healthy over the past few years

In 2005, employment grew at an annual rate of 1.4%, the lowest increase since the economic slowdown of 2001. This weaker growth may be explained in part by the rapid rise in the Canadian dollar, higher energy prices and increased international competition, all of which have taken a toll on manufacturing employment. Nonetheless, last year's performance was relatively strong by historical standards, with employment growth almost matching the 1987-2005 average of 1.5%.[1] Since the economic downturn of the

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[1] The period under consideration (1987-2005) was chosen because data on occupations are available from Statistics Canada from 1987 onward.

early 1990s, a period when monetary policy was used deliberately to slow down the economy in an attempt to lower inflation, employment growth has varied within a band of 1% to 2.5% annually.

With healthy economic and job growth in 2005, the unemployment rate moved down to match the 6.8% low set in 2000. Demographics contributed to this decline: older workers are less likely to be unemployed, and the Canadian workforce is getting older. The unemployment rate has been trending down since 1993, when it reached 11.4%.

Other indicators also show that the Canadian labour market is performing well. In 2005, the participation rate was near its peak at 67.2% and the employment rate reached a record-high level at 62.7%.
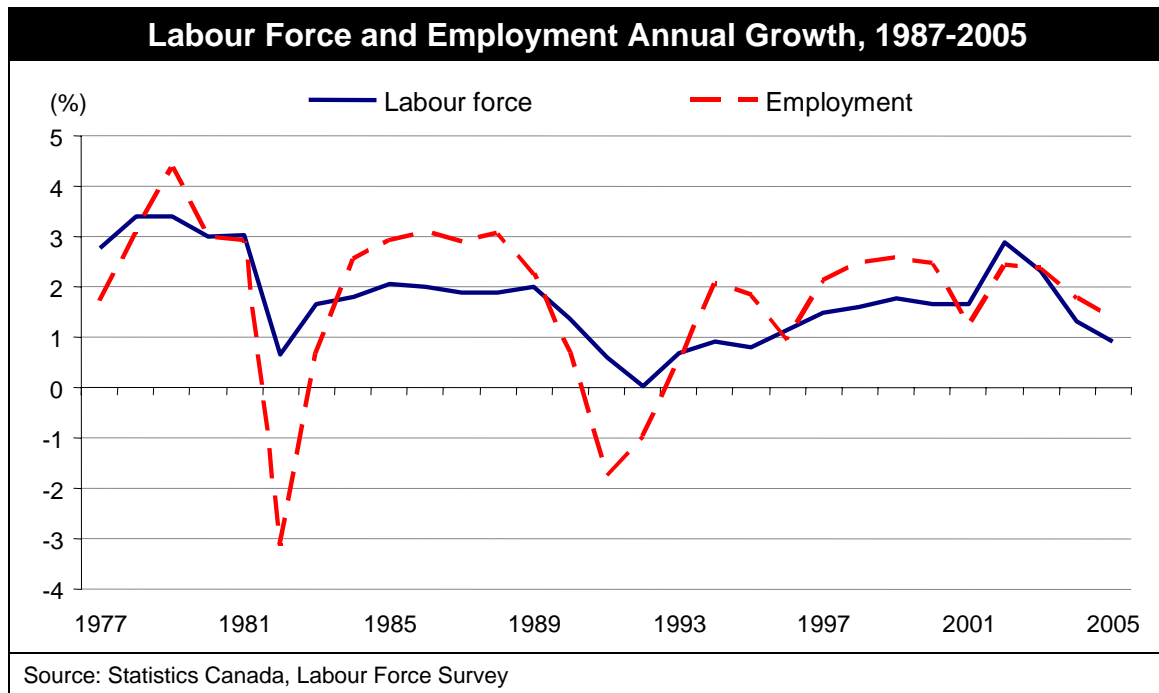
Labour Force and Employment Annual Growth, 1987-2005

Source: Statistics Canada, Labour Force Survey

Employment Growth by Industry

The share of employment in service-producing industries continued on an upward trend…

Since 1987, the total number of jobs in Canada increased at an average annual rate of 1.5%. Employment in the service-producing sector grew at a slightly above-average rate of 1.9%, while the rate in goods-producing industries was well below the average at 0.5%. This is not an unusual situation: the share of the service-producing sector in total employment has been on the rise for several decades, which in part reflects the faster increase in output per worker in the goods-producing sector. Moreover, the service-producing sector is far less sensitive to the effects of economic downturns.

Employment Growth by Industry, 1987-2005
(Index 100 = 1987)

Source: Statistics Canada, Labour Force Survey
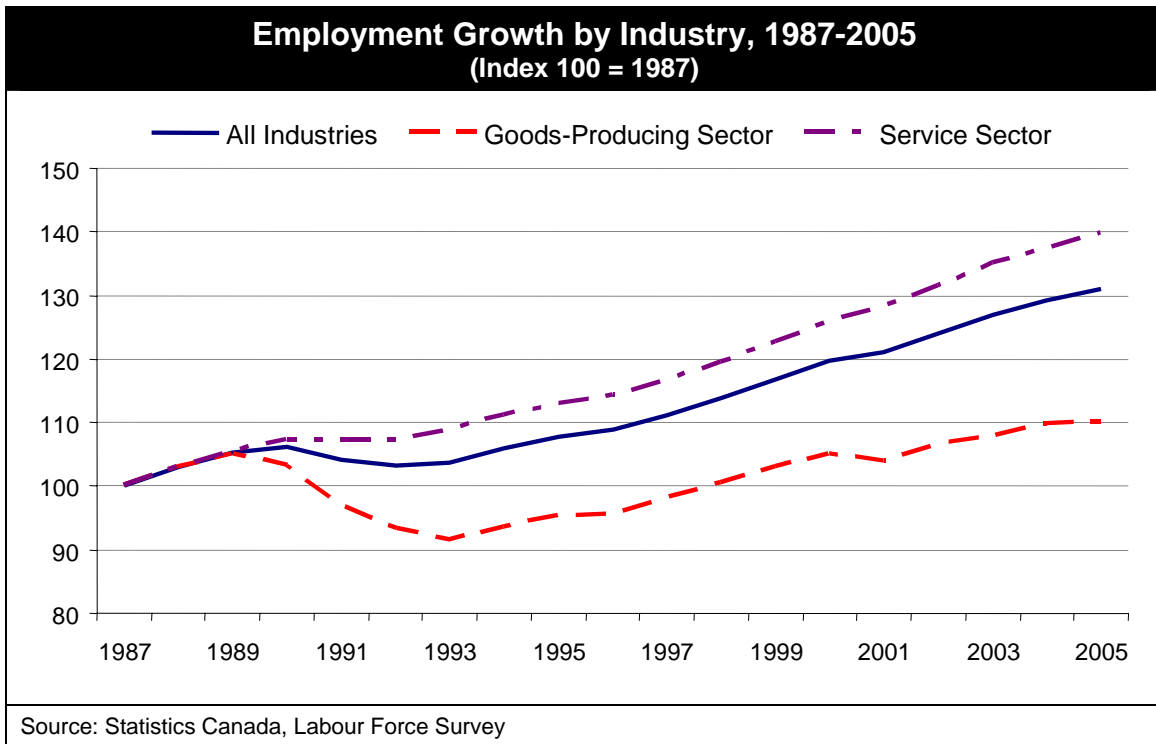
In the service-producing industries, employment increased steadily from 1987 to 2005. Employment growth was strongest in business services, with the management, administration and other support services and the professional, scientific and technical services sectors reporting average annual rates of 5.0% and 4.3%, respectively. These industries benefited from growth in information technologies (computers, etc.), increased outsourcing by firms and changes spurred by the shift towards a knowledge-based economy. Employment in the information, culture and recreation sector (which includes wireless and satellite telecommunication services, broadcasting, Internet and cable) also reported solid growth during that period (2.0%). These services, which were just starting up in the mid-1990s, swept the market with incredible speed. Since 2002, however, a number of services in this group have begun to mature, while others were hit hard

when the technology bubble burst. As a result, employment slowed considerably in 2002 and 2003 and has picked up only slightly since.

Finally, employment growth in the health care and social assistance industry – at an average annual rate of 2.3% – was also considerably above the average for the service sector as a whole between 1987 and 2005. The industry has benefited from significant government re-investment in health services over the last few years, while employment in the social assistance component benefited from new subsidized daycare programs in certain parts of the country. In contrast, employment in public administration increased only slightly, at an average of 0.5% per year.

Employment by Industry, 1987-2005				
	Employment (000s)		Change 1988-2005 (AAGR[1])	Share 2005
	1987	2005		
All Sectors	**12,333.0**	**16,169.7**	**1.5%**	**100.0%**
Goods-producing sector	**3,633.9**	**4,002.4**	**0.5%**	**24.8%**
Agriculture	464.5	343.7	-1.7%	2.1%
Forestry, fishing, mining, oil and gas extraction	287.1	306.5	0.4%	1.9%
Construction	726.6	1,019.5	1.9%	6.3%
Utilities	114.8	125.3	0.5%	0.8%
Manufacturing	2,041.0	2,207.4	0.4%	13.7%
Service sector	**8,699.2**	**12,167.3**	**1.9%**	**75.2%**
Trade	1,982.0	2,574.6	1.5%	15.9%
Transportation and warehousing	634.0	793.6	1.3%	4.9%
Finance, insurance, real estate and leasing	765.8	987.8	1.4%	6.1%
Professional, scientific and technical services	489.8	1,050.0	4.3%	6.5%
Management, administrative and other support services	272.6	654.4	5.0%	4.0%
Educational services	776.6	1,106.1	2.0%	6.8%
Health care and social assistance	1,152.0	1,734.6	2.3%	10.7%
Information, culture and recreation services	511.1	735.1	2.0%	4.5%
Accommodation and food services	716.7	1,004.5	1.9%	6.2%
Other services	633.1	693.4	0.5%	4.3%
Public administration	765.4	833.1	0.5%	5.2%
Source: Statistics Canada, Labour Force Survey. [1] AAGR: average annual growth rate.				

…while employment in goods-producing industries grew more slowly, except in oil and gas and construction

The majority of goods-producing industries have experienced weak employment growth since 1987. These industries, which tend to be cyclical, were hard hit by the recession of the early 1990s. In particular, over 350,000 jobs were lost in manufacturing between 1989 and 1993. However, employment growth was strong during the second half of the 1990s, reflecting a stronger domestic economy and a surge in exports to the United States. Weakness reappeared in manufacturing in 2001 as a result of the U.S. economic slowdown, the impact of a stronger Canadian dollar on exports, greater international competition (especially from China) and various trade disputes.

Agriculture bore the brunt of job losses among goods-producing industries, with employment decreasing at an average of 1.7% annually since 1987. A number of factors accounted for this decline, including the economic slowdown of early 90's, the increasingly important role of bigger, more industrialized farms, severe droughts in the early part of this decade and the beef embargo imposed by the United States.

Construction, under the impetus of the residential construction boom since 2001 and strong growth in non-residential construction in the energy sector during the second half of the 1990s, was the only goods-producing industry to record employment growth (1.9%) higher than the economy-wide average since 1987. The oil and gas extraction industry has also recorded significant growth since 1987. Growth has been particularly strong in the past few years, with soaring oil prices leading to the exploitation of new sources of oil and gas supply. Note, however, that the oil and gas extraction industry accounts for less than 0.5% of total employment.[2]

For detailed data on employment by industry, click here

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[2] Heavy investments in tar sands development projects in the last few years have not resulted in significant employment gains in the oil and gas extraction sector. Any gains arising from these major investments have been in other industries instead, including the construction industry.

Looking-Ahead: A 10-Year Outlook for the Canadian Labour Market (2006-2015)

Employment Growth by Occupation

High-skilled occupations have recorded the fastest employment growth since 1987…

In 2005, more than 8.7 million non-student[3] workers were employed in highly skilled occupations and 5.8 million in low-skilled jobs. The distinction between high- and low-skilled occupations is based on the 2001 National Occupational Classification (NOC). The NOC classifies occupations according to the education level or training usually required to work in a given occupation. (To view the 2001 National Occupational Classification Matrix, click here.) High-skilled occupations include occupations usually requiring university education (skill level A), college education or apprenticeship training (level B) and management occupations, while low-skilled occupations usually require secondary school or occupation-specific training (level C) or only on-the-job training (level D).

The Canadian economy has undergone structural changes generated by rapid technological advancement and expanding trade liberalization. These two factors have intensified worker specialization in highly skilled tasks. Since 1987, highly skilled occupations have grown at an annual average rate of 1.7%, compared to the economy-wide average of 1.4%. Six out of 10 jobs created during that period were in highly skilled occupations.

Employment Growth in High- and Low-skilled Occupations, 1987-2005
(Index 100=1987)

Source: Statistics Canada, Labour Force Survey

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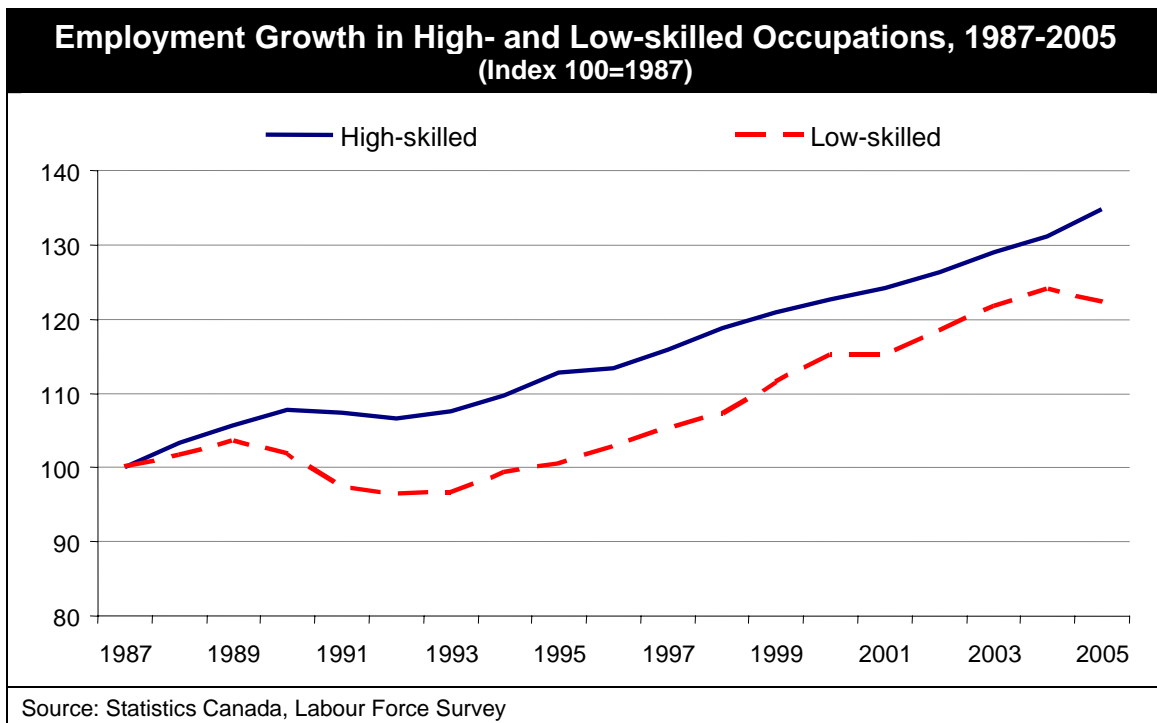
3   The occupational analysis reported in this section pertains to non-student employment only (90.1% of employment in 2005) because our focus is on the permanent labour market and excludes young people who are employed while studying and who tend to be concentrated in the sales and service sector.

Among high-skilled occupations, two sub-categories – occupations usually requiring a university education (3.1%) and management occupations (1.7%) – have recorded particularly strong employment growth since 1987. This is reflected in the employment share of occupations usually requiring a university education, which climbed from 13.1% in 1987 to 17.3% in 2005. More specifically, the major contributors to growth in highly skilled jobs have been computer and information systems occupations, engineers, human resource management professionals, policy and program officers, researchers and consultants, and psychologists. Occupations requiring a college education or apprenticeship training recorded the lowest employment growth (1.1%) among high-skilled occupations.

Non-student employment in low-skilled occupations has increased at a slower than average pace (1.1%) since 1987. These occupations are generally more vulnerable to economic slowdowns because they tend to be concentrated in cyclical industries such as trade, manufacturing and transportation. During the recession of the early 1990s, for example, over 330,000 low-skilled jobs were lost, whereas employment in high-skill occupations increased by more than 120,000. The manufacturing industry (2.2 million workers in 2005) was particularly hard hit, accounting for 60% of the total job losses among low-skilled occupations and taking nearly five years to recover.

Employment by Occupation, 1987-2005					
	Non-student employment (000s)		Growth (AAGR[1])	Change (000s)	Share of change
	1987	2005	1988-2005		
Total	**11,242.9**	**14,566.8**	**1.4%**	**3,323.9**	**100.0%**
Skill level[2]					
Management	1,009.4	1,376.7	1.7%	367.3	11.1%
Occupations usually requiring:					
– university education	1,467.5	2,525.8	3.1%	1,058.3	31.8%
– college education or apprenticeship training	4,007.4	4,843.2	1.1%	835.8	25.1%
– high school diploma	3,557.3	4,353.3	1.1%	796.0	23.9%
– only on-the-job training	1,200.9	1,467.5	1.1%	266.6	8.0%
Source: Statistics Canada, Labour Force Survey.					
[1] AAGR: average annual growth rate.					
[2] Skill levels are based on the 2001 NOC Matrix, in which occupations are grouped according to the education level and training normally required.					

…but recent years have been favourable for all occupations, whether high- or low-skilled

More recently, after several years of under-investment and sluggish employment growth, the outlook for health sector occupations has greatly improved as a result of greater demand for health care and improved government fiscal situations. Thus most health occupations (roughly one million jobs were directly tied to health care in 2005), regardless of the required skill level, have reported average annual growth of at least 3% since 2000. In fact, only physicians, dentists and veterinarians have not attained this level of growth and it was the result of a shortage of skilled labour to meet demand.

As indicated in the previous section, the construction sector, with one million jobs in 2005, has experienced strong growth for nearly five years, which has benefited all directly related occupations. The housing boom also had a major impact on employment in furniture manufacturing and sales, sales of building materials, landscaping services, real estate and banking services (mortgage market). In particular, robustness in the housing industry has enabled some low-skilled occupations – primarily trades helpers, construction labourers, and landscaping and grounds maintenance labourers – to outperform the job market as a whole.

Similarly, oil and gas extraction, exploration and drilling occupations have greatly benefited from major investments made over the past few years under the impetus of the sharp increases in demand and in oil prices.

In contrast, the strong Canadian dollar, international competition (especially from countries with low labour costs), the slow recovery of the electronics and aeronautics industries, and trade disputes with the United States have had a severe impact on manufacturing employment in the past few years, in particular for machine operators in clothing, textiles, pulp and paper, and wood products, and for electronics assemblers/fabricators. In addition to negatively impacting the electronics and computer manufacturing industry, the burst of the technology bubble in the early part of the present decade considerably slowed employment gains in certain high-skilled occupations – IT specialists, computer technicians and some engineers, in particular – which had been important drivers of growth over the 1990s.

[For employment information by occupation (three-digit NOC), click here](#)

Labour Force by Educational Level

The educational attainment of Canada's labour force has risen considerably over the past few decades

The Canadian labour market has steadily become more knowledge-intensive, with the fastest growth occurring in jobs that require a higher level of postsecondary education. The labour force has responded to this demand for skills by enhancing its educational outcomes.

Labour Force Growth by Educational Level, 1990-2005
(Index 100 = 1990)

Source: Statistics Canada, Labour Force Survey
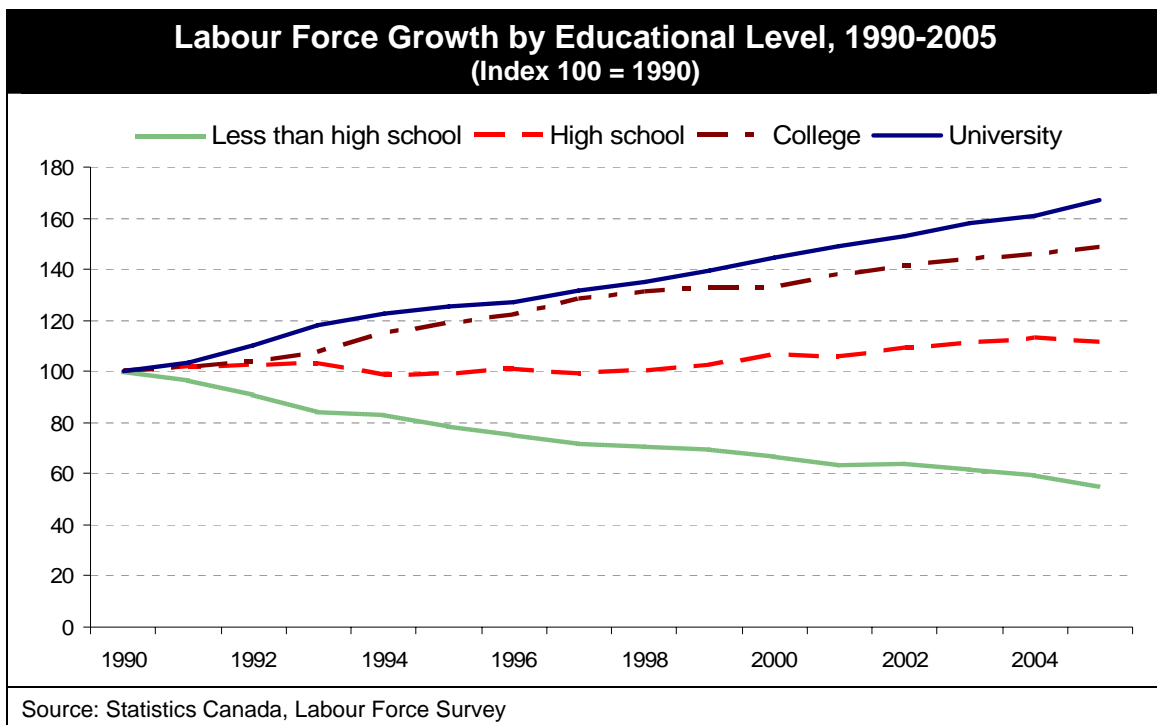
Indeed, since 1990[4] the labour force with postsecondary education has increased rapidly in Canada. The number of individuals with a university degree has risen by 4.4% a year on average over the past 15 years – substantially faster than the overall Canadian labour force (1.3%). In 2005, they accounted for 21.8% of the labour force, up from 13.8% in 1990. The number of individuals with a college education[5] increased at an average annual rate of 3.2%. Their share of the labour force also grew, from 25.8% in 1990 to 34.1% in 2005.

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[4] The period under analysis begins in 1990 because new questions on education were adopted in Statistics Canada's Labour Force Survey that year, making it difficult to compare the results with those of previous years.

[5] The college education grouping includes individuals with i) trades certificate or diploma from vocational schools or apprenticeship training, ii) a non-university certificate or diploma from a community college, CEGEP, school of nursing, etc. and iii) certificates below a Bachelor's degree obtained at a university.

In contrast, the number of individuals with high school education[6] has grown by only 0.7% a year on average over the past 15 years, while the number of those with less than high school has actually declined, at an annual average rate of 3.0%.

Labour Force by Educational Level, 1990-2005					
	Levels (000s)		Distribution		Change (AAGR[1])
	1990	2005	1990	2005	1991-2005
Total	**14,224.6**	**17,342.6**	**100.0**	**100.0**	**1.3%**
Educational level					
University	1,968.6	3,780.5	13.8%	21.8%	4.4%
College	3,681.5	5,906.6	25.8%	34.1%	3.2%
High school	4,608.3	5,131.6	32.4%	29.6%	0.7%
Less than high school	3,986.2	2,523.9	28.0%	14.6%	-3.0%
Source: Statistics Canada, Labour Force Survey.					
[1] AAGR: average annual growth rate.					

In 2005, 55.9% of the labour force had postsecondary education – up from less than 40% in 1990. Two factors can explain this strong surge:

- Young people are still getting more education. In 2005, about two thirds (65.5%) of the labour force aged 25-29 had acquired postsecondary education.

- People leaving the labour market tend to have less education than those entering. In 2005, about 55% of the labour force aged 55-64 had postsecondary education.

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[6] The high school education grouping includes individuals with a high school diploma or those who have taken some post-secondary courses without having completed a post-secondary degree, certificate or diploma.

Current Labour Market Imbalances by Broad Skill Level

There is currently limited evidence of imbalances among broad skill levels...

Imbalances among broad skill levels refer to the discrepancy between the level of skills usually required by employers (demand) and the availability of qualified labour (supply).[7] Any significant skill level imbalances should generally be revealed by noticeable movements in real wages and/or unemployment rates over time. For example, strong demand by employers in occupations usually requiring university education, coupled with difficulties in finding qualified labour supply to meet this demand, will generally lead to real wage increases and a declining unemployment rate for those occupations. However, to uncover a true skill level imbalance one must go a step further and look at relative rather than absolute real wages and unemployment rates. If real wages are rising and the unemployment rate is falling for all skill levels at the same rate, this may only reflect the general strength of the economy and is not necessarily an indication of specific skill level imbalances.

The following charts show the evolution of real wages and unemployment rates for each skill level (relative to the others) since 1987 and 1997, respectively.[8]

Relative Unemployment Rates by Skill Level, 1987-2005

Source: Statistics Canada, Labour Force Survey

Relative Wages by Skill Level, 1997-2005

Source: Statistics Canada, Labour Force Survey

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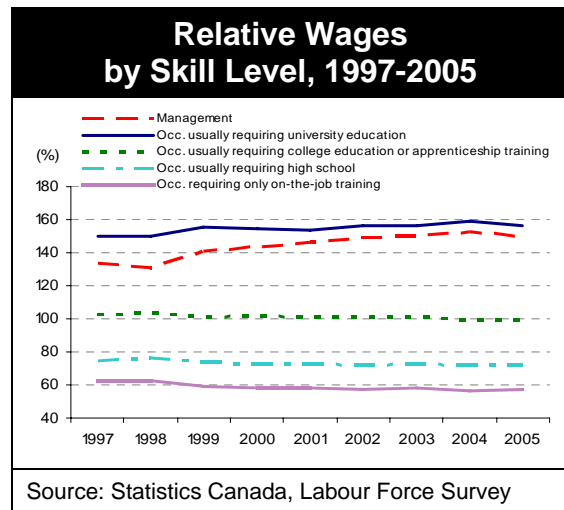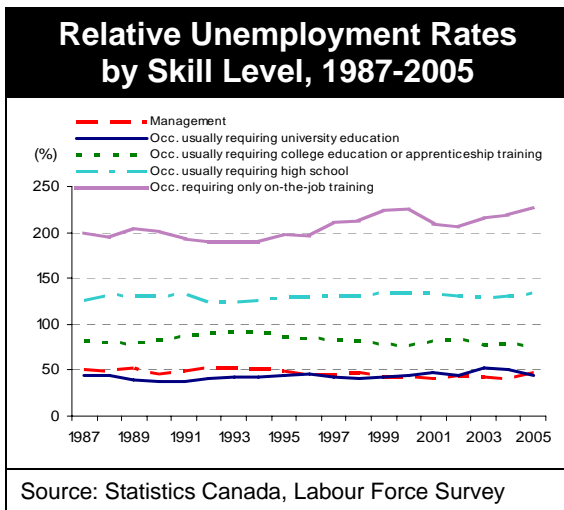
[7] The level of skills sought by employers is derived by using an occupational classification system. This system groups occupations by skill level according to the educational attainment "usually required" by employers. Five skill levels are considered: (1) management occupations, a very broad group ranging from CEOs to restaurant managers; (2) occupations usually requiring university education; (3) occupations usually requiring college education or apprenticeship training; (4) occupations usually requiring high school or occupation-specific training; and (5) occupations only requiring on-the-job training.

[8] Data from these two charts were derived from Statistics Canada's Labour Force Survey (LFS). Wage data from the LFS begin in 1997.

From the perspective of broad skill levels, relative real wages have been fairly stable since 1997 (except in management occupations), suggesting that the labour market has not experienced significant imbalances between demand and supply. This is also demonstrated by unemployment rates, which have remained virtually flat in relative terms since 1987. Consequently, it appears that the strong rise in demand within high-skilled occupations has been adequately met by a growing supply of qualified workers.

...however, this does not preclude the possibility of some labour supply over-qualification

An overall balance between broad skill levels suggests that from the point of view of employers, there was enough qualified labour to fill the required demand. For example, this would mean that employers with openings in occupations usually requiring college education were able to find an appropriate number of qualified employees, even employees with higher qualifications (i.e. university education), ready to take up these openings. From the point of view of employees, however, this indicator does not reveal whether there were enough openings at their educational level. For example, individuals with university education may have taken up lower-skilled occupations, indicating a potential oversupply for this educational level. To analyse this issue, one must look at the evolution of unemployment rates and real wages by educational level (relative to the others).

Relative Unemployment Rates by Education Level, 1987-2005

Source: Statistics Canada, Labour Force Survey

Relative Wages by Education Level, 1997-2005

Source: Statistics Canada, Labour Force Survey
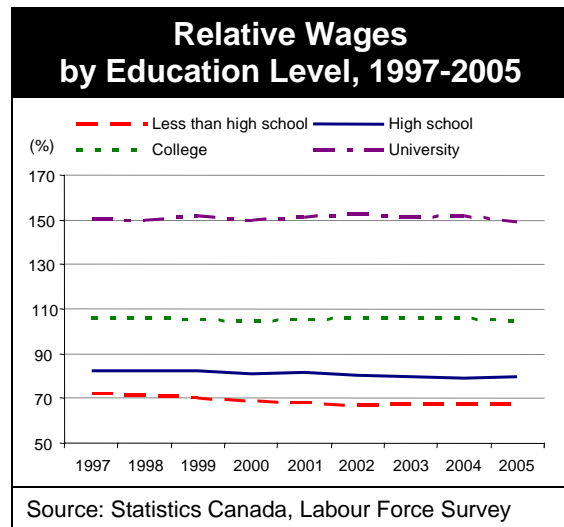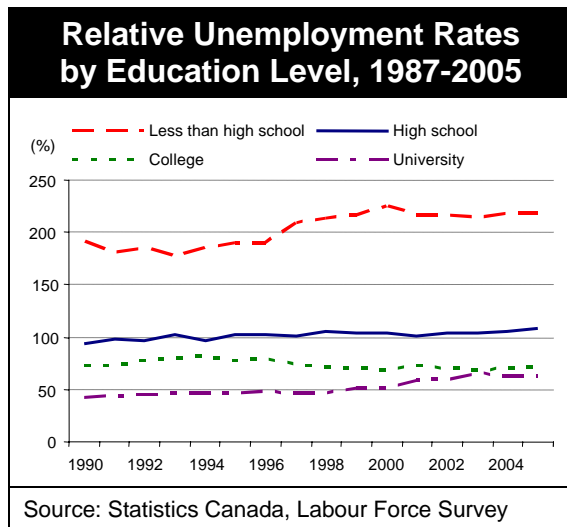
As shown in the above charts, two educational levels – i.e. university and less than high school – have experienced relative increases in their unemployment rates and declines in their wages. Of concern is the relative unemployment rate of university graduates, which rose considerably over the 2001-03 period. This development was accompanied by falling relative wages.

There are several reasons that may explain this weaker labour market performance of university graduates. Some occupations usually hiring university graduates, such as computer and information systems professionals and business service professionals, have faced tough labour market conditions as a result of the high-tech and stock market collapses of 2001-03. The situation seems to be improving in these occupations, leading to a decline in the relative unemployment rate of university graduates since 2003. However, the rate remains considerably higher than in the early 1990s.

Another reason relates to the fact that an increasing proportion of individuals with postsecondary education can be found in low-skilled occupations, which tend to display higher unemployment rates and pay lower wages compared to high-skilled occupations. The proportion of university-educated individuals in lower-skilled occupations has risen from 12% in 1990 to about 17% in 2005, providing some evidence that there may be signs of oversupply of university graduates. Although admittedly, this is an area that requires further research.

Additional reasons include the rise in the use of alternative compensatory schemes, such as stock options and performance bonuses, which may be limiting the rise in the measured wages of university-educated workers; and the increase in the share of university-educated people working in the private sector, which tends to display higher rates of turnover compared to the public sector; this may have contributed to a rise in their unemployment rate.

Current Imbalances by Occupation

There are currently situations of imbalances in the labour market, with many occupations, mostly high-skilled, showing signs of excess demand…

While there is limited evidence of imbalances between the broad skill levels sought by employers and the availability of qualified labour, this can hide many instances of imbalances at a more detailed occupational level, with excess supply in some occupations coexisting with excess demand in others at the national level. In fact, numerous occupations are currently considered to be in a state of either excess demand or excess supply.

Supply and demand across occupations keep changing for a number of reasons, including the adoption of new production technologies, shifts in consumers' preferences, demographic developments and changes in the relative prices of goods and services. Adjustments in the volume and composition of labour sought by employers and in the labour supplied by individuals in response to such factors do not occur instantaneously or simultaneously. During the adjustment process, some sectors will be in a labour shortage situation while others will find themselves in a surplus situation.

The assessments of pressures in specific occupations are derived from indicators such as employment growth, the unemployment rate and wage growth. An occupation is considered to be in an excess-demand situation when employment and wages in that occupation are increasing substantially faster than in other occupations and when its unemployment rate is markedly lower than in previous years or relative to other occupations. According to the U.S. Bureau of Labor Statistics (BLS) methodology,[9] an occupation is considered to be under pressure if its employment growth rate is at least 50% faster than the average, wage increases are at least 30% faster than average and the unemployment rate is at least 30% below average.[10]

However, the methodology used by the BLS tends to limit the number of occupations showing indications of current pressures. Accordingly, this methodology has been adapted to also include occupations with unemployment rates close to their lowest historical levels (even if their unemployment rates were not 30% below the average and wage growth was not 30% faster than average). This was done to take into account the fact that an unemployment rate of 5% is high for nurses but low for occupations in the construction sector.

The following table, using data for the 2003-05 period, lists the three- and four-digit NOC occupations (with at least 10,000 workers) that meet these thresholds. These occupations – mostly requiring university or college education, or apprenticeship training – represented 11.4% of total employment in 2005.

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[9] See Carolyn M. Veneri, "Can occupational labor shortages be identified using available data?" *Monthly Labor Review*, Vol. 122, March 1999.

[10] According to the BLS, "this somewhat arbitrary set of criteria was established to eliminate any occupation that could be considered a borderline case in terms of what the data might show if less stringent criteria were used." For example, the BLS methodology would eliminate occupations where wages cannot increase because of institutional constraints – e.g. a fixed compensation structure within an organization.

Occupational group	Occupations showing signs of excess demand	Non-student employment 2005 (000s)
Business, finance and administration	Legislators and senior management (NOC 001)	84.1
	Human resources managers (NOC 0112)	27.4
	Human resources and business service professionals (NOC 112)	138.6
	Supervisors, library, correspondence and related information clerks (NOC 1213)	14.1
Natural and applied sciences and related	Geologists, geochemists and geophysicists (NOC 2113)	11.3
	Civil engineers (NOC 2131)	40.2
	Mechanical engineers (NOC 2132)	30.8
	Computer engineers (NOC 2147)	14.1
	Software engineers (NOC 2173)	29.1
	Industrial engineering and manufacturing technologists and technicians (NOC 2233)	18.9
Health	Physicians, dentists and veterinarians (NOC 311)	82.5
	Optometrists, chiropractors and other health diagnosing and treating professionals (NOC 312)	13.2
	Therapy and assessment professionals (NOC 314)	43.6
	Head nurses and supervisors (NOC 3151)	15.2
	Other technical occupations in health care (except dentists) (NOC 323), such as registered nursing assistants, audiology technicians and physiotherapy technicians	108.7
	Medical radiation technologists (NOC 3215)	15.9
	Nurse aides and orderlies (NOC 3413)	175.8
	Other aides and assistants in support of health services (NOC 3414)	56.4
Social science, education, government service and religion	Lawyers and Quebec notaries (NOC 4112)	71.4
	University professors (NOC 4121)	50.2
	Psychologists (NOC 4151)	17.0
Art, culture, recreation and sport	Editors (NOC 5122)	15.9
	Professional occupations in public relations and communications (NOC 5124)	44.6
Sales and service	Accommodation service managers (NOC 0632)	45.4
	Real estate agents and salespersons (NOC 6232)	67.9
Trades, transport and equipment operators and related occupations	Residential home builders and renovators (NOC 0712)	80.8
	Facility operation and maintenance managers (NOC 0720)	35.9
	Contractors and supervisors trades and related workers (NOC 721), such as in pipefitting trades and carpentry trades	208.5
Occupations specific to primary industry	Supervisors, oil and gas drilling and service (NOC 8222)	14.2
	Oil and gas well drillers, servicers, testers and related workers (NOC 8232)	23.0
Occupations specific to processing, manufacturing and utilities	Supervisors, processing occupations (NOC 921), such as in petroleum, gas and chemical processing and utilities, and plastic and rubber products manufacturing	72.8
	Total	1,667.5

The largest number of occupations showing signs of shortages at the national level is found in the health sector. Pressures are particularly acute for physicians, therapy and assessment professionals (e.g. physiotherapists), head nurses and nurse aides. Other health occupations, such as registered nursing assistants, audiology technicians, physiotherapy technicians and medical radiation technologists, are also under pressure. Growth in demand for those occupations has been strong, due to the rising needs associated with population aging, increases in government funding for health care and a high number of retirements. On the other hand, supply growth in many of these occupations has been relatively weak. In some areas, the lack of supply may reflect the effects of earlier deficit control decisions (including accelerated retirements), declines in enrolments in related training programs or delays in graduation due to lengthening course requirements. In those occupations, new supply from immigration is also limited as a result of foreign-credentials recognition issues and strong world demand for health care workers.

Management occupations (e.g. senior management, human resources managers and accommodation service managers) are considered in shortage largely as a result of the demand associated with the high levels of retirement. Employers are placing greater emphasis on recruiting and retaining quality employees to handle the increasingly more complex jobs in our economy, resulting in a high demand for human resources professionals.

Other occupations are also showing signs of shortages:

– High rates of retirement and increases in government funding for postsecondary education have resulted in more demand for new workers in social science and government service occupations such as psychologists, university teachers and lawyers.

– High rates of retirement and increased government funding in postsecondary education have benefited occupations in social science and government service such as psychologists, university teachers and lawyers.

– Strong growth in residential construction and renovation activities over the past several years has increased demand for home builders and renovators, as well as contractors and supervisors in trades.

– Two occupations that were hit hard by the information technology bust in the early 2000s seem to have recovered and are now included in the under-pressure group – namely, computer engineers and software engineers. In 2005, employment reached a new peak in both occupations while their unemployment rates returned to their lowest levels.

In a diverse country such as Canada, with different regions having quite different industrial mixes and demographics, a national-level assessment of pressures in occupational labour markets could easily mask major differences across regions. Some parts of the country may be facing a shortfall in an occupation while other regions may have excess supply in that same occupation. While an assessment of pressures in occupational labour markets at the provincial level has yet to be developed, other sources may provide some insights into the variations in labour market conditions in a given occupation across the country. For instance, the Construction Sector Council suggests that the need for new workers in non-residential

construction occupations in Alberta, associated with major development projects in the energy sector, could be met to some extent by excess supply currently available in other provinces.[11]

…while other occupations, mostly lower-skilled, are showing signs of excess supply

The following table presents the results of a modified version of the BLS methodology for determining which occupations currently face downward pressures – that is, occupations where the supply of labour is greater than the demand. This category includes occupations with an employment growth rate at least 50% slower than the average, wage increases at least 30% lower than the average and unemployment rates at least 30% above average (or at historically high levels). As the table shows, nine occupations are currently in this situation, most of which require a low skill level.

Occupational group	Occupations showing signs of excess supply	Non-student employment 2005 (000s)
Business, finance and administration	Office equipment operators (NOC 142)	57.5
Sales and services	Service station attendants (NOC 6621)	14.6
Trades, transport and equipment operators	Floor covering installers (NOC 7295)	13.7
Primary sector	Fishing vessel skippers and fishermen/women (NOC 8262)	17.6
	Logging and forestry workers (NOC 842)	14.8
	Agriculture and horticulture workers (NOC 843)	76.4
Occupations unique to processing, manufacturing and utilities	Machine operators and related workers in textile processing (NOC 944)	18.1
	Industrial sewing machine operators (NOC 9451)	39.8
	Electronics assemblers, fabricators, inspectors and testers (NOC 9483)	20.4
	Total	272.9

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[11] See Construction Sector Council, *Construction Looking Forward: Labour Requirements for Canada and the Provinces from 2005 to 2013*. Ottawa, 2005.

These excess-supply occupations represented 1.9% of non-student employment in 2005.[12] Various reasons can explain why an occupation may be in a situation of excess supply. For example, organizational restructuring, automation and advances in computers tend to reduce the demand for office equipment operators. Technological advances in navigation, communications and fish tracking, along with harvest quotas, slow employment growth for fishing vessel skippers and fishermen/women. For machine operators in textile processing and for industrial sewing machine operators, international competition is the main contributor to declining employment. With service station attendants, the low skill level required means that the labour supply greatly exceeds demand. Finally, the difficulties experienced in forestry, agriculture and the electric and electronic equipment industry have had a negative impact on some occupations in those sectors.

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[12] This methodology will tend to underestimate the number of occupations in excess supply as wages adjust less rapidly to situations of oversupply (i.e. wages rigidities).

Ten-Year Outlook for the Canadian Labour Market (2006-2015)

The Canadian Labour Market Outlook

The Canadian labour market is expected to perform well over the next decade, with no widespread labour shortages emerging

Total employment is expected to grow from 16.2 million in 2005 to 18.1 million in 2015 – an average annual growth rate of 1.1%. Although this represents a slowdown relative to the 2001-05 period (when the rate of growth was 1.8%), the Canadian economy should still create about 1.9 million new jobs over the next 10 years. Employment growth will be much stronger in the first five-year period:

- Employment is expected to grow at an annual average rate of 1.4% over the next five years (2006-10), leading to the creation of about 1.2 million new jobs. Given that the labour force is expected to increase by 1.3%, the unemployment rate will decrease gradually to reach 6.0% in 2010, down from 6.8% in 2005.

- Over the 2011-15 period, employment growth (0.8%) is expected to slightly outpace labour force growth (0.7%), resulting in the unemployment rate reaching 5.6% by the end of the period. Another 700,000 new jobs will be created in this second period.

This employment forecast is affected by projected changes in economic activity and productivity. Over the next five years, Canada's real GDP is expected to advance at an average annual rate of 2.9% before slowing down somewhat to reach 2.6% a year over the following five-year period. The major factor behind this deceleration is a slowdown in the underlying growth potential of the economy, as slow overall population growth will constrain labour force gains. The aging of the population will have an additional dampening effect on labour force growth as a result of retirements. As inflation has largely remained within the Bank of Canada's target band (between 1% and 3%) for many years now, it is expected that the Bank will be able to set monetary conditions that allow demand to grow in line with this slower growth in potential. Accordingly, a sustained generalized shortage of workers is not expected to materialize in the Canadian labour market. For more details on macroeconomic, demographic and labour force projections (methodology and results), click here

Growth in labour productivity (as measured by output per worker) is expected to average 1.6% over the next 10 years, exceeding the average rate of 1.1% experienced over the 1976-2005 period. The main factors driving this strong rate of labour productivity gains include the growing proportion of highly educated workers in the labour force and a rising capital-to-labour ratio that is being fuelled by both strong machinery and equipment investment and slower overall labour force growth.

Aggregate Labour Market Outlook, 2002-2015

(%) ■ Employment growth (left scale) ■ Labour force growth (left scale) (%)

── Unemployment rate (right scale)
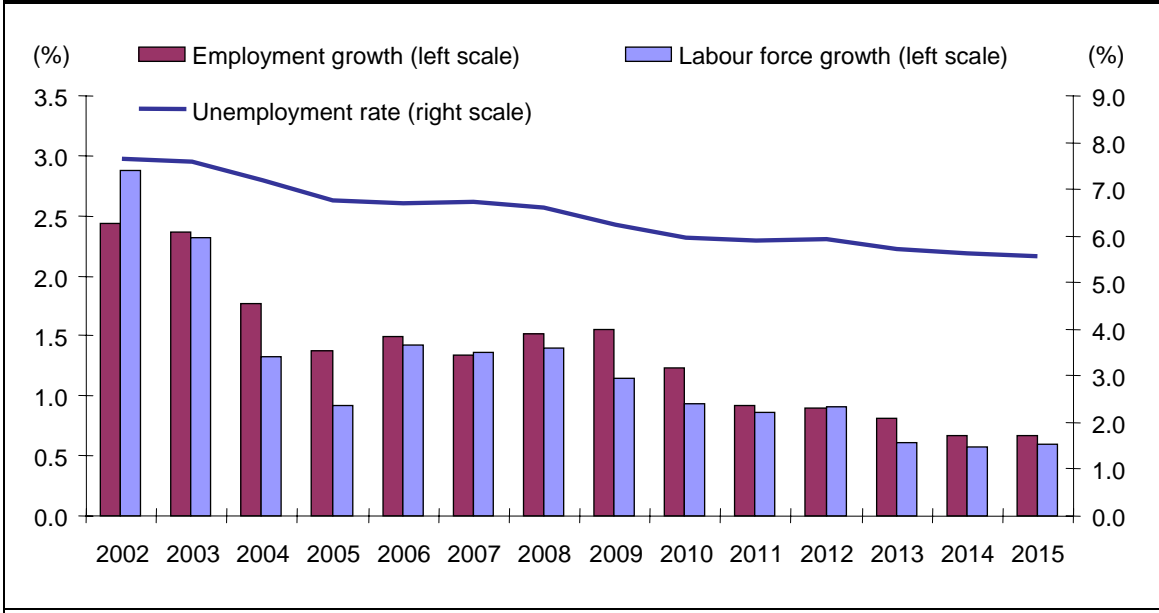
Sources: (2002-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit,
2006 Reference Scenario

Employment Growth by Industry

Employment growth is expected to be fastest in service-producing industries

Demographic and macroeconomic developments will lead to changes in Canada's industrial structure. First, slower population growth is expected to reduce output and employment growth for most industries, while changes in the age structure of the population will have an impact on the industrial structure by favouring service-providing industries, particularly in the health sector.

Other structural trends will also have an impact on Canada's industrial mix, including the continuing shift towards a more knowledge-based economy, globalization and reduced accessibility to some natural resources. Finally, cyclical events such as the pick-up in demand for aeronautical equipment, higher oil prices and the improved fiscal outlook of governments will significantly impact growth in several industries.

Employment Growth by Industry, 1987-2015
(Index 100 = 1987)

Sources: (1987-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario
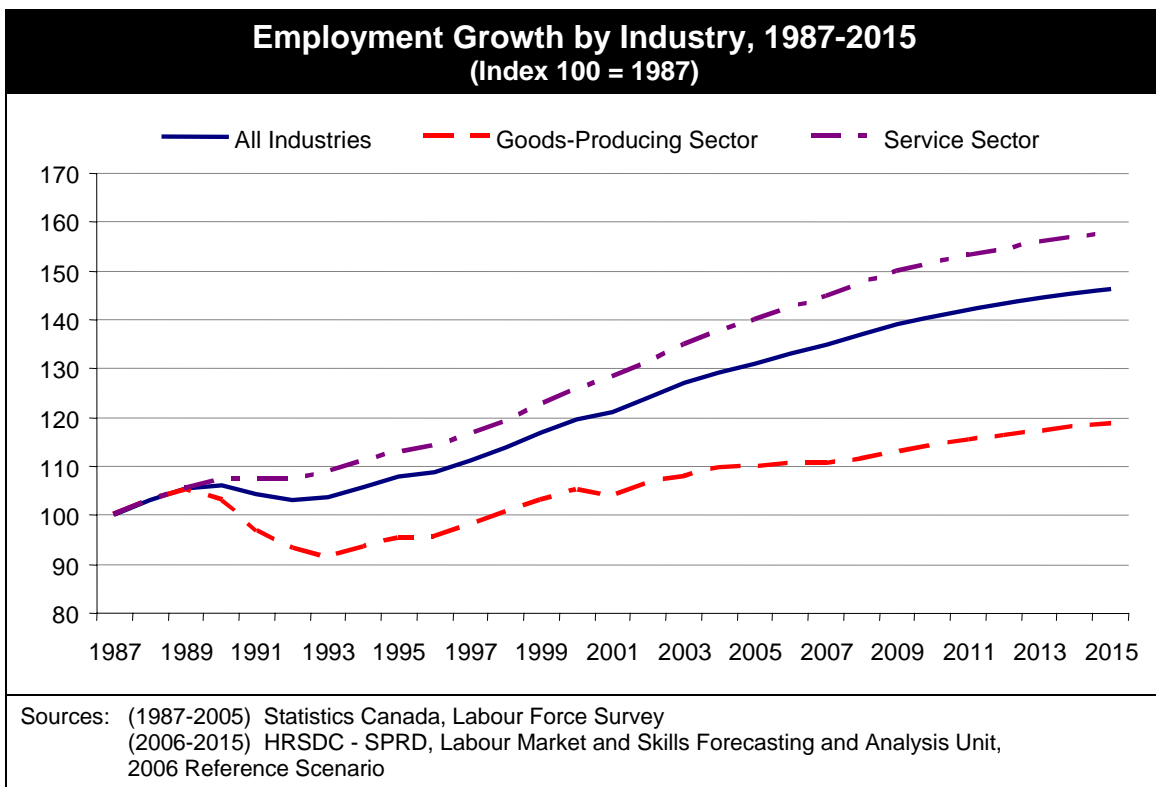
Over the next 10 years, employment growth in the service sector will outpace that in the goods-producing industries, continuing a trend that began in the late 1980s. Employment in the service sector is expected to rise at an annual average rate of 1.2% (an increase of nearly 1.6 million jobs during the 2006-15 period). In the goods-producing industries, the average annual rate of new job creation, at only 0.8% (slightly more than 0.3 million jobs), will be less than the average of 1.1%.

This employment growth gap in favour of the service sector can be attributed to the expected strength of labour productivity in the goods-producing industries. Manufacturers are expected to continue to enhance productivity in order to remain competitive in the face of the strong Canadian dollar and intense international competition. In fact, GDP growth in the goods-producing industries (annual rate of 3.0%) is forecast to outpace that in the service sector (2.7%). This is in contrast to the 1987-2005 period, when the reverse was true.

Among the service industries, employment growth is expected to be strongest in computer system design, health and professional services. These industries will benefit from increases in public spending in health care made possible through improvements in the fiscal position of governments, the continuing movement towards a knowledge-based economy and increased investment in research and development (R&D). However, some industries are expected to experience below-average employment growth – public administration, as larger quantities of public funds are directed towards health and education; the finance, insurance, real estate and leasing sector, given the anticipated slowdown in real estate and mortgage lending and stronger productivity; and the education sector, as a result of the expected slowdown in population growth.

Among the goods-producing industries, employment growth in the oil patch is expected to be above the economy-wide average during the 2006-15 period. High energy prices will stimulate investment spending in this sector, thereby contributing to employment growth in oil and gas extraction (average annual growth rate of 2.0%), support activities for mining and oil and gas extraction (1.9%) and construction (1.3%). In the other primary industries, employment growth will be below average, including forestry (-0.6%), mining (0.2%) and agriculture (0.3%). Finally, in manufacturing, the employment growth outlook is limited: for the sector as a whole, the annual average rate should be 0.6%. However, there will be marked differences within this large sector. Employment growth should be strong in computer and electronic products, some categories of transportation equipment (aerospace products and parts) and metal products and machinery, while in pulp and paper, wood product manufacturing, printing, other manufacturing industries (mainly textiles, clothing and furniture) and motor vehicle and parts manufacturing employment is expected to decline.

For GDP and employment projections by industry (methodology and results), click here

Employment Growth by Occupation (expansion demand)

More than two thirds of all new jobs are expected to be in occupations usually requiring postsecondary education or in management

New job creation[13] within occupations is influenced by two main factors:

- how the industry employing people in a particular occupation evolves; for example, job creation among carpenters, masons and plumbers is dependent on the outlook for the construction industry;

- how a particular occupation is affected by structural factors; for example, employment for general office clerks has dropped because of the development of office automation (computers, email, voice messaging systems, etc.) in favour of more specialized employees such as administrative clerks or information officers.

Over the next 10 years, more than two thirds of the 1.7 million new non-student jobs created (69.2%) are expected to be in occupations usually requiring postsecondary education (university or college) or in management.[14] In 2005, approximately 60% of all non-student workers had jobs in these categories.

Expansion Demand by Skill Level, 2006-2015					
	Non-student employment (000s)		Growth (AAGR[1])	Change (000s)	Share of change
	2005	**2015**	**2006-2015**		
Total	**14,566.8**	**16,263.8**	**1.1%**	**1,697.0**	**100.0%**
Skill level[2]					
Management	1,376.7	1,547.0	1.2%	170.3	10.0%
Occupations usually requiring:					
– university education	2,525.8	2,971.2	1.6%	445.4	26.2%
– college education or apprenticeship training	4,843.2	5,402.6	1.1%	559.4	33.0%
– high school diploma	4,353.3	4,778.2	0.9%	424.9	25.0%
– only on-the-job training	1,467.5	1,564.8	0.6%	97.3	5.7%

Source: HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis, 2006 Reference Scenario.
[1] AAGR: average annual growth rate.
[2] Skill levels are based on the 2001 NOC Matrix, in which occupations are grouped according to the education level and training normally required.

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[13] This is referred to as "required employment" – that is, the number of people needed to reach a certain level of production, given a specific level of productivity. It is not the number of people who will in fact be hired, which will be affected, among other things, by the number of people available for specific jobs. In other words, if there are shortages, the number of people working is constrained by supply.

[14] The occupational analysis reported in this section pertains to non-student employment only (90.1% of employment in 2005) because our focus is on the permanent labour market and excludes young people who are employed while studying and who tend to be concentrated in the sales and service sector.

Among the occupations that generally require postsecondary education or that are in the management group, demand will be particularly high for those usually requiring a university degree: employment in this category is projected to increase by an average of 1.6% annually between 2006 and 2015. This rapid growth is explained in part by the continued shift to a knowledge-based economy and by increased public spending in the health care sector.

Employment growth will be somewhat lower in the other occupations within the high-skilled occupational category. However, growth in new job creation for management occupations (annual average rate of 1.2%) and occupations generally requiring college education or apprenticeship training (average rate of 1.1%) will be nonetheless greater than or equal to the economy-wide average.

Job creation will be weaker in lower-skilled occupations. For those usually requiring only on-the-job training, the average growth rate will be only 0.6% annually, whereas in occupations usually requiring a high school diploma, the average will be 0.9%. For employment projections by occupation (methodology and results), click here

The above results used the National Occupational Classification (NOC) to identify the skill levels where new job openings will emerge. An alternate methodology is to use data on educational attainment.[15] Within each occupation, workers aged 25-44 are classified among four levels of education (less than high school, high school, college and university), based on the last three years of available data (2003-05 period). These educational proportions by occupation are then used to estimate the educational requirements of the new jobs. Results using this alternate method also show that more than two thirds (69.3%) of new jobs will require postsecondary education (either college or university).

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[15] This methodology is adapted from the one used by the U.S. Bureau of Labor Statistics (BLS). For more information, see U.S. Bureau of Labor Statistics, *Occupational Projections and Training Data, 2004-05 Edition*, chapter 1. Washington, D.C.

Labour Force by Educational Level

The level of educational attainment of Canada's labour force will continue to rise, albeit at a slower pace than in the past

The labour force with postsecondary education (university and college) is projected to continue to be the fastest-growing component of supply.[16] The major cause of the increase is the continued impact of the large proportion of young people with postsecondary education (PSE) – 65.5% of the labour force aged 25 to 29 had PSE in 2005 – as they replace less educated, older workers (about 55% of those aged 55 to 64 had PSE in 2005).

More specifically, the cohort of individuals with a university degree, which accounted for 13.8% of the labour force in 1990 and 21.8% in 2005, is expected to rise by 2.2% on average over the next 10 years to reach 24.4 % of the labour force in 2015. On the other hand, the labour force with less than high school education is expected to continue to decline by an average of 1.0% a year. Accordingly, its share of the whole labour force is expected to drop from 14.6% in 2005 to 11.8% in 2015 – less than half what it was in 1990 (28%). The shares of the labour force with a college or high school education are expected to remain fairly constant – at 34% and 30%, respectively.

Share of Labour Force by Education, 2005 and 2015

Sources: (2005) Statistics Canada, Labour Force Survey
(2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit,
2006 Reference Scenario

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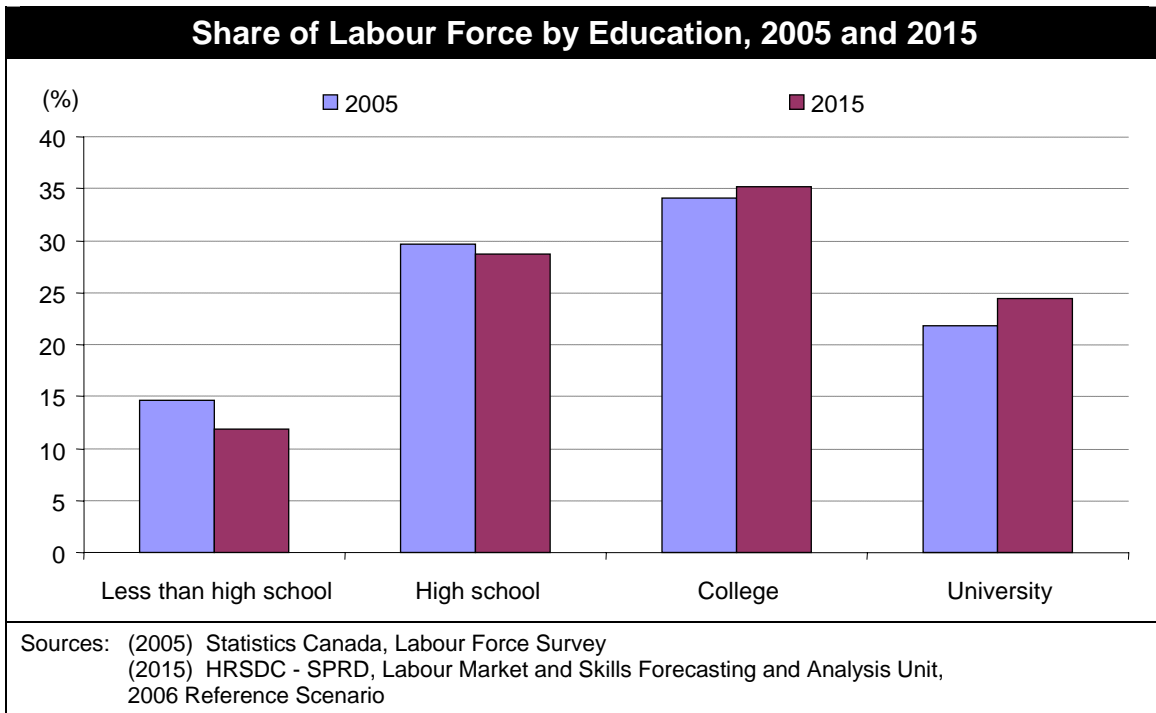
[16] Projections of the labour force by educational level are obtained by: (1) projecting the population by educational level, which takes into account the continuing rise in educational attainment (through a cohort approach) and assumes that the youth of the future will be as educated as the youth of today; and (2) applying age-specific labour market participation rate assumptions by educational level.

Although the educational attainment of the labour force will continue to advance, the rate at which it does so will slow down. The baby-boomers were much more educated than their parents; their own children are also more educated than their parents, but by a narrower margin.

Labour Force by Skill Level

The fastest labour force growth will take place in occupations usually requiring university education

One might want to compare directly employment creation by occupation (skill level) to increases in the labour force by education level in order to assess future imbalances. This could be done, for example, by comparing the number of new jobs in occupations usually requiring university education to the new university-educated labour force. However, as the chart illustrates, the fit between educational attainment and the skill level required for an occupation is far from perfect. For information on the reasons why there is not a perfect correspondence between the educational attainment of a worker and the skill level of its occupation, click here.

Proportion of Workers with Given Level of Education in Each Occupation (Skill Level) – 2005

Source: Statistics Canada, Labour Force Survey and
HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit,
2006 Reference Scenario
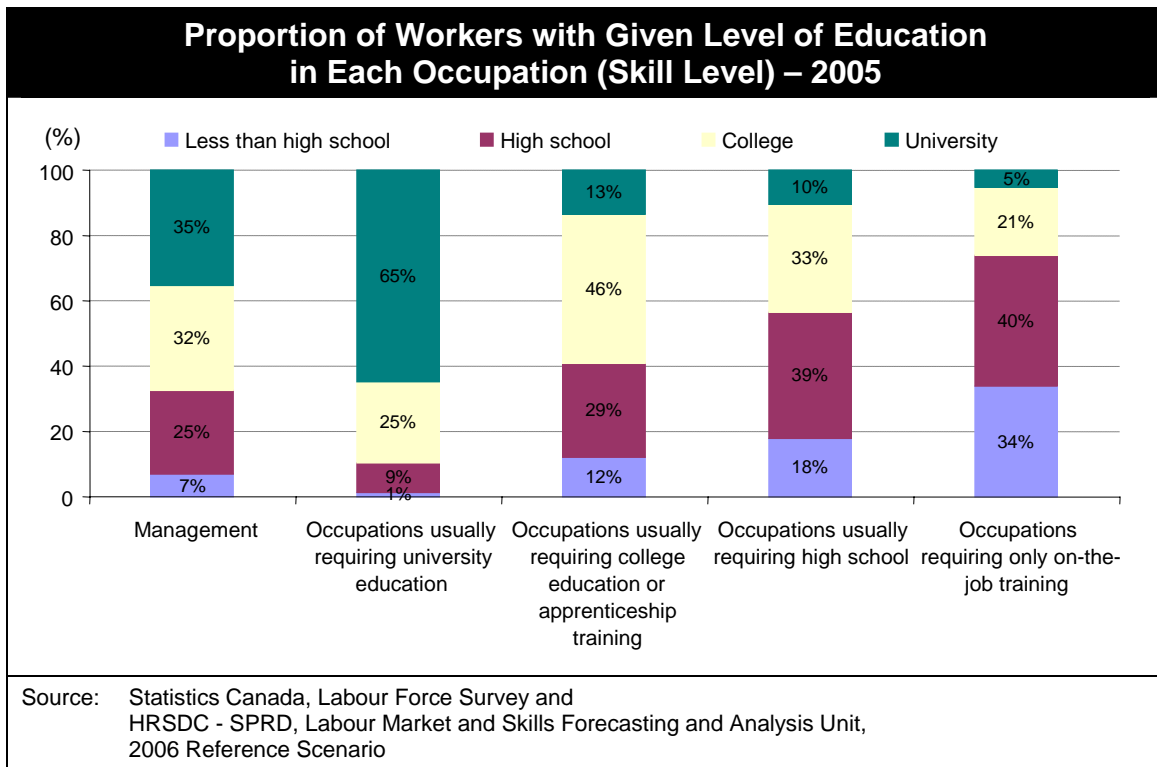
Within low-skilled occupations, the proportion of workers with postsecondary education is important. Conversely, within high-skilled occupations, and most particularly, in management and in occupations usually requiring college education or apprenticeship training, there are also significant proportions of workers with lower educational attainment. In 2005, for example, 65% of those in occupations usually requiring university education actually had university education, 25% had college education and the remaining 10% only had high school or less.

This demonstrates that it is important to avoid confusing educational attainment with skill levels and to convert labour force by educational level to labour force by skill level. One way to make this conversion is to review the past labour market experience of individuals with given levels of education. What can be observed is that the probability that an individual with a given level of education will fill an occupation requiring a given level of skills has remained fairly constant for most categories over the 1990-2005 period. This is somewhat surprising, given both the pronounced business cycles and major structural changes in the economy and in the labour force that occurred during this period.

By forecasting these probabilities into the future and applying the results to labour force projections by educational attainment, a forecast of the labour force by skill level can be derived. Looking ahead, as the population ages, upward occupational mobility, which includes movements to management ranks as workers gain labour force experience, and downward occupational mobility, where workers choose to enter lower-skilled occupations as they transition towards retirement, will become of increasing importance in determining future labour supply by broad skill level. For information on the methodology used to forecast these probabilities and to view results, click here.

Over the next 10 years, the labour force in occupations usually requiring university education is expected to be the fastest-growing component of labour supply, advancing at an average rate of 1.6% per year. In contrast, the labour force in occupations usually requiring less than high school is expected to be growing at the slowest rate, averaging 0.6% over the 2006-15 period. This is not surprising, given that the growth of the labour force is expected to be strongest among those with university education and weakest among those with less than high school education – the primary feeding groups of these occupational skill levels.

The management labour force is expected to record only average growth over the next 10 years (1.0%) despite the above-average growth of its largest component, the labour force with postsecondary education. This is the result of two factors: (1) slowing growth in the core age groups, which are the largest suppliers of workers for management occupations; and (2) the tendency of older workers, as they begin their transition towards retirement, to leave management positions and take lower-skilled occupations, such as those in sales and service that have flexible work arrangements (e.g. flexible hours, for example). In fact, this latter factor is expected to lead occupations usually requiring high school to register an average growth rate of 0.9% over the next 10 years, despite below-average growth in their main feeder group, the labour force with high school education.

Labour Force Growth by Skill Level, 1990-2015[1]

Legend:
- ■ Management
- ■ Occ. usually requiring university education
- ■ Occ. usually requiring college education or apprenticeship training
- ■ Occ. usually requiring high school
- ■ Occ. requiring only on-the-job training

(%)

1990-2005
- Management: 1.2%
- Occ. usually requiring university education: 2.8%
- Occ. usually requiring college education or apprenticeship training: 0.9%
- Occ. usually requiring high school: 1.3%
- Occ. requiring only on-the-job training: 0.8%

2006-2015
- Management: 1.0%
- Occ. usually requiring university education: 1.6%
- Occ. usually requiring college education or apprenticeship training: 0.9%
- Occ. usually requiring high school: 0.9%
- Occ. requiring only on-the-job training: 0.6%

[1] average annual compound growth rates

Sources: (1990-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit,
2006 Reference Scenario

Future Labour Market Imbalances by Broad Skill Level

Imbalances between the skill levels usually required by employers and the qualified labour available may emerge over the next decade

At the aggregate level, employment growth is expected to outpace labour force growth slightly over the next 10 years. The resulting decline in the unemployment rate from 6.8% in 2005 to 5.6% in 2015 is consistent with a well-balanced labour market, in which unemployment returns to its "structural" level. A long-term structural unemployment rate of between 5.5% and 6.0% is consistent with forecasts carried out by the Conference Board of Canada,[17] largely reflecting the impact of population aging and increased educational attainment, as older and more educated workers tend to display lower-than-average unemployment rates.[18]

Future labour market imbalances by broad skill level can be assessed by projecting changes in employment and in the labour force in order to calculate relative unemployment rates. This method can be used given that these projections of employment and the labour force were made independently of each other, allowing for the possibility of imbalances among skill levels to arise.

In the following chart, average annual growth rates in the labour force and employment are plotted along a 45°line to provide an insight into the future balance between labour demand and supply among broad skill levels. Overall, the points fall close to the 45°line, which implies that the growth in the broad skills usually required by employers and in the qualified labour available should be roughly in balance over the next 10 years. By also looking at movements in relative unemployment rates, however, one can gain a better picture of potential future imbalances among broad skill levels.

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[17] Conference Board of Canada, *Canadian Outlook 2006: Long-term Economic Forecast*, Ottawa, 2006.
[18] In fact, in May 2006 the unemployment rate reached 6.1%, indicating that it is already not far off the estimates of its long-term structural rate.

Projected Annual Growth in Employment and Labour Force by Broad Skill Level, 2006-2015
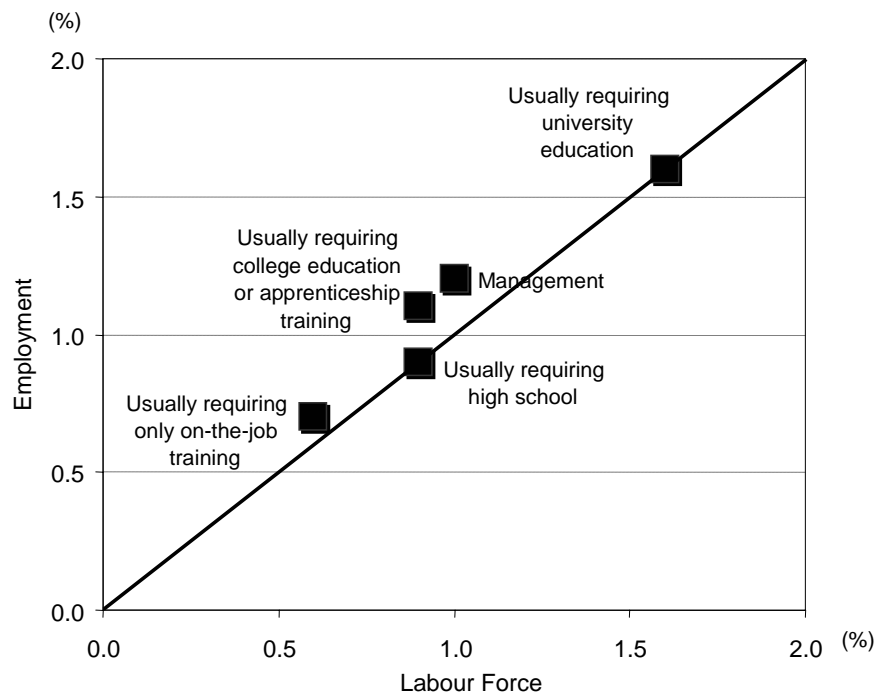
Source: HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Growth in employment is expected to slightly outpace growth in the labour force across all skill levels, resulting in unemployment rate declines (see table below). Although unemployment rates for all skill levels are expected to decline, movements in unemployment rates relative to the economy-wide average are expected to diverge somewhat over the 2006-15 period, indicating potential imbalances among some broad skill levels over the next 10 years.

Managers and occupations requiring college education or apprenticeship training are expected to experience relative unemployment rate declines as employment growth is expected to be significantly stronger than labour force growth. The aging of the population could put pressure on those two skill levels. In contrast, in occupations usually requiring at least high school education and those requiring on-the-job training, employment gains are expected to outpace labour force gains at a lower-than-average rate, resulting in a lower decline in their unemployment rates. In occupations requiring at least a university education, the unemployment rate is expected to decline in line with the economy-wide average.

Relative Unemployment Rates by Skill Level, 2006-2015						
	Unemployment rate in 2005		Growth 2006-15 (AAGR[1])		Unemployment rate in 2015	
	Level	Relative	Employment	Labour Force	Level	Relative
Total	**6.8%**	**1.0**	**1.1%**	**1.0%**	**5.6%**	**1.0**
Skill level						
Management	3.3%	0.5	1.2%	1.0%	1.6%	0.3
Occupations usually requiring:						
– university education	3.3%	0.5	1.6%	1.6%	2.9%	0.5
– college education or apprenticeship training	5.6%	0.8	1.1%	0.9%	3.2%	0.6
– high school education	8.2%	1.2	0.9%	0.9%	8.0%	1.5
– only on-the-job training	13.3%	2.0	0.7%	0.6%	12.3%	2.1

Source: Statistics Canada, Labour Force Survey & HRSDC, SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario.

[1] AAGR : average annual growth rate

Future Labour Market Imbalances by Occupation

It was shown previously that labour market imbalances among some of the broad skill levels are foreseen over the next 10 years, given expected trends in employment and the labour force. Managers and occupations usually requiring college education or apprenticeship training could be facing some labour market pressures. However, this does not preclude the possibility of considerable labour market imbalances when looking at detailed occupations within each of the five skill levels, with excess supply in some occupations coexisting with excess demand in others.

This section highlights the occupations that are expected to be in labour shortage or surplus over the next 10 years. This is accomplished by comparing projections of the number of new job seekers emerging from the school system and from immigration to the number of job openings resulting from expansion demand and from retirements.[19] Upward labour market pressures will occur if the number of job openings is expected to exceed the number of new job seekers. Alternatively, if the number of new job seekers is expected to be higher than the number of job openings, there will be downward labour market pressures.

In addition, one must also take into consideration the current balance between labour supply and demand within an occupation (see Current imbalances by occupation). For example, an occupation currently in excess demand will see its situation worsen if the number of job openings is projected to be greater than the number of new job seekers over the next 10 years. If this occupation is currently in excess supply, larger increases in the number of job openings than in the number of new job seekers over the projection period will contribute to reduce or eliminate the initial excess supply situation. To see a diagram of the methodology for assessing potential pressures by occupation, click here

Other considerations such as labour mobility are also taken into account when identifying the occupations that are expected to be in labour shortage or surplus over the next 10 years. Labour mobility takes two forms: vertical labour mobility, in which experienced workers move to the management ranks, and horizontal labour mobility, in which workers move between occupations that require similar skill sets. By not taking labour mobility into account, an approach that looks only at new job seekers when assessing future labour market pressures tends to overestimate situations of excess demand and supply among occupations. For example, new job seekers are mainly comprised of young individuals emerging from the school system without extensive labour market experience. Accordingly, very few of these young individuals will enter management or supervisory occupations after leaving school.

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[19] This approach was adopted as it allows for deriving a potential labour supply independent of labour demand, thereby allowing for an evaluation of the degree of imbalances among detailed occupations. The potential labour supply is obtained by mapping out in which occupations school leavers (by field of study) and immigrants will offer their services. For school leavers, an "ex ante" approach is used, i.e. school leavers are assumed to offer their services in occupations related to their field of study, although in reality they might work in other unrelated occupations (for example, due to cyclical downturns).

On the other hand, workers already in the labour market (and who are not included in new job seekers) can move into management or supervisory occupations. Their supply is considered when assessing the labour market situation of these occupations.

Before highlighting the occupations that are expected to be in labour shortage or surplus over the next 10 years, projections of the components of job openings and new job seekers will be presented. Results supplied are mainly restricted to broad occupational groupings. For projections by detailed occupation, the reader can refer to the annexes.

Future job openings and new job seekers

Retirements will account for a growing share of job openings

Two main sources of job openings are assessed for all three-digit NOC occupations. Employment growth due to expansion demand is simply the result of new jobs being created through increased economic activity, as discussed in the section on "Employment Growth by Occupation." The second source of job openings comes from workers leaving their jobs because of retirements.

Over the past 10 years, expansion demand has accounted for about half of all job openings. Over the next 10 years, however, this pattern will change significantly. Expansion demand is expected to grow at an annual average rate of 1.1% over the period, creating 1.7 million non-student jobs. On the other hand, approximately 3.8 million people are expected to retire – an average of 2.4% of the workforce each year. In other words, over twice as many jobs will open up due to the retirement of workers in existing jobs as from the creation of new jobs.

Job Openings: Retirements and Expansion Demand, 1995-2015

(in thousands) ■ Retirements   ■ Expansion Demand

Sources: (1995-2005) Statistics Canada, Labour Force Survey (Expansion Demand), and HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario (Retirements)
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Accordingly, retirements as a share of job openings will rise steadily over the forecast period, reaching almost 80% by 2015. This development will be driven by the aging of the population and the overall slowdown in employment growth.

[For information on retirement projections (methodology and detailed results), click here](#)

Two thirds of all jobs openings, from both expansion demand and retirements, will be in occupations usually requiring postsecondary education or in management

Future occupational demand (excluding students[20]) will vary across skill levels. In fact, demand will be strongest in terms of both expansion demand and retirements in occupations usually requiring postsecondary education (university and college) and in management. Over the next 10 years, approximately 66% of the demand will be in these occupations, which represented 60% of employment in 2005.[21]

Among occupations usually requiring postsecondary education, demand will be particularly strong in occupations usually requiring a university degree, as employment is expected to grow by an average of 1.6% annually, while an average of 2.5% of the workforce will have to be replaced each year due to retirements. Although occupational demand will be slightly less in the other occupations requiring postsecondary education, it will nonetheless be greater than or equal to the economy-wide average. Occupations in management and in those usually requiring a college education or apprenticeship training are expected to register an average annual expansion demand rate of 1.2% and 1.1% respectively and a retirement rate of 2.8% and 2.4% respectively.

New job creation and retirements will be weakest in low-skilled occupations. Those requiring only on-the-job training will have the lowest demand (average annual expansion demand of 0.6% and a retirement rate of 2.1%). For occupations requiring only a high school diploma, employment growth will be about average and retirements will be below average (average annual expansion demand of 0.9% and a retirement rate of 2.2%).

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[20] As in the sections on employment growth by occupation, the occupational analysis presented here pertains to non-student employment only.

[21] In fact, 69.2% of jobs created by economic expansion will be in occupations generally requiring postsecondary education or in management, whereas 64.4% of job openings due to retirements will be in these occupational groups, for a combined average of 65.9%.

Job Openings by Skill Level, 2006-2015					
	Expansion demand (non-student)		Retirements		Share
	Level (000s)	Rate (AAGR[1])	Level (000s)	Rate (AAR[2])	
Total	**1,697**	**1.1%**	**3,801**	**2.4%**	**100.0%**
Skill level[3]					
Management	170	1.2%	433	2.8%	11.0%
Occupations usually requiring:					
– university education	445	1.6%	726	2.5%	21.3%
– college education or apprenticeship training	560	1.1%	1,288	2.4%	33.6%
– high school diploma	425	0.9%	1,035	2.2%	26.5%
– only on-the-job training	97	0.6%	320	2.1%	7.6%

Source: HRSDC, Strategic Policy Research Directorate, 2006 Reference Scenario.

[1] AAGR: average annual growth rate.

[2] AAR: annual average retirement rates, which correspond to the ratio of retirement level to employment level for each forecast year.

[3] Skill levels are based on the 2001 NOC Matrix, in which occupations are grouped according to the education and training normally required.

In terms of levels, occupations usually requiring college education or apprenticeship training will account for one third of job openings (approximately 1.8 million). These occupations also represented one third (33%) of jobs in 2005. Although occupations requiring only high school education will account for a significant share of job openings (26.5%), this share will be lower than their proportion of total employment in 2005 (30%). In contrast, occupations requiring a university education, which accounted for 17% of employment in 2005, will represent 21.3% of job openings over the next 10 years. Similarly, management occupations will account for a more significant share of job openings (11%) than their share of total employment in 2005 (9.5%).

School leavers will remain by far the main source of new job seekers

The number of potential new job seekers is estimated from the flows of students emerging from the formal education system every year (school leavers) and of recent immigrants. New job seekers are assessed for all three-digit NOC occupations.

Over the next 10 years, approximately six million people will enter the Canadian labour market, with four fifths of them emerging from the education system. In 2005, an estimated 536,000 graduates and dropouts left Canadian educational institutions and entered the labour market. The number of school leavers in 2015 is expected to be 572,000. Annual growth (0.7%) should outpace demographic growth in the 17-to-29 age group, which is estimated to be 0.2% a year over the next decade. For information on school-leaver projections (methodology and results), click here

Although immigrants are a significant source of labour supply, they represent only one fifth of new job seekers. It is estimated that 121,000 immigrants admitted to Canada in 2005 looked for work. This number is expected to increase annually by 0.8% and to reach 131,000 in 2015. For information on immigration projections (methodology and results), click here.

New Labour Market Entrants: School Leavers and Immigration, 1985-2015

Sources: (1985-2005) Statistics Canada, Labour Force Survey (Expansion Demand), and HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario (Retirements)
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario
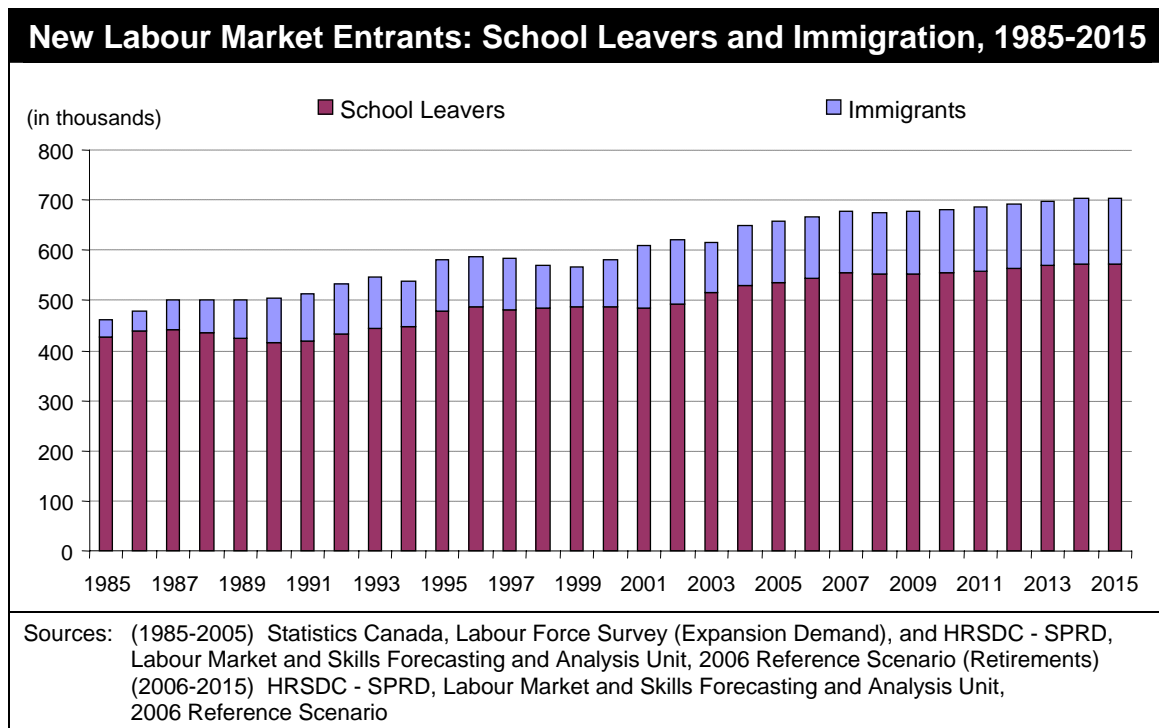
Assessment of future labour market imbalances by occupation

Given current trends in supply and demand, occupations in the health sector and in management are expected to remain in shortage

Given these projections of future job openings and new job seekers, as well as the assessment of current labour market situations, numerous occupations are expected to continue to face imbalances between demand and supply over the medium term.

Most of the management occupations currently facing pressures are expected to continue to do so over the next 10 years, as the projected number of new job openings is expected to be greater than the projected number of new job seekers. The growing need to replace retiring workers will open up positions in many occupations, including legislators and senior management, human resources managers, as well as supervisors in trades, facility operation, oil and gas drilling and service, and processing. Shortage pressures are also expected to emerge in two other managerial occupations: managers in health, education, social and community services, and managers in public administration.

Increased health care needs resulting from the aging of the population will result in demand outpacing supply for several health care occupations. Occupations such as physicians, optometrists, health diagnosing and treating professionals, head nurses and supervisors, nurse aides and orderlies are expected to continue to face shortage pressures over the next decade. At the same time, other occupations in the health field – therapy and assessment professionals and medical radiation technologists – are likely to continue to display signs of pressure even though projections point to a relative balance between new job openings and new job seekers. This result stems from the fact that future supply would have to outpace future demand in order to alleviate the current pressures.

Category	Occupations expected to face excess demand pressures over the next 10 years
Business, finance and administration occupations	Legislators and senior management (NOC 001)
	Human resources managers (NOC 0112)
	Human resources and business service professionals (NOC 112)
Natural and applied sciences and related occupations	Civil engineers (NOC 2131)
	Industrial engineering and manufacturing technologists and technicians (NOC 2233)
Health occupations	Managers in health, education, social and community services (NOC 031)
	Physicians, dentists and veterinarians (NOC 311)
	Optometrists, chiropractors and other health diagnosing and treating professionals (NOC 312)
	Therapy and assessment professionals (NOC 314)
	Head nurses and supervisors (NOC 3151)
	Other technical occupations in health care (except dental) (NOC 323), such as registered nursing assistants, audiology technicians and physiotherapy technicians
	Medical radiation technologists (NOC 3215)
	Nurse aides and orderlies (NOC 3413)
	Other aides and assistants in support of health services (NOC 3414)
Occupations in social science, education, government service and religion	Managers in public administration (NOC 041)
Trades, transport and equipment operators and related occupations	Residential home builders and renovators (NOC 0712)
	Facility operation and maintenance managers (NOC 0720)
	Contractors and supervisors, trades and related workers (NOC 721), such as in pipefitting trades and carpentry trades
Occupations specific to the primary industry	Supervisors, oil and gas drilling and service (NOC 8222)
	Oil and gas well drillers, servicers, testers and related workers (NOC 8232)
Occupations specific to processing, manufacturing and utilities	Supervisors, processing occupations (NOC 921), such as in petroleum, gas and chemical processing and utilities, and plastic and rubber products manufacturing

Shortage pressures among human resources and business service professionals are expected to remain as employers continue to place greater emphasis on recruiting and retaining quality employees to handle the increasingly complex jobs of our economy.

Pressures are also expected to persist over the next decade among oil and gas well drillers, servicers, testers and related workers as a result of an increase in demand associated with large capital spending projects, such as the tar sands development projects in Alberta. Finally, strength in non-residential construction (e.g. for the 2010 Olympics in British Columbia) and in renovation will benefit civil engineers and residential home builders and renovators.

However, some occupations currently facing shortage pressures should move in the coming years towards a better balance between labour demand and supply. These include occupations in the residential construction and real estate sectors, as a result of an anticipated slowdown in residential investment after the recent boom. Pressures among university professors are also expected to lessen, as more people complete their doctoral studies, though some shortage may subsist in specific disciplines. The same can be said for geologists, geochemists and geophysicists, mainly thanks to the high number of people enrolled in fields of study related to physical science. Computer and software engineers should also have enough labour supply to satisfy the demand for labour.

All the occupations currently in excess supply are expected to remain in this situation over the next 10 years. These occupations are mainly in low-skilled categories.

[For information on the assessment of future labour market imbalances by occupation (methodology and detailed results), click here](#)

The assessment of future labour market situations assumes that current trends in labour demand and supply will persist. Imbalances in occupational sectors of the labour market may actually diminish and disappear over the long term as firms and individuals respond to market signals (e.g. higher earnings in occupations facing excess demand) or to information about prospective imbalances. For example, young people may decide to enrol in fields of study that lead to occupations that are in excess demand or job holders may decide to move into occupations where demand is stronger. Firms may decide to use more machinery and equipment and less labour if the relative price of labour increases. Over time, such supply and demand adjustments will contribute to lessening labour market pressures in occupations currently in an excess-demand situation.

Notes on Projections:
Methodology and Detailed Results

Demographic, Labour Force and Macroeconomic Projections: Methodology and Results

Macroeconomic activity

The macroeconomic scenario used in this forecast was developed in cooperation with the Conference Board of Canada, using as a starting point the CBOC's spring 2006 medium-term forecast. The CBOC scenario was then adjusted to reflect a consensus view on certain key variables, including GDP and employment over the five-year periods of 2006-10 and 2011-15.

Macroeconomic assumptions (average annual growth)		
	2006-2010	**2011-2015**
GDP	2.9%	2.6%
Employment	1.4%	0.8%

The consensus was drawn from a multitude of private and public sector sources, including Consensus Forecasts (private sector consensus), the Organisation for Economic Co-operation and Development (OECD), the International Monetary Fund (IMF), Finance Canada (2005 Fiscal Update) and the Bank of Canada. This scenario does not attempt to forecast cyclical fluctuations in the economy beyond the current cycle, with longer-term projections based on structural trends in labour supply, productivity and the components of demand. More information on the macroeconomic assumptions used in the forecast can be obtained from the Strategic Policy Research Directorate, Human Resources and Social Development Canada.

Demography

The Models of Economic-Demographic Systems (MEDS) developed by Denton, Feaver and Spencer of McMaster University were used in specifying the demographic scenario for this labour market projection.

Demographic Assumptions

The number of births is influenced by three factors: 1) the fertility rate (set at 1.5 children per woman); 2) the average age of mothers at the birth of their first child (steady at 29.1 years); and 3) the population of women of childbearing age.

With regard to mortality rates, higher living standards and medical advances are expected to continue increasing life expectancy, but at a slower pace. The life expectancy of women was 81.4 years in 1996 and is expected to rise to 86.1 years by 2051. The life expectancy of men was 75.5 years in 1996 and is expected to rise to 82.8 years by 2051.

Immigration and emigration rates remained constant at 0.75% and 0.20% of the Canadian population, respectively, throughout the projection period.

The Canadian population rose from 29.6 million in 1996 to 32.2 million in 2005. It should rise steadily to 35 million in 2015, an increase of 2.8 million over 10 years, compared to the increase of 2.9 million recorded between 1996 and 2005. The average annual growth rate, which was 1.1% between 1996 and 2005, will decline to 0.9% between 2006 and 2015. This slowdown is largely the result of the decline in the natural increase in the population (births minus deaths), which is in turn caused by the combined effect of low fertility rates and the slower increase in life expectancy. Immigration will thus play an increasingly significant role in Canada's population growth.

Change in Total Population in Canada, 1976-2051

Sources: (1976-2005) Statistics Canada, Annual Demographic Statistics
(2006-2051) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario
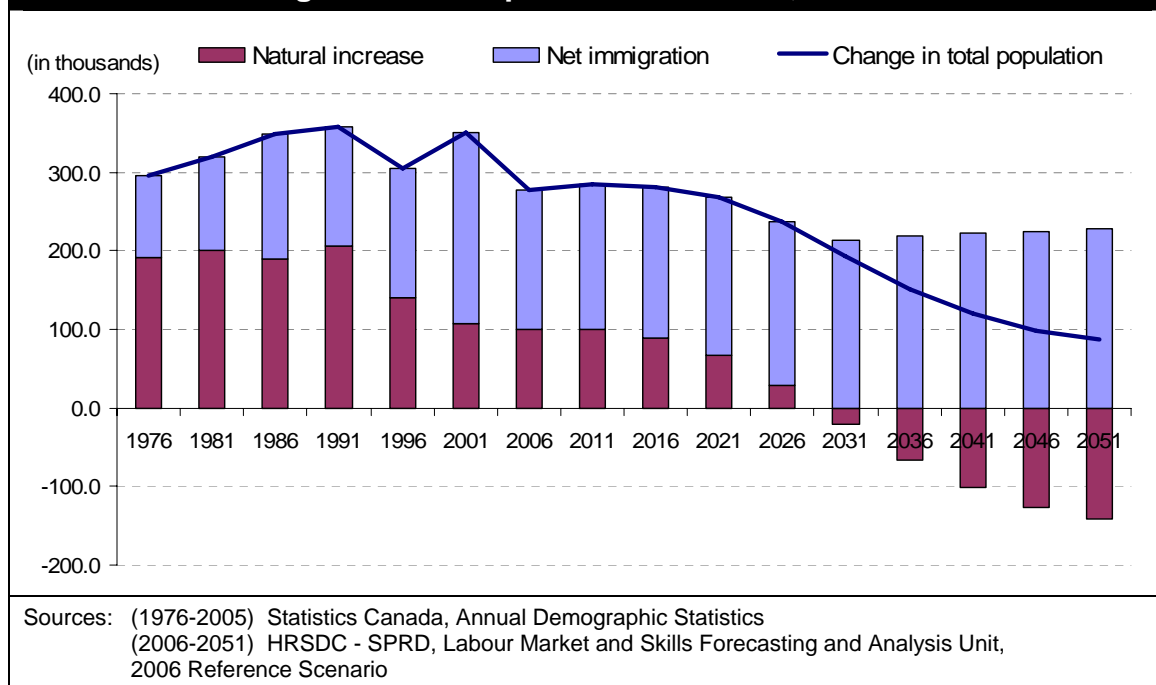
Immigration is already a significant contributor to population growth in Canada. While the contribution of immigration to population growth is expected to remain relatively stable between 2006 and 2015, it is projected to account for over two thirds (67.5%) of the population increase by 2015 in cumulative terms.

The deceleration in the natural increase will have the direct effect of slowing down the growth of the labour force source population (individuals aged 15 years and over) over the next decade. That growth is expected to decrease from 1.3% during the 1996-2005 period to 1.1% during the projection period.

Labour force

The aging of the population will have an impact on the current labour market by contributing to the aging of the labour force and to an increase in the number of retirements.

The labour force projections are based on a participation rate model developed by HRSDC. The model projects the labour force by age group, gender and educational attainment, using a cohort-based approach. Thus the model follows the rise in the educational level of younger people and assures that these levels are maintained through the projection period. Among the older age groups, the model follows the behaviour of birth cohorts over the years. Some groups, particularly women, participate in the labour market to a greater extent today than women of previous generations. Thus the projected participation rate is influenced by this positive cohort effect. According to Finance Canada,[22] this effect should lessen by 2015.

Population Growth, 1991-2015[1]

1 average annual growth rate

Sources: (1991-2005) Statistics Canada, Annual Demographic Statistics
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

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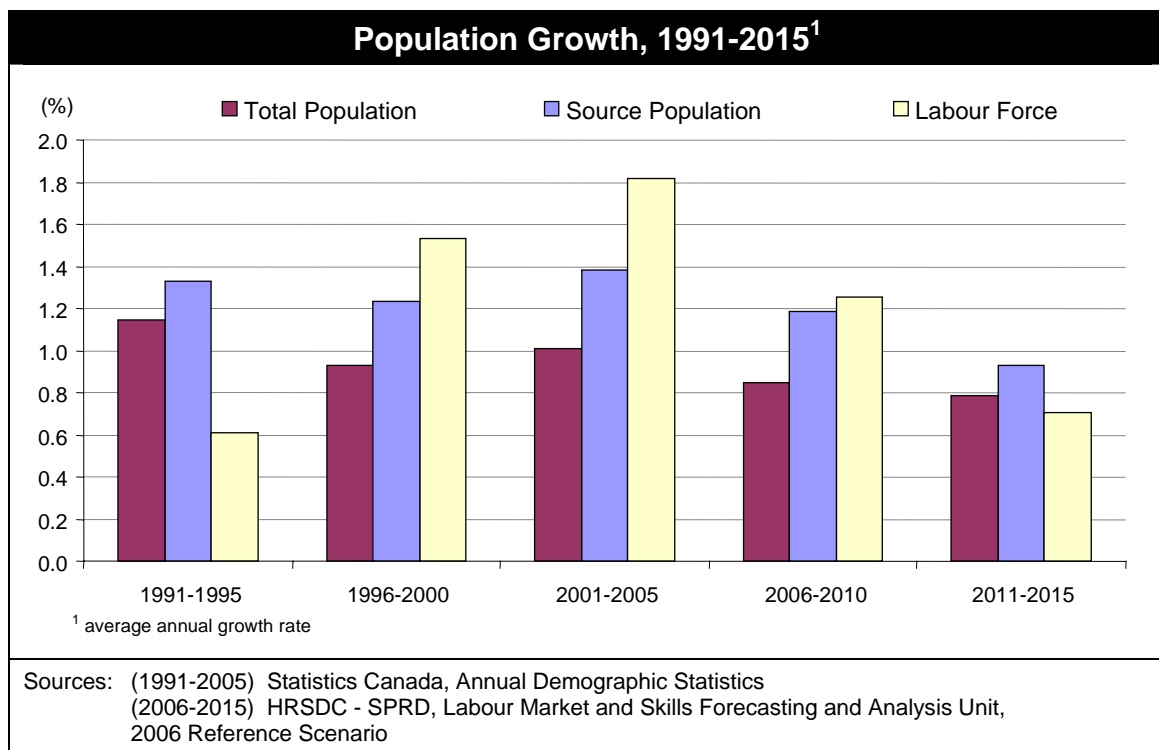
[22] See T. Sargent, "Canadian Labour Force Participation Rate: Developments and Prospects." Ottawa, Finance Canada, June 2003.

The labour force is expected to increase from 17.3 million people in 2005 to 19.1 million by 2015. This represents an average annual increase of 1.0%, slower than the 1.7% average reported between 1996 and 2005. The overall participation rate is projected to decline to 66.7% by 2015 from 67.2% in 2005, as the impacts of population aging begin to take hold near the end of the present decade.

Labour Force and Participation Rates, 1990-2015

Sources: (1990-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Labour Force and Participation Rates of Young People (aged 15 to 24)

Sources: (1990-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Age group 15-24

The youth participation rate declined substantially during the 1990s, down from the peak level recorded in 1989. More youths decided to attend school in the 1990s, as reflected by increases in enrolment rates up to 1997. Since 1997, improved economic conditions have drawn more young people into the labour market, leading to an increase in their participation rate. The youth participation rate is expected to rise gradually from 65.9% in 2005 to 68.5% in 2015, still 2.6 percentage points below the 1989 peak of 71.1%.

Age group 25-54

The core group participation rate should continue to increase, but at a decreasing rate. Over the last few decades, the increased participation rate of people aged 25 to 54 can be largely attributed to the increased participation of women in the labour market. The participation rate of women is expected to continue to rise, but more slowly than in the past. This is in part due to the decreasing impacts of rising educational attainment among women. Labour market pressures resulting from the aging of the population should have a positive impact, particularly on the participation rate for men. The participation rate for core age men is expected to increase slightly from 91.5% in 2005 to 91.9% by 2015. The rate for women should rise more quickly, from 81.1% to 82.3%.

Labour Force and Participation Rates of Core Group – Men (aged 25 to 54)

Labour Force (left scale)
Participation Rates (right scale)

(in thousands)

(%)

Sources: (1990-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Labour Force and Participation Rates of Core Group – Women (aged 25 to 54)

Labour Force (left scale)
Participation Rates (right scale)

(in thousands)

(%)

Sources: (1990-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Age group 55 and over

The participation rate of people aged 55 and over trended down until 1996, mainly due to the declining labour market participation of men in this age group. Since, it has begun to increase, a trend that is expected to continue until 2015, albeit more slowly than in the recent past. Factors contributing to this increase include: increased educational attainment of older workers (who tend to participate more); generational effects (general tendency of people in this age group to participate more than previous generations); better health; and favourable labour market conditions. The labour force for those aged 55 to 64 should continue to increase over the next ten years, as this group's population grows and their labour force participation rate continues to rise, reaching 69.9% for men and 55.2% for women by 2015. Among people aged 65 and over, the participation rate for men is expected to rise from 12.1% in 2005 to 18.8% by 2015, and for women from 5.0% to 8.2% during the same period. Thus the labour force within this group is expected to double over the next 10 years.

Labour Force and Participation Rates of Older People – Men
(aged 55 to 64)
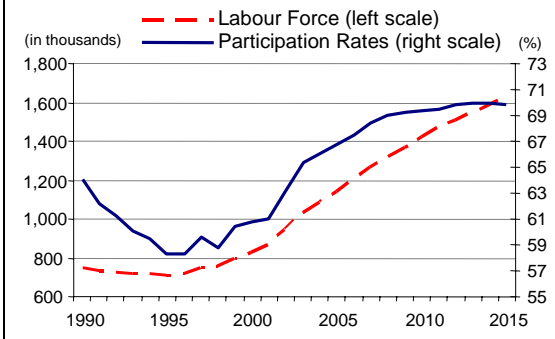
(in thousands)

- - - Labour Force (left scale)
——— Participation Rates (right scale)

(%)

Sources: (1990-2005) Statistics Canada,
Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour
Market and Skills Forecasting and Analysis
Unit, 2006 Reference Scenario

Labour Force and Participation Rates of Older People – Women
(aged 55 to 64)
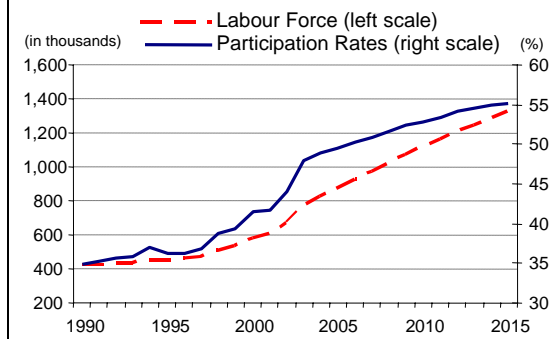
(in thousands)

- - - Labour Force (left scale)
——— Participation Rates (right scale)

(%)

Sources: (1990-2005) Statistics Canada,
Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour
Market and Skills Forecasting and Analysis
Unit, 2006 Reference Scenario

GDP and Employment Projections by Industry: Methodology and Results

Methodology

The industrial scenario used in this forecast was developed in cooperation with the Conference Board of Canada. First, GDP by industry is forecasted based on the outlook for final demand categories of spending in the CBOC's macroeconomic model (Medium-Term Forecasting Model). Secondly, labour productivity by industry is estimated based on its historical trend derived from a Hodrick-Prescott filter. The employment forecast by industry is then derived based on the projected GDP and labour productivity by industry.

Results

	Average Annual Growth (%) 2001-2005			Average Annual Growth (%) 2006-2010			Average Annual Growth (%) 2006-2015		
Gross Domestic Product (GDP), Employment and Productivity Growth by Industry									
	GDP	Emp	Prod	GDP	Emp	Prod	GDP	Emp	Prod
All Industry	**2.6**	**1.8**	**0.7**	**2.8**	**1.4**	**1.4**	**2.8**	**1.1**	**1.6**
Goods-producing sector		0.9			0.8			0.8	
Agriculture	0.0	-1.6	1.7	2.3	0.1	2.1	2.2	0.3	1.9
Other Primary	3.0	2.2	0.8	3.6	1.7	1.9	2.9	1.0	1.9
Logging and Forestry	2.9	-4.3	7.6	1.3	0.1	1.2	0.4	-0.6	1.0
Fishing, Hunting and Trapping	0.5	-1.8	2.3	1.4	0.8	0.6	1.4	0.4	1.0
Mining (except Oil and Gas)	2.2	-1.6	3.9	2.8	0.6	2.2	2.3	0.2	2.1
Oil and Gas Extraction	1.5	8.2	-6.1	4.7	3.1	1.4	3.7	2.0	1.6
Support Act. for Mining and Oil & Gas	11.1	10.9	0.3	3.6	3.0	0.6	3.1	1.9	1.2
Construction	5.3	4.7	0.6	2.4	1.7	0.7	2.1	1.3	0.8
Manufacturing	0.6	-0.4	1.0	3.4	0.3	3.2	3.4	0.6	2.8
Food and Beverage Products	2.0	2.6	-0.6	2.4	0.3	2.1	2.5	0.4	2.1
Wood Product Manufacturing	3.2	0.5	2.7	1.0	-1.2	2.3	1.5	-0.6	2.1
Pulp and Paper	-1.3	-2.6	1.4	1.1	-1.4	2.6	1.1	-0.9	2.0
Printing	2.1	0.5	1.6	2.1	-0.9	2.8	1.6	-0.5	2.1
Manufactured Mineral Products	2.3	-1.4	3.8	4.2	0.8	3.3	3.9	0.6	3.2
Rubber, Plastics and chemicals	2.8	1.1	1.6	4.2	0.9	3.3	4.2	1.3	2.8
Metal fabrication and machinery	1.7	1.9	-0.2	5.0	1.2	3.8	4.4	1.1	3.2
Computer, Electronic and Elect. Prod	-6.2	-6.2	0.2	5.8	2.0	3.6	6.7	2.9	3.5
Motor vehicles, trailers and parts	1.0	-0.2	1.3	1.7	-0.3	2.1	1.9	-0.1	2.0
Other transportation equipment	-1.8	-1.4	-0.1	5.1	2.8	2.0	4.4	2.4	1.8
Other manufacturing	-1.1	-2.1	1.0	2.5	-1.0	3.5	2.7	-0.2	3.0
Utilities	0.7	1.7	-1.0	3.1	0.5	2.5	2.8	0.1	2.7

Gross Domestic Product (GDP), Employment and Productivity Growth by Industry (continued)								
	Average Annual Growth (%) 2001-2005			Average Annual Growth (%) 2006-2010			Average Annual Growth (%) 2006-2015		
	GDP	Emp	Prod	GDP	Emp	Prod	GDP	Emp	Prod
Service-producing sector		2.1			1.6			1.2	
Commercial Services	3.4	2.0	1.3	2.8	1.6	1.2	2.8	1.1	1.6
Wholesale trade	5.2	2.2	2.9	3.3	1.9	1.4	3.1	1.1	2.0
Retail trade	4.6	2.4	2.2	3.3	2.2	1.1	2.9	1.2	1.6
Transportation & Storage	2.6	0.5	2.0	2.5	1.4	1.0	2.5	1.0	1.5
Finance,Insurance and Real Estate	3.4	2.9	0.5	2.2	1.0	1.1	2.4	0.7	1.7
Professional business services	1.9	2.1	-0.1	3.2	1.9	1.2	3.3	1.6	1.7
Computer System Design Serv.	4.2	1.3	2.8	4.6	2.4	2.1	4.8	2.6	2.2
Other Professional Services	1.0	4.1	-3.0	3.6	2.1	1.4	3.8	2.1	1.6
Manag., Adm. and Other Support	4.6	4.0	0.5	3.1	1.7	1.5	3.1	1.5	1.6
Information, culture and recreation	4.0	2.1	1.8	2.8	1.1	1.6	2.8	1.1	1.7
Accommodation and food	0.7	1.4	-0.6	2.7	1.5	1.3	2.7	1.2	1.4
Other services	3.3	0.1	3.1	1.0	0.2	0.8	1.7	0.3	1.4
Non-Commercial Services	1.9	2.7	-0.8	3.1	2.0	1.0	2.8	1.6	1.2
Educational services	1.4	2.6	-1.1	1.9	1.1	0.8	1.8	0.8	0.9
Health services	2.2	2.8	-0.5	3.9	2.6	1.3	3.5	2.0	1.4
Public administration	2.1	1.5	0.5	2.1	0.7	1.4	2.1	0.7	1.5
Source: HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario									

SERVICE SECTOR

The shift to a knowledge-based economy improves prospects for business services

The **computer systems design and related services** industry has matured and, as a result, the double-digit growth rates recorded in the 1990s are no longer the norm. Nevertheless, with computer technology now an integral part of the economy, output in this sector is expected to grow at an average annual rate of 4.8% between 2006 and 2015. Not surprisingly, the slowdown in activity in the computer systems sector has resulted in much lower demand for labour; the off-shoring of computer services to India and China has also played a part in the slowdown. Employment is expected to increase at average annual rates of 2.4% between 2006 and 2010 and 2.8% over the following five years when the industry regains its normal pace. However, these rates remain quite low compared to the annual average of more than 20% over the 1994-99 period. Nevertheless, the computer systems design industry is expected to lead all service industries in terms of output and employment growth.

Professional business services (a group that includes legal, accounting, architectural and engineering services) and **other professional services** (which include scientific, technical and advertising services) experienced strong growth during the second half of the 1990s due to the growing trend among companies towards outsourcing non-essential processes in order to increase operational efficiency, and to the move towards the knowledge-based economy. Between 2000 and 2005, however, employment growth was slightly lower for those

two groups. Professional business services faced a decrease in non-residential construction (engineers and architects), lower corporate profits and off-shoring of certain services (accounting services in particular). The slower growth in other professional services was mainly due to decreases in R&D investment and public spending. During the projection period, demand for these services is expected to increase, thanks to a recovery in corporate profits and increased investment in non-residential construction and in research and development. Annual average GDP growth in professional business services and other professional services over the next 10 years should reach 3.3% and 3.8%, respectively. Despite significant productivity gains over the period, employment is projected to experience strong average annual growth of 1.6% for professional business services and 2.1% for other professional services. The latter group will experience greater GDP and employment growth due to increases in R&D investment and in the demand for environmental specialists to deal with this sector's needs.

The **information, culture and recreation** group (which includes wireless and satellite telecommunication services, broadcasting, Internet and cable services) has experienced moderate growth in recent years. In the mid-1990s, when many of these services were just starting up, they swept the market at lightning speed. Since 2002, however, a number of services in this group have begun to mature, while others were hit hard when the technology bubble burst, especially in the telecommunications, Internet and broadcasting sub-sector. As a result, employment growth has slowed considerably in this industry since 2002. Since the beginning of the present decade, only two sub-sectors have had strong growth – the entertainment, gambling and recreation industry and the performing arts – thanks to the increase in household disposable income. As some of these industries mature and others recover, the rate of GDP growth in this sub-sector (2.8%) is expected to equal that of the overall economy between 2006 and 2015. However, many technological changes in this sector will favour productivity gains over employment, which should limit job growth to 1.1% annually.

The robust growth in the **finance, insurance, real estate and leasing** sector in recent years is mainly due to the hot real estate market. Since 2001, output has increased at an average annual rate of 3.4% and employment at 2.9% – rates that are higher than the economy-wide average. However, with the expected slowdown in real estate and in mortgage lending, output will grow more slowly than that of the overall economy over the next 10 years. On the other hand, increases in wealth and capital assets and an aging population's need for financial services (especially in wealth management) will benefit this sector. Employment in the industry is expected to record weak growth (0.7% a year) between 2006 and 2015 because the growing use of technology – including automatic bank machines, Internet banking and house listings on the Internet – will reduce the need for labour.

Demographic changes and fiscal outlooks will affect jobs in government and social services

Throughout the 1990s, growth in the **health and social assistance** sector was minimal as governments in Canada cut back significantly on health care spending in order to bring deficits under control. The emergence of surpluses in the late 1990s resulted in greater spending in health care, leading to a sharp increase in activity in this sector. As a consequence, the health care and social assistance sector has been a major driver of

employment growth in the service sector over the past few years. According to the Canadian Institute for Health Information, health care spending has grown by 7.9% a year since 2000, with nearly 300,000 new jobs being created in health care and social assistance – an increase of over 20%. In addition to the improved fiscal position of the provincial and federal governments, the growth in health occupations also stems from greater pressure on the health system from an aging population that requires more and more care and from a growing shortage of health care workers (caused by an insufficient labour supply and an increase in retirements). Also, the increased demand for labour in daycare services, primarily in Quebec, has spurred growth in the social assistance sub-sector. The current situation in health care is projected to continue over the next few years. However, growth in social assistance should slow down somewhat because the network of subsidized daycare centres in Quebec has now matured and the other provinces do not appear to be following Quebec's lead. Overall, growth at rates significantly higher than the national average is anticipated for production (3.5%) and employment (2.0%) during the 2006-15 period.[23] This solid performance reflects the commitment by both levels of government to improve Canada's health care system. New technologies in this sector will eventually enable the system to deliver care with less staff, which will result in slowing employment growth over the projection period. In fact, the average annual growth rate will decline from 2.6% between 2006 and 2010 to 1.4% during the following five years.

After sluggish growth in 2000 and 2001, labour market conditions improved considerably in the **education** sector, with an average annual employment growth rate of 2.6% since 2001. As a result of the improved financial position of governments, the underfunding of the education sector in previous years and the arrival of Ontario's "double cohort," there has been a significant increase in investment in the education system. Activity in education is generally tied to Canada's demographic profile and to fiscal policy. As the population ages and the "echo-boom" generation leaves the 0-24 cohort, the share of the population in that age group will decline significantly. As a result, growth in real output in the education sector is expected to be modest over the projection period (an average of 1.8% a year). The increased output from postsecondary education, due to higher enrolments and greater public investment in colleges and universities, will not effectively offset declining attendance at primary and secondary schools. The need for fewer professors and teachers will result in slow employment growth in the latter years of the forecast period. Employment is expected to grow at 0.8% a year, which is slightly below the projected economy-wide average during the 2006-15 period.

The outlook for **public administration** is closely linked to the fiscal positions and programs of governments. In the 1990s, the level of activity in this sector either declined or recorded minimal gains as governments grappled with large fiscal deficits. Employment in the sector declined for eight consecutive years (from 1993 to 2000). The number of employees in public administration has increased by an average of 1.5% a year since 2001, with the federal government leading in that respect. The level of activity for all

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[23] Employment forecasts reflect employment demand rather than actual employment. Thus, if the supply does not meet the estimated demand, employment growth will be lower than forecast. (This applies to all industries, but is particularly relevant for the health sector, where supply is subject to government restrictions through medical and nursing school quotas.)

levels of government should expand at an annual rate of 2.1% over the next decade. It is assumed that governments will run small surpluses and that, as a result, there will not be any significant cutbacks in government services over the longer term. At the same time, budget commitments announced by the federal and provincial governments (up to early 2006) suggest that major increases in public spending are not expected either, except in health care. Over the 2006-15 period, therefore, employment in public administration should increase at an average annual rate of 0.7%.

Employment in the consumer goods and services sector will follow the general trend

Over the past five years, the **trade** sector has recorded GDP and employment growth above the economy-wide average. Output in wholesale trade was greater than in retail trade. Not only did wholesale trade benefit from a favourable economic performance and a robust housing market, it was also sustained by a strong recovery in sales of machinery and equipment. However, because productivity was higher in wholesale, employment grew slightly faster in the retail industry. The two sub-sectors are expected to report positive results over the 2006-15 period, with average annual GDP growth rates of 3.1% for wholesale trade and 2.9% for retail trade. This buoyant outlook is mainly the result of solid growth in real disposable income – which is projected to advance at an average annual rate of 3.0% over the forecast period – and of relatively strong growth in overall employment. The increase in real disposable income stems not only from higher wages, but also from reduced taxes, including the lowering of the goods and services tax (GST). As a result, households will have more discretionary income to spend at both wholesale and retail outlets. In addition, machinery and equipment investment should remain high throughout the forecast period, spurring growth in wholesale trade. At the same time, however, productivity gains will limit average annual employment growth in retail (1.2%) and wholesale trade (1.1%). Employment growth will be slower in the second half of the forecast period as Internet shopping grows in popularity. Over the long term, the aging of Canada's population will also have a negative effect on the trade sector, as older people will spend more on health care services than on consumer goods.

Activity in the **transportation and warehousing** industry has experienced significant fluctuations over the past few years. Employment declined in 2002, mainly as a result of the weakness of the U.S. economy and the financial troubles faced by the airline industry. Renewed confidence in air travel in 2003, the robust Canadian economy and the pick-up in activity in the United States helped to overcome the problems caused by the attacks of September 11, 2001, and employment rebounded in 2003. Since then, the almost uninterrupted rise in the value of the Canadian dollar has reduced goods exports to the United States, and rising oil prices have resulted in higher costs in the transportation industry, slowing employment growth again in 2004 and 2005, especially in the trucking industry. Over the next few years, however, the robust US economy is expected to stimulate Canadian exports to that country and to have a positive impact on the transportation and warehousing industry. While a slight decline in the exchange rate is expected, manufacturing companies will adapt to the stronger Canadian currency by investing in machinery and equipment to increase their competitiveness. The airline industry also seems to be recovering from the turbulence of the past few years and should

return to a stronger pace of growth. In addition, increased investment in public transit should benefit the transportation industry, thanks to the growing demand for public transportation. The demand for labour should be close to the economy-wide average, with average annual employment growth of 1.0% over the next decade.

The last few years have been difficult for the **accommodation and food services** industry. After suffering from the effects of SARS (severe acute respiratory syndrome) in 2003, the tourism industry fell victim to the appreciation of the Canadian dollar in 2004 and 2005. The stronger Canadian dollar, particularly relative to the US dollar, had a negative impact on the number of foreign visitors and led many Canadians to travel outside the country because of the dollar's greater purchasing power abroad. The value of the Canadian dollar is expected to remain high over the next few years, making it unlikely that the international travel account will see much improvement in the short term. Nevertheless, strong domestic consumption, stimulated by rising real disposable incomes, should boost output in this industry. In the long term, the consumption of accommodation and food services is projected to increase due to the rising number of retiring baby boomers, who will have more time to spend on travel and other pursuits. Thus average annual GDP growth for this sector should be 2.7% over the period to 2015, with employment expanding by 1.2% a year, putting the industry's performance close to the economy-wide average.

GOODS-PRODUCING INDUSTRIES

Following the boom in residential construction in the past few years, employment growth should slow in construction and utilities

The housing boom has been the driving force behind the employment gains recorded in the **construction** industry since 2001. Investment in the residential sector soared during that period, thanks to a strong labour market and to very low interest rates. Although growth remained at high levels in 2005, activity in the residential sector has begun to falter. After several years of sluggish growth, increased investment in non-residential construction has nonetheless helped the construction industry as a whole to maintain its momentum. The rebound in non-residential construction is primarily due to significant investments in the energy sector. In fact, the supply of office space in large urban centres has been well above the demand in recent years, despite the conservative level of building activity. As a result, vacancy rates remain high across Canada, except in some western cities. In net terms, the construction industry as a whole has seen an increase in employment of over 25% (110,000 new jobs) since 2001. In addition to the increase in housing starts, this positive outcome was due to the pick-up of the renovation sector, spurred on by the strong resale market and by the aging of units built during the boom of the late 1980s. The housing boom also had a major spin-off effect on employment in the manufacture and retailing of furniture, retail sales of construction materials, real estate and banking (mortgage market).

The pace of residential construction activity will slow considerably in 2006, and growth in housing construction is then expected to drop to almost nil. In the short term, higher interest rates and a lack of pent-up demand will negatively affect housing activity. Over the long term, the aging of Canada's population is projected to constrain housing activity as the number of people in the age group likely to buy a first home continues to decline. Residential renovation could, however, offset some of the decline in housing starts. Non-residential construction in the energy sector will also give a boost to the industry, thanks to major electricity and oil and gas projects. Overall, employment in the construction industry is expected to grow at an annual average rate of 1.3% from 2006 to 2015. At the same time, there will be further productivity gains as non-residential construction overtakes residential construction, which is more labour-intensive.

Output in the **utilities** sector is linked to overall industrial output. The slump in the Canadian economy in 2001 and again in 2003 affected real GDP in this sector. Growth in public utilities remained sluggish in 2004 and 2005, while the strengthening Canadian dollar dampened activity in the manufacturing sector. Despite numerous job losses in 2005, real GDP rebounded significantly that year, probably as a result of higher electricity rates in several provinces. As average growth in industrial output is anticipated over the forecast period, GDP growth in utilities should be close to the overall average. Growth will also be associated with higher energy demand in Canada and the United States and with the aging of some existing facilities in the energy sector and in municipal services (water services and sewage treatment). The outlook for the utilities sector also reflects the decision by a number of Canadian provinces to deregulate their electricity markets and to export hydroelectricity to the United States. However, because this is a capital-intensive sector and new technologies have a significant impact on productivity, the demand for new labour over the next decade is expected to be very low (annual average of 0.1%), while output growth, at an average annual rate of 2.8%, will stay close to the economy-wide average.

Employment growth in manufacturing will remain below average thanks to a competitiveness-driven jump in productivity

The year 2004 was relatively good for **manufacturing** industries, with output and employment alike bouncing back after sluggish output growth and job losses in 2003. Despite the strong Canadian dollar and ongoing trade disputes with the United States, most industries experienced strong performance in 2004, thanks to the strong recovery of the U.S. economy and substantial increases in investment in machinery and equipment. In 2005, however, the steady rise of the Canadian dollar, coupled with higher oil prices and increasingly stiff competition from Asian economies – especially from China – forced Canadian manufacturers to lay off nearly 85,000 people – a 3.7% drop in employment. The industries most affected were "other manufacturing" (textiles, clothing and furniture), wood product manufacturing, printing and motor vehicle manufacturing.

Over the forecast period, average annual growth in manufacturing output is projected to be 3.4%, which is higher than the economy-wide average. This vigorous performance will largely be associated with significant investments in machinery and equipment. Manufacturers are expected to continue to improve productivity to remain competitive in the face of the strong Canadian dollar and intense competition in world markets, with

average employment growth being relatively low at an average 0.6% a year. The situation will vary considerably from one industry to another, however. Average annual growth rates of employment over the period to 2015 are expected to remain high in the manufacture of computer and electronic products (2.9%) and other transportation equipment (2.4%). However, job losses can be anticipated in the manufacture of motor vehicles and parts (-0.1%), "other manufacturing" (-0.2%), printing (-0.5%), wood products (-0.6%) and pulp and paper (-0.9%). In the manufacture of rubber, plastics and chemicals and metal fabrication and machinery, growth is projected to be close to the economy-wide average. Employment growth in food and beverage manufacturing and in manufactured mineral products will be slightly below average.

- In the **computer, electronic and electric products** industry, manufacturers of electronic products over the past two years have finally made it through after the collapse of the world market for telecommunication equipment in the early part of the decade. Between 2001 and 2003, the industry's GDP tumbled by nearly 40%, with over 35,000 jobs disappearing, mainly due to excess capacity in telecommunication companies. The industry has been able to pull itself out of the collapse in demand for computer and telecommunication equipment in 2004 and 2005, with GDP rising by nearly 20%. A stronger economy in the United States and Canada and an increase in corporate profits pushed up capital expenditures over the last two years, paving the way for renewed demand in telecommunications equipment, computers and other electronic products. The recovery of expenditures in hardware and software in the two countries is also the result of equipment obsolescence following three years of underinvestment. However, this strong output growth in 2004 and 2005 was not accompanied by a concurrent increase in employment: after dropping 13% in 2004, employment remained unchanged in 2005. Excess capacity in the telecommunications industry will diminish gradually over the next few years but it will continue to have a negative impact. Continued growth in wireless services and the incipient transition towards IP-based telecommunications systems – the newest trend in the industry – should stimulate sales in telecommunications equipment. As a result, although growth will likely not reach the heights of the 1990s, the computer and electronic products industry should show stronger average annual increases in both GDP (6.7%) and employment (2.9%) over the next decade, relative to other sectors.

- The **other transportation equipment** group includes aerospace products and parts manufacturing, rail cars and engines, as well as ship and boat building. Aerospace products and parts manufacturing dominates, with roughly three quarters of the sector's value-added output. Over the past few years, the manufacture of other transportation equipment has been significantly affected by the unfavourable conditions faced by the airline industry. In particular, orders for new aircrafts dwindled after the September 11, 2001 attacks, leading to significant declines in output and employment in the aerospace manufacturing industry since 2001. The situation seems to be improving, however, and the order books of aerospace firms have begun to fill up again. A stronger U.S. economy, an increase in defence spending and renewed confidence in airline travel should help bolster the demand for Canadian aerospace products. In addition, the steady decline witnessed in ship and boat building since the 1990s has ended; although growth in shipbuilding will remain muted, at least it will no longer be a drag on the industry's GDP.

Finally, changing demographics, increased road congestion and environmental concerns should help to sustain the demand for automated transit systems, including rail. Overall, a strong rebound is expected in other transportation equipment manufacturing over the next few years, with average annual output growth at 5.1% during the 2006-10 period, which is expected to ease to 3.6% between 2011 and 2015 (resulting in an average rate of 4.4% over the 2006-15 period). Employment should grow at an average of 2.4% a year during the forecast period; it is expected to jump considerably from 2007 to 2010 thanks to the recovery in aeronautical manufacturing.

- The **rubber, plastics and chemicals** industry has been expanding rapidly for over 10 years; the plastics and the pharmaceutical and medication manufacturing sub-sectors in particular are growing steadily. Despite this very positive trend, output and employment growth recently went through a few difficult years, due in part to the appreciation of the Canadian dollar, which is beginning to have a serious impact on exports, and to the strong rise in the price of petroleum products, which has increased production costs in this industry. Thus Canadian companies are unable to reap all the benefits from the robust growth in the U.S. economy. In addition, the slowdown in housing starts will reduce the demand for plastics. However, robustness in residential renovation will largely offset the declining demand for new houses. Over the longer term, the recent restructuring in some sub-sectors of this industry should bring results and put these sectors among the key global players, in particular plastics, pharmaceuticals and biotechnology products. Average annual GDP growth should be 4.2% over the period to 2015, higher than the industry-wide average. However, to contend with increasingly tough foreign competition, the industry will have to invest in order to increase productivity, thereby limiting employment growth. Even so, employment is expected to grow at an annual average rate of 1.3% over the 2006-15 period, which is also slightly above average.

- The **fabricated metal and machinery products** sector has generally experienced strong growth over the past decade, given that fabricated metal products are an integral component of industrial production. After very solid growth during much of the 1990s, output dropped slightly from 2001 to 2003. GDP in this sector jumped by over 12% in 2004 and 2005 due to the recovery of the manufacturing industry in the United States, where much of Canadian output is destined, and to a significant increase in investment in machinery and equipment. Employment followed the same trend: after declining in 2003, it has grown by nearly 7% over the past two years. In the coming years, output in this sector should experience considerable growth, as investments in machinery and equipment will increase thanks to U.S. economic growth, the abundance of construction projects in the energy sector (particularly in tar sands) and a better performance of corporate profits. Strong demand from emerging countries, China in particular, should also stimulate the fabrication of metal products and machinery. Taken together, these factors should lead to greater exports and increase output by 4.4%. However, strong foreign competition will require companies to invest in order to enhance productivity and remain competitive, constraining employment growth over the next decade to an annual average rate of 1.1%.

- The **manufactured mineral products** industry mainly includes oil refining and other petroleum products manufacturing, asphalt, cement and concrete manufacturing, glass products manufacturing, iron mills, foundries, steel mills and aluminium smelters. In the past 10 years, output growth in this industry has been strong thanks to improved productivity, with the result that employment declined slightly during that period, with job losses occurring mainly in the primary metals sector. Primary metal production – iron and steel in particular – underwent several years of major restructuring. Output should continue to grow during the forecast period. Robustness in non-residential construction and engineering and infrastructure projects will benefit producers of asphalt, cement, concrete and primary metals such as steel and aluminium. However, higher energy prices greatly hurt the iron, steel and aluminium industries by raising production costs, thereby making Canadian companies less competitive in global markets. Even so, the projected increase in demand for primary metals in some rapidly expanding economies should offset the effects of energy costs and limit the decline in output in Canada's primary metal industry. In addition, the ever greater demand for energy, rising oil prices and population increase will contribute to GDP growth in the oil refining sub-sector throughout the forecast period. Accordingly, strong output growth (at annual average rate of 3.9%) is expected over the next 10 years, but employment growth should remain low (0.6%) because this is a capital-intensive industry with very high productivity and it is currently undergoing consolidation.

- The **food and beverage** production industry has struggled with a number of obstacles in recent years. Exports suffered from the appreciation of the Canadian dollar, weak economic activity in North America in 2002 and 2003, and the restrictions imposed by our main trading partners on the import of Canadian beef. The high dollar also encouraged foreign firms to compete in Canada's domestic market. Inventories have increased as a result of the lower demand, especially among beverage producers. Surprisingly, employment in this sector has grown more quickly than the economy-wide average, despite the relatively weak output growth. This is due to the proliferation of small specialized businesses – particularly in organic foods, prepared meals and foods for specific diets – to meet an increasingly diverse consumer demand. Over the next decade, output in this industry should rise at a pace slightly below average. Strong global economic performance, mainly in the U.S. economy, combined with specialization in niches that more closely meet the demands of consumers, will help to maintain growth at levels above the rate of demographic increase. However, trade barriers will continue to limit expansion in some industries – dairy products, for example – and constraints on output capacity will reduce export growth in other industries, such as seafood products. In addition, to enhance productivity and remain competitive in global markets, the industry will have to continue modernizing its plants. For those reasons, employment growth is expected to be very weak over the period to 2015 (annual average rate of 0.4%).

- The outlook for the **motor vehicle and parts** sector is mixed. After record levels in 2000, motor vehicle sales in North America declined slightly over the next few years. Sales continued to hover around that peak thanks to very low interest rates and additional discounts offered by some car manufacturers. Despite stagnating North American sales, Canadian output increased significantly. At the same time, however,

employment has declined by more than 4% since 2002. This drop is mainly due to the restructuring undertaken by the Big Three auto makers in order to remain competitive with their Asian and European competitors, resulting in greatly improved productivity at the expense of employment. The number of new vehicles sold in North America since 2000 has been far higher than "normal," resulting in market saturation and a loss of effectiveness of dealers' incentives. The big manufacturers have also been grappling with excess capacity for several years. Growth in the automobile industry is therefore expected to be below the average of the last 10 years.

Among other factors, this gloomy outlook is the result of an anticipated rise in interest rates and of low vehicle replacement needs, as high sales in recent years have lowered the average age of the vehicle stock. In the longer term, the production and employment slowdown in the Canadian automobile and parts industry will mainly be due to excess capacity in the automobile sector worldwide and to the shrinking market share of the Big Three (Ford, General Motors and Daimler-Chrysler are the major employers in the Canadian automobile sector) as well as to increasingly stiff competition from countries such as Mexico, Brazil and China. At 1.9% a year, the increase in output from 2006 to 2015 will be below the economy-wide average. Moreover, Canadian auto makers will make large investments aimed at making production more flexible and increasing plant automation in order to enhance their competitiveness and ensure long-term viability. The restructuring undertaken by car manufacturers, especially GM and Ford, will inevitably lead to layoffs. GM has also announced a reduction in work hours over three years and even plant closures, including one of the two Oshawa plants in 2008. However, the opening of a new Toyota plant in Woodstock, Ontario, will partly offset the job losses at GM, and the net result overall will be a slight drop in employment of -0.1% a year. In short, even though the situation for the motor vehicle and parts industry is difficult, it is far from being the crisis that has worried many analysts and media.

- The **other manufacturing** group, which includes the clothing, textile and furniture sectors, has been facing many difficulties for several years. These industries have been hard hit by international competition, especially from emerging countries such as China, Mexico and India. In addition, while Canadian companies face higher production costs than their Asian and Latin American competitors, the appreciation of the Canadian dollar has raised the price of Canadian products abroad. However, the various sub-sectors have experienced very different outcomes in recent years. In the textile sector, especially clothing, output and employment have dropped as a result of tough foreign competition, which has resulted in lower Canadian exports to the United States. The end of the Agreement on Textiles and Clothing at the beginning of 2005 was a blow to Canadian clothing and textile companies. The decline of these two industries is expected to continue throughout the projection period. In contrast to the textiles and clothing industries, the furniture manufacturing sector benefited from the residential construction boom in recent years, which offset the losses due to foreign competition. The decline in housing starts and house sales over the next few years should, however, limit furniture manufacturing. To contend with foreign competition, companies will have to specialize in high value-added products and make investments to improve productivity. Accordingly, employment growth in this sector is expected to

slow down significantly over the forecast period. Finally, other supplies manufacturing (including medical supplies and equipment), which has recorded strong growth over the past decade, will continue to drive growth in other manufactured products over the next 10 years. Overall, for the 2006-15 period, output growth of 2.7% is expected; it will be accompanied by job losses (-0.2%).

- The **wood products** industry has greatly expanded over the past 10 years. If we exclude 2005, a disastrous year, average annual increases were 6.2% for GDP and 3.9% for employment. This dynamic performance reflects the strength of residential construction and greater access to foreign markets. In addition, the financial losses due to the countervailing duties imposed by the United States against Canadian softwood lumber until 2004 were partially offset by an increase in the production of wood products. In 2005, however, financial pressure resulting from the softwood lumber dispute forced wood product manufacturers, particularly sawmills, to implement mass layoffs. Despite the possibility that the dispute will be resolved in 2006, projections call for a deterioration of the situation relative to the last decade. Not only will the declining supply of lumber and the anticipated slump in housing starts in Canada and across the border have negative repercussions for the industry in the short term, but the aging of the population and the subsequent decline in the demand for housing will also have a significant downward impact on the demand for wood products over the long term. The development of new products made of plastic and steel to replace wood products and fibreboard will also affect output in this sector. And last, in order to remain competitive wood companies will need to invest to enhance productivity, at the expense of employment. Thus a marginal increase in output (annual average rate of 1.5%) and a decrease in employment (-0.6%) can be expected over the period to 2015.

- The last five years have been very difficult for the **pulp and paper** industry. Output has dropped by more than 6% since 2000, following a long period of growth in the 1990s. This decline, mainly due to weak world demand, higher production costs (particularly for energy) and stiff foreign competition, has forced companies to consolidate and upgrade their facilities. Some have moved away from producing "traditional" papers (such as newsprint) in favour of specialized, high value-added papers. The resulting closure of less efficient plants has resulted in a decline in employment of nearly 13% since 2000. Job losses from industry restructuring are expected to continue over the next few years, despite the upturn in production. Output should rise slightly over the period to 2015 thanks to U.S. economic growth and the increase in demand from China and India. However, the growing use of e-mail and CD-ROMs is expected to reduce the demand for paper and to limit production and employment growth over the long term. Greater use of electronic media will also mean lower demand for magazines and newspapers. Moreover, more powerful machinery and significant investment in technology aimed at enhancing the industry's international competitiveness will increase productivity to the extent that, at the end of the forecast period, all output gains will result from productivity growth. Therefore, employment is expected to decline by an annual average of 0.9% in the pulp and paper industry during the 2006-15 period.

- The outlook for the **printing** industry is similar to that of the pulp and paper industry. The replacement of print products with the growing use of communication technologies such as e-mail and the Internet (for example, electronic media), coupled with higher production costs and international competition, will constrict output growth. General weakness in demand and a drop in advertising revenues will also have a negative impact on printing. In comparison to the other information media, the market share of print products should decline slowly over the years. Even so, output should be slightly up over the next 10 years due to economic growth in the United States and growing demand for print products from China and India. This growth, however, will be accompanied by an increase in productivity, with printing companies investing in more powerful machinery, and by a drop in labour. As a result, employment in the printing industry is expected to decline by 0.5% over the period to 2015.

Employment growth should be slow in occupations unique to the primary sector, except in oil- and gas-related industries

Employment in the **agriculture** sector has declined due to a number of negative factors over the past 10 years. The industrialization of farms (with production being concentrated in fewer farms), low prices for wheat on the world market, a severe drought in western Canada, the embargo on Canadian beef by a number of countries including the United States, and the increasing use of labour-saving technologies have resulted in an employment decrease of roughly 20% over the period. Labour market conditions in agriculture have vastly improved since 2002, suggesting that the restructuring of this sector will soon be complete. In 2005, output continued the strong recovery that began in 2003 following the return of more favourable temperatures for agriculture in the western provinces. Over the forecast period, employment growth is anticipated to follow the upward trend that began in 2002, but will remain below the averages expected for most other industries in the Canadian economy. While the cattle industry is expected to recover eventually, the overall agriculture sector will continue to be negatively affected by the ongoing subsidy war between Europe and the United States, which has led to low prices for many grains. Employment in this sector is projected to increase at an average annual rate of only 0.3% over the 2006-15 period. Relatively low growth in output, coupled with rapid gains in productivity resulting from ongoing investment in technology by farmers, will constrain employment growth.

Real output in the **fishing** sector is expected to increase slightly over the forecast period. The fishing industry is reeling from the Fisheries and Oceans Canada decision to reduce the total allowable catch for crab in 2003. It is also grappling with the closure of the East Coast cod fishery and diminishing lobster catches, both resulting from declining stocks. However, the crab fisheries are expected to recover somewhat in the short term. In fact, almost all East Coast fishing is now focused on shellfish, which is more profitable than groundfish (including cod), but this has resulted in a decline in employment. Over the longer term, real output will continue to be adversely affected by supply constraints. It seems difficult to bring groundfish stocks back to harvestable levels despite the moratoriums, but shellfish stocks are also being depleted. Almost all increases in output will come from improved productivity as opposed to gains in labour activity. In fact, employment is expected to record very weak growth between 2006 and 2015 (annual

average rate of 0.4%). Nonetheless, this performance will be better than the results recorded over the past decade, when employment declined by an average of more than 1% a year.

The countervailing duties imposed by the United States on Canadian softwood lumber in 2002 seriously undermined growth in the **forestry** sector. The negative effects of the dispute continued in 2005. To remain competitive, companies have been making major investments to enhance productivity and reduce production costs, which has meant a decline in employment of nearly 20% since 2001. Housing starts are expected to drop off gradually over the next few years, bringing down the demand for lumber. In addition, environmental concerns and Native land claims will limit the availability of the resource. The reduction in cutting rights in several Canadian regions, including Quebec, will also limit the lumber supply. However, the impact from weaker demand and reduced cutting rights will be short-term only, because cutting rights in British Columbia will be considerably increased to contend with the mountain pine beetle infestation that is affecting one third of pine forests in the northern part of the province. The outlook for the forest industry is therefore not especially bright, and the industry is expected to have the lowest GDP growth rate of all Canadian industries from 2006 to 2015. Moreover, employment is expected to decline over the entire forecast period (annual average rate of -0.6%). As a result, all gains in output over the next few years will occur as result of productivity improvements rather than increased labour activity.

Productivity in the **mining** sector (excluding oil and gas) has experienced tremendous growth over the past 10 years, except in 2005 when productivity declined, with employment benefiting. Thus, even though output has increased by nearly 25% since 1996, employment in the mining industry has dropped by more than 25%. Several factors explain this rise in productivity: greater investments in machinery and equipment by companies, significant improvements in mineral extraction methods and technology, and the large-scale mining of new types of ore (including diamond, potassium and uranium). At the same time, falling prices for certain raw materials have led to less exploration. The rise in prices for raw materials, which began in 2004 and should continue over the coming years, combined with renewed economic growth in the United States and strong demand from China, will help mining exploration and operations in Canada. The recent development of the diamond industry in Canada's North will continue to help boost production and jobs in mining. This sector will also benefit from the development of the Voisey's Bay nickel-copper-cobalt deposits in Newfoundland and Labrador. The construction of the open-pit mine and mill/concentrator processing plant at the site is now complete and the production of concentrate began in 2006. Finally, the demand for uranium and potassium should also be buoyant over the next few years. Mining GDP is expected to jump significantly from 2006 to 2008, resulting in an annual increase of 2.3% from 2006 to 2015. However, greater competition from Australia and some Latin American countries, coupled with strong productivity gains will limit employment growth, which is expected to average 0.2% over the next 10 years.

The **oil and gas extraction** industry has been booming for several years due to soaring oil prices and strong world demand, which have spurred oil exploration and led companies to consider exploiting non-conventional sources (including tar sands). Oil and gas companies have begun investing heavily in the exploration of new sources and in the preparation of tar sand extraction areas. These investments have contributed to a significant rise in employment in oil and gas extraction since 2001 (8.2% a year) and to a burst of activity in related industries such as support activities for mining and oil and gas extraction and non-residential construction. However, since oil extraction from these sources is not significant yet, output in the oil and gas industry has not increased much over the past five years (1.5% a year). Oil extraction from tar sands should proceed at a faster pace in 2006. Industry output in 2006 will be particularly high since it will be the first complete year of operation of Newfoundland's White Rose offshore platform. As a result, real output in the oil and gas extraction industry is forecast to increase by an annual average rate of 3.7% over the period to 2015. Oil and natural gas prices are expected to remain high over the short and medium term, thanks to growing demand and heightened geopolitical tensions. Natural gas producers in Alberta and British Columbia will take advantage of sky-high commodity prices to drill record numbers of new wells. Growth will also be very strong (3.1%) in the **support activities for mining, and oil and gas extraction** group, which includes subcontracting by oil companies, primarily for drilling. However, total oil production in the industry will experience limited growth, even if the price of crude oil remains very high. Most analysts believe that the depletion of the reserves in the Western Canada Sedimentary Basin (WCSB) will limit output over the medium term. Oil production from undersea deposits in Newfoundland (Hibernia, Terra Nova and White Rose in 2006 and Hebron in 2009) will partly offset the declining supply of conventional sources in the Canadian West. While increases in tar sands production will also ensure that real growth will be maintained over the long term, the 5%-to-8% growth performance recorded in the early 1990s is not expected to be repeated. Average annual employment growth should be 2.0% over the period to 2015 in the oil and gas extraction industry and 1.9% in support activities.

Employment Projections by Occupation: Methodology and Results

Methodology

The forecast of employment by occupation is obtained by projecting the share of an occupation within the total employment of a given industry. Over 4,500 equations (140 occupations by 33 industries) are estimated. Each occupational share is estimated using the lagged values of that share (to capture long-term trends) and an estimate of the cyclical position of the industry (to capture short-term cyclical effects).

Results

For employment projections by occupation, click here

Looking-Ahead: A 10-Year Outlook for the Canadian Labour Market (2006-2015)

Retirement Projections: Methodology and Results

Methodology

Since there is no comprehensive dataset capable of providing reliable detailed information on retirements, historical occupational retirements are estimated using a three-step approach:

- Annual retirements at the aggregate level are derived using the Longitudinal Administrative Databank (LAD), with those aged 50 and over separating from a job and remaining non-employed for at least three consecutive years being classified as retired.[24]

- Occupational retirements are derived using the Labour Force Survey (LFS), because the LAD contains no occupational detail. Annual occupational retirements from the LFS are simply estimated as the average annual number of employed workers within five years of the LFS median retirement age.

- The LFS occupational retirement estimates are then normalized to ensure that they sum to the aggregate retirement estimate from the LAD.

Annual retirements are projected using a top-down approach:

- Aggregate retirements are forecasted in three steps:

  – Employment forecasts by age group and gender are derived by making assumptions concerning gender- and age-group-specific employment rates.

  – Retirement rates by gender and age are projected using an econometric model that takes into consideration various determinants of the retirement decision, including education, wealth and labour demand.

  – A retirement level is then projected by multiplying the forecasted age- and gender-specific retirement rates by the age- and gender-specific employment forecast.

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[24] The LAD was chosen primarily for its large representative sample of older workers and its longitudinal nature, two critical characteristics for developing an aggregate time series of retirement flows. In fact, the size of the LAD sample rivals the Census, unlike the Labour Force Survey and Survey of Labour and Income Dynamics (SLID).

- Retirements by occupation are projected by aging the employment profile of an occupation forward and calculating the average annual number of employed workers within five years of that occupation's median retirement age, which is assumed to remain constant over the forecast period. The different occupational retirement estimates are then normalized to ensure that they sum up to the aggregate retirement forecast.

Results

The number of retirements from employment in the Canadian economy is expected to rise markedly over the next decade: the annual retirement rate, calculated as the number of retirements divided by the level of non-student employment, is expected to rise steadily from 2.1% in 2005 to 2.6% in 2015, resulting in approximately 3.8 million retirements over the 2006-15 period.

Retirement Rate, 1990-2015

Source: HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario, using Statistics Canada's Longitudinal Administrative Databank (LAD)
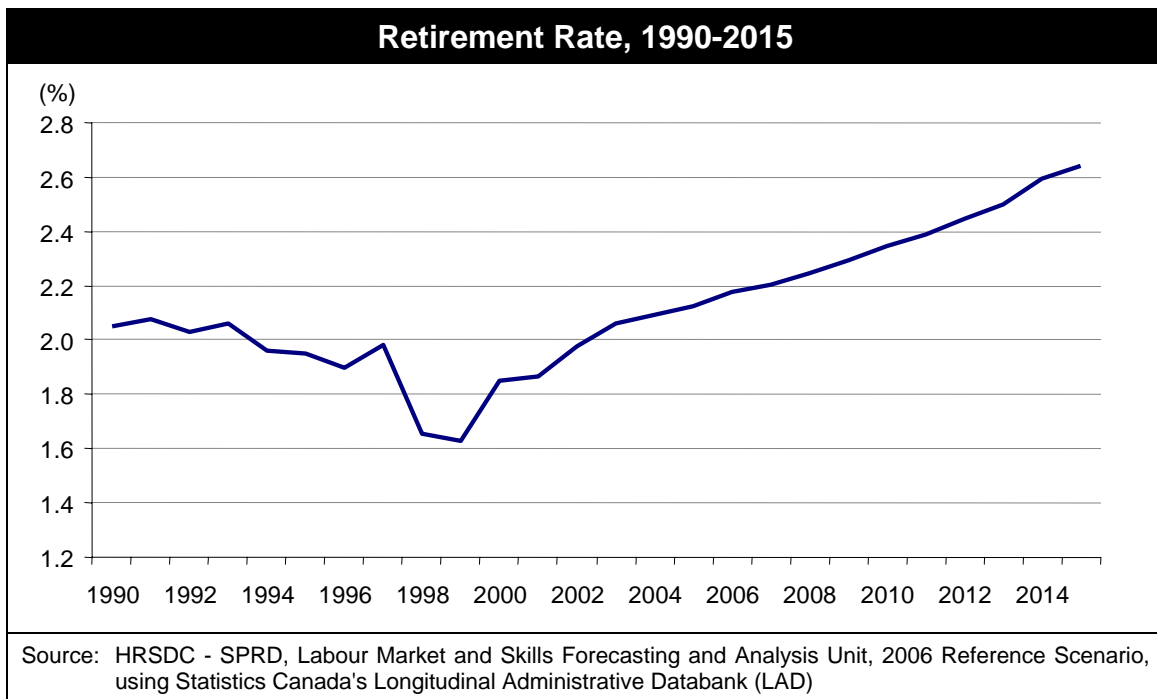
The aging of the population is the main contributing factor to this upward trend in retirements, as the share of the adult population aged 55 and over is expected to reach 35% in 2015, up from 25% in 1990 and 29% in 2005.

Population Age Distribution

(in thousands)

— 1990   – – 2005   · · 2015

Sources: (1990 & 2005) Statistics Canada, Annual Demographic Statistics Scenario,
(2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit,
2006 Reference Scenario
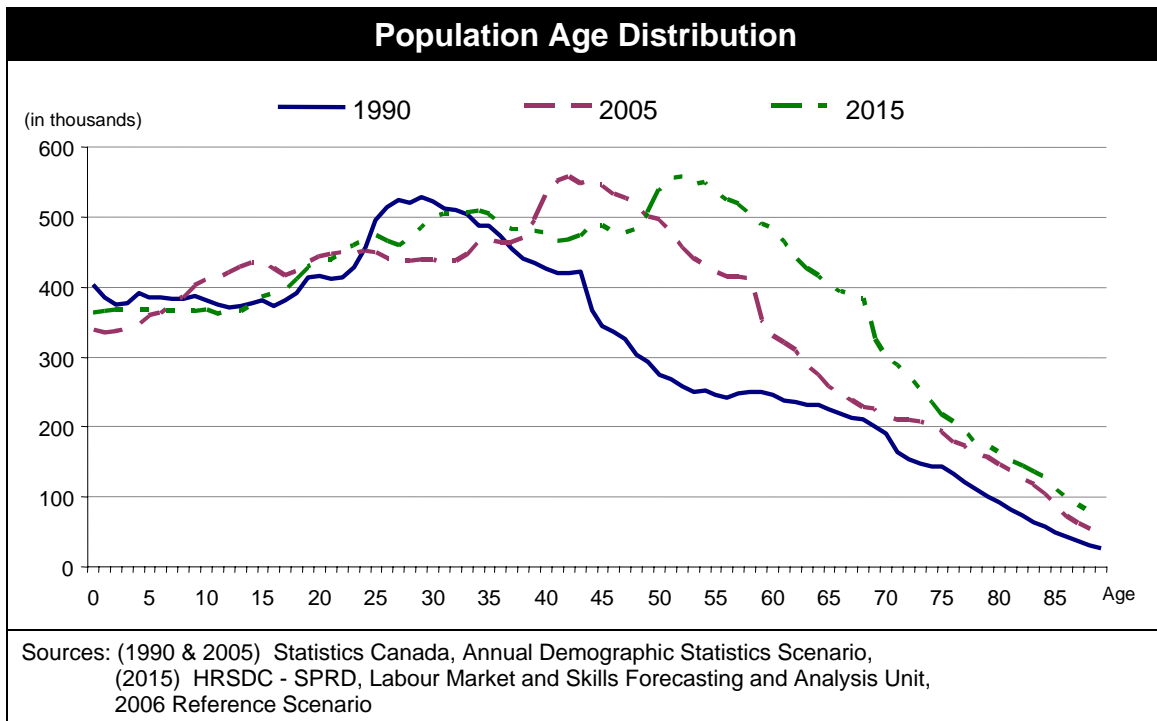
Occupations with the strongest retirement pressures

The projected number of retirements within each occupation is primarily determined by the interaction of two variables: the distribution of the workforce by age and the average age of retirement. Retirement pressures should be highest in occupations with an older workforce and/or where the retirement age is relatively low. In 2005, the average age of employed workers was 39 years, while the median retirement age was 61.

Occupations requiring the qualifications needed for management positions and those usually requiring a university education are expected to be most affected by retirement pressures over the 2006-15 period. On average, 2.8% of workers in management occupations are expected to retire each year, primarily because the workforce is older (44 years old). The key management occupations pushing the retirement rate to above-average levels include managers in health, education social and community services, and legislators and senior management.

Workers in occupations usually requiring university education are also expected to experience an above-average annual retirement rate of 2.5% over the next decade, given their lower-than-average retirement age of 60 and their above-average employment age of 41. Elementary/secondary school teachers and educational counsellors, college and other vocational instructors, nurse supervisors and registered nurses and librarians, archivists, conservators and curators are the main occupations leading to the above-average retirement rate among occupations in this category.

Occupations with weak retirement pressures

Workers in occupations usually requiring on-the-job training have the lowest projected retirement rate of all (2.1%). This is attributable to their relatively young workforce (34 years of age) and their above-average retirement age (63 years). Sales and service occupations, including cashiers, food counter attendants and helpers, and other sales and related occupations, are the key occupations leading to this lower-than-average retirement rate.

The table below highlights the retirement results for three-digit NOC occupations.

Retirements by Three-Digit Occupations, 2006-2015					
	Total Retirements (000s) 2006-2015	Retirement Rate 2006-2015 (AAR[1])	Median Retirement Age	Average Employment Age	Age Gap[2]
Total	3,801	2.4%	61	39	22
001 Legislators and senior management	45	4.7%	60	48	12
011 Managers in administrative services	35	2.8%	60	43	17
012 Managers in financial and business services	27	2.9%	61	43	18
013 Managers in communication (except broadcasting)	4	2.7%	61	42	19
021 Engineering, science and information systems managers	15	2.3%	61	42	19
031 Health, education, and social and community services managers	51	4.9%	57	46	11
041 Managers in public administration	16	5.9%	59	47	12
051 Art, culture, recreation and sport managers	4	3.6%	59	42	17
061 Sales, marketing and advertising managers	30	2.2%	61	42	19
062 Managers in retail trade	83	2.3%	64	44	20
063 Managers in food service and accommodation	43	2.3%	65	44	21
064 Managers in protective service	2	3.8%	61	45	16
065 Managers in other services	5	3.2%	61	42	19
071 Managers in construction and transportation	39	2.4%	63	45	18
072 Facility operation and maintenance managers	9	2.1%	63	42	21
081 Primary production managers	2	2.2%	63	44	19
091 Managers in manufacturing and utilities	23	2.7%	63	45	18
111 Auditors, accountants and investment professionals	77	2.2%	62	42	20
112 Human resources and business service professionals	48	3.0%	61	44	17
121 Clerical supervisors	45	3.5%	58	41	17
122 Administrative and regulatory occupations	111	3.2%	59	43	16
123 Finance and insurance administrative occupations	62	2.6%	62	43	19
124 Secretaries, recorders and transcriptionists	100	4.3%	60	44	16
141 Clerical occupations, general office skills	67	2.8%	61	39	22
142 Office equipment operators	16	3.0%	60	38	22
143 Finance and insurance clerks	95	2.5%	60	39	21
144 Administrative support clerks	68	2.7%	60	40	20
145 Library, correspondence and related information clerks	33	1.6%	60	35	25

Retirements by Three-Digit Occupations, 2006-2015 (continued)					
	Total Retirements (000s) 2006-2015	Retirement Rate 2006-2015 (AAR[1])	Median Retirement Age	Average Employment Age	Age Gap[2]
146 Mail and message distribution occupations	28	3.1%	62	40	22
147 Recording, scheduling and distributing occupations	48	1.9%	62	38	24
211 Physical science professionals	8	2.5%	61	42	19
212 Life science professionals	5	2.1%	61	40	21
213 Civil, mechanical, electrical and chemical engineers	29	2.1%	62	42	20
214 Other engineers	12	1.7%	63	41	22
215 Architects, urban planners and land surveyors	8	2.4%	63	44	19
216 Mathematicians, statisticians and actuaries	1	1.7%	63	39	24
217 Computer and information system professionals	33	1.0%	63	38	25
221 Technical occupations in physical sciences	7	2.1%	61	38	23
222 Technical occupations in life sciences	9	2.2%	61	39	22
223 Civil, mechanical and industrial engineering technicians	14	1.9%	61	39	22
224 Electronics and electrical engineering technicians	28	2.0%	61	37	24
225 Technical occupations in architecture, drafting, etc.	10	1.9%	61	37	24
226 Other technical inspectors and regulatory officers	14	2.8%	61	44	17
227 Transportation officers and controllers	8	2.7%	61	42	19
228 Computer and information system technicians	10	0.9%	61	36	25
311 Physicians, dentists and veterinarians	21	2.0%	67	45	22
312 Optometrists, chiropractors and other health professions	4	2.5%	61	44	17
313 Pharmacists, dietitians and nutritionists	8	2.0%	61	41	20
314 Therapy and assessment professionals	7	1.4%	61	38	23
315 Nurse supervisors and registered nurses	99	3.2%	59	43	16
321 Medical technologists and technicians	22	2.3%	60	40	20
322 Technical occupations in dental health care	5	1.7%	60	38	22
323 Other technical occupations in health (except dental)	29	2.5%	60	40	20
341 Assisting occupations in health services	62	2.2%	62	40	22
411 Judges, lawyers and notaries	14	1.8%	67	44	23
412 University professors and assistants	23	2.3%	64	39	25
413 College and other vocational instructors	34	3.7%	61	44	17
414 Secondary and elementary school teachers and counsellors	159	3.6%	57	41	16
415 Psychologists, social workers and clergy	47	3.4%	60	43	17
416 Policy and program officers	35	2.5%	60	41	19
421 Paralegals, social service workers, etc.	62	1.7%	62	38	24
511 Librarians, archivists, conservators and curators	7	4.8%	61	46	15
512 Writing, translating and public relations professionals	24	2.1%	63	41	22
513 Creative and performing artists	22	2.2%	63	40	23
521 Technical occupations in libraries, archives, etc.	6	3.4%	60	41	19
522 Photographers, graphic arts technicians, etc.	7	1.5%	62	37	25
523 Announcers and other performers	1	1.1%	62	35	27

Retirements by Three-Digit Occupations, 2006-2015 (continued)

	Total Retirements (000s) 2006-2015	Retirement Rate 2006-2015 (AAR[1])	Median Retirement Age	Average Employment Age	Age Gap[2]
524 Creative designers and craftspersons	18	1.8%	62	39	23
525 Athletes, coaches, referees and related occupations	7	1.3%	62	27	35
621 Sales and service supervisors	44	1.8%	62	37	25
622 Technical sales specialists in wholesale trade	25	1.9%	63	41	22
623 Insurance and real estate sales occupations	47	2.7%	64	45	19
624 Chefs and cooks	19	1.0%	66	34	32
625 Butchers and bakers	11	1.6%	64	35	29
626 Police officers and firefighters	33	3.4%	55	39	16
627 Technical occupations in personal service	21	2.1%	62	39	23
641 Sales representatives in wholesale trade	53	2.1%	63	41	22
642 Retail salespersons and sales clerks	91	2.1%	62	33	29
643 Occupations in travel and accommodation	16	2.1%	59	37	22
644 Tour and recreation guides and casino occupations	4	2.1%	59	36	23
645 Occupations in food and beverage service	26	1.3%	59	29	30
646 Other occupations in protective service	10	3.0%	59	39	20
647 Childcare and home support workers	62	3.7%	60	40	20
648 Other occupations in personal service	9	1.8%	59	35	24
661 Cashiers	29	1.4%	63	28	35
662 Other sales and related occupations	26	1.6%	63	30	33
664 Food counter attendants and helpers	27	1.6%	63	28	35
665 Security guards and related occupations	26	2.7%	65	41	24
666 Cleaners	125	3.1%	62	42	20
667 Travel, accommodation and recreation attendants	4	2.1%	63	31	32
668 Other elemental service occupations	15	3.3%	64	40	24
721 Contractors and supervisors, trades and related	67	2.9%	61	44	17
722 Supervisors in railway and motor transportation	12	4.0%	61	45	16
723 Machinists and related occupations	15	1.9%	62	40	22
724 Electrical trades and telecommunications occupations	46	3.1%	58	40	18
725 Plumbers, pipefitters and gas fitters	13	2.1%	62	39	23
726 Metal forming, shaping and erecting occupations	27	1.9%	62	39	23
727 Carpenters and cabinetmakers	24	1.8%	63	39	24
728 Masonry and plastering trades	9	1.4%	62	37	25
729 Other construction trades	18	2.0%	62	39	23
731 Machinery and transportation equipment mechanics	52	2.8%	61	42	19
732 Motor vehicle mechanics	29	1.7%	62	38	24
733 Other mechanics	6	2.0%	62	39	23
734 Upholsterers, tailors, shoe repairers, etc.	15	4.7%	60	47	13
735 Stationary engineers and power system operators	10	3.8%	60	44	16
736 Train crew operating occupations	5	3.9%	60	45	15
737 Crane operators, drillers and blasters	5	3.5%	60	42	18

Retirements by Three-Digit Occupations, 2006-2015 (continued)

	Total Retirements (000s) 2006-2015	Retirement Rate 2006-2015 (AAR[1])	Median Retirement Age	Average Employment Age	Age Gap[2]
738 Printing press operators, commercial divers, etc.	12	3.2%	60	41	19
741 Motor vehicle and transit drivers	120	2.5%	64	43	21
742 Heavy equipment operators	19	2.0%	65	43	22
743 Other transport equipment operators	5	2.5%	63	41	22
744 Other installers, repairers and servicers	12	1.8%	61	36	25
745 Longshore workers and material handlers	38	1.9%	61	37	24
761 Trades helpers and labourers	12	1.2%	63	32	31
762 Public works and other labourers	6	2.4%	63	40	23
821 Supervisors in logging and forestry	2	2.6%	63	43	20
822 Supervisors in mining, oil and gas	4	1.7%	63	42	21
823 Underground miners, oil and gas drillers, etc.	6	1.4%	63	40	23
824 Logging machinery operators	3	2.4%	63	41	22
825 Contractors, operators and supervisors in agriculture	68	2.7%	69	48	21
826 Fishing vessel masters and skippers	3	1.7%	68	44	24
841 Mine service workers and operators in oil	1	1.0%	63	34	29
842 Logging and forestry workers	5	3.2%	63	42	21
843 Agriculture and horticulture workers	10	1.3%	67	32	35
844 Other fishing and trapping occupations	1	0.7%	68	37	31
861 Primary production labourers	10	1.3%	63	32	31
921 Supervisors, processing occupations	29	3.7%	58	43	15
922 Supervisors, assembly and fabrication	24	4.0%	58	42	16
923 Central control operators in manufacturing and processing	8	3.3%	58	42	16
941 Machine operators: metal and mineral products	7	2.1%	63	40	23
942 Machine operators: chemical, plastic and rubber	12	1.4%	64	40	24
943 Machine operators: pulp and paper products	11	1.8%	64	40	24
944 Machine operators: textile processing	4	2.3%	64	42	22
945 Machine operators: fabric, fur and leather	15	3.2%	64	44	20
946 Machine operators: food, beverage and tobacco	15	1.8%	64	39	25
947 Printing machine operators and related occupations	4	1.5%	64	38	26
948 Mechanical, electrical and electronics assemblers	30	2.7%	60	40	20
949 Other assembly and related occupations	16	1.5%	64	38	26
951 Machining, metalworking and woodworking operators	22	1.5%	64	39	25
961 Labourers in processing, manufacturing and utilities	39	2.0%	61	37	24

Source: HRSDC, Strategic Policy Research Directorate, 2006 Scenario Reference.

[1] AAR: average annual retirement rate; the annual retirement rate is calculated as the number of retirements divided by the level of employment in a given year.

[2] The age gap is an indicator of retirement pressures. Typically, the greater the difference between the retirement age and the employment age in a given occupation, the lower the retirement rate.

School Leavers Projections: Methodology and Results

Methodology

The School Leavers Model (SLM) produces a forecast of the number of people who have left the education system in order to join the labour force. The SLM:

- projects broad enrolments and graduates by four main levels of education: secondary, trade and vocational, community college, and university. The data are obtained from Statistics Canada's Centre for Education Statistics and are available until 1999 for the trade and vocational, and community college levels, 2003 for the university level and until 2004 for the secondary school level.[25] The projections consider only full-time students. This is done to exclude persons working part-time or returning to school for re-training from being counted as new entrants. The major components excluded are undergraduate and graduate university students enrolled in programs leading to a certificate or diploma.

- derives an estimate of the number of discontinuants as not all enrolees complete their studies (for example, if a program takes four years to complete, the number of discontinuants is derived as the number of enrolees four years earlier minus the number of graduates in a given year).

- filters out those graduates (and discontinuants) who continue their education or do not participate in the labour force, to obtain the number of school leavers by educational level (for example, graduates from a bachelor's program going on to graduate studies are netted out).

- distributes these school leavers among occupations:

  – for graduates who have not completed postsecondary education (individuals with less than high school, high school graduates and individuals with only some postsecondary education), information from the Labour Force Survey is used;

  – for graduates who have completed postsecondary education (college, trade or vocational, university), results from the National Graduate Surveys (NGS)[26] are used. It is important to note that an "ex ante" approach was used: for each field of study (FOS) within an educational level, only occupations relevant to this FOS

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[25] Because of the lags in releasing data by Statistics Canada, the model must first forecast the past before forecasting the future. For example, because community college data is only available up to 1999, a forecast for the period 2000-05 must be developed before one is derived for the reference period 2006-15. A review of selected provincial administrative data, which are available up to 2004, shows that our projections track the broad trends correctly.

[26] The National Graduate Survey was designed to determine, among other things, whether postsecondary graduates had been successful in obtaining employment since graduation, the relationship between the graduates' programs of study and the employment subsequently obtained and the transition from school to work of trade/vocational, college and university graduates. The respondents to this survey were contacted two and five years after their graduation. Information from the two latest surveys was used in our analysis – the 2002 NGS of 2000 graduates and the 1997 NGS of 1995 graduates.

were retained. For example, because a master's graduate in philosophy is not expected to work as a cashier (even though some may end up doing so), this occupation was not considered relevant for this FOS.

Results

Here are key results from the SLM projections.

Enrolments

Total first-year enrolments[27] are expected to remain flat over the 2006-15 period. This follows a 0.7% average annual growth recorded over the preceding decade. This trend is closely tied to the slower growth of the population aged 15 to 24, from 0.9% between 1996 and 2005 to an estimated decline of 0.3% over the forecast period.

First Year Enrolments by Level of Education, 1985-2015

Sources: (1985-2005) Statistics Canada, Educational Administrative Data
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit,
2006 Reference Scenario
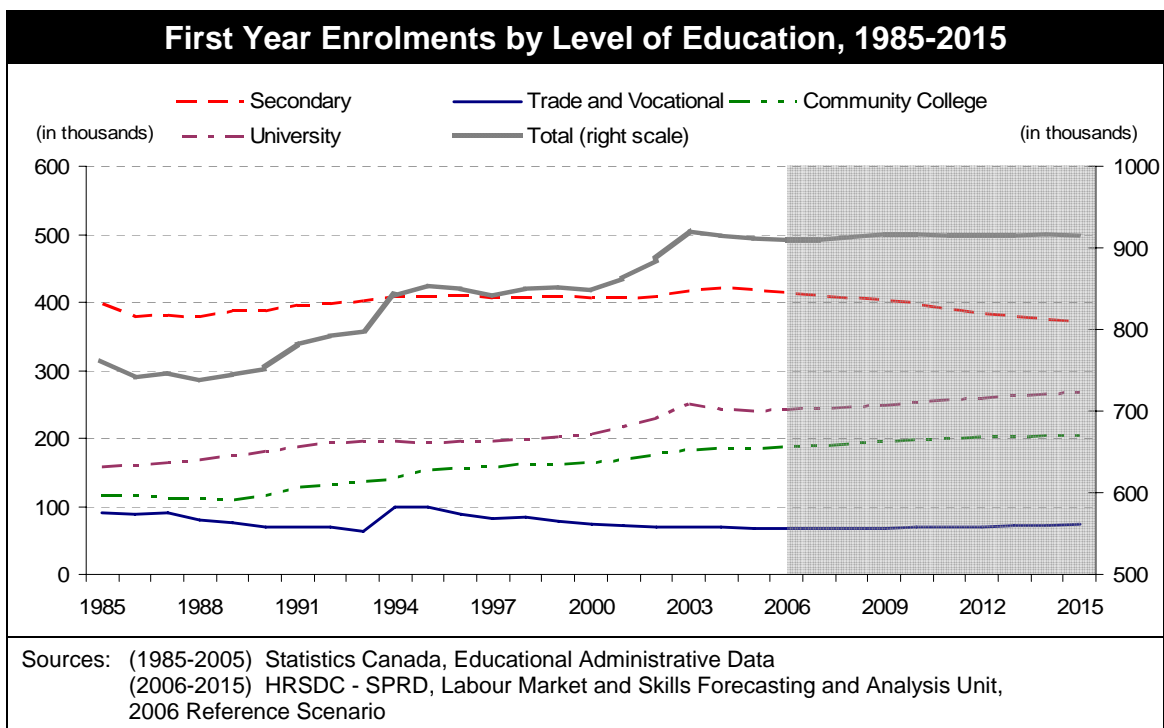
First-year secondary school enrolments are expected to decline over the forecast period due entirely to demographic factors (average annual growth rate of -1.2%). Indeed, the number of 13- and 14-year olds is expected to decline at an annual rate of 1.5% over the forecast period.

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[27] First-year enrolments are enrolments in the first year of a particular level of study. Since the SLM projects a flow of new labour into the market, it is necessary to analyse the flow of new students into various levels of schooling.

Meanwhile, first-year community college career program and university enrolments will continue their upward climb (average annual growth rates of 1.0% and 1.1%, respectively), despite the slight decline expected for the population aged 18 to 24 (0.02%) over the forecast period. Trade and vocational enrolments are expected to grow at an annual rate of 0.7%.

Graduates

The total number of graduates from the education system will increase over the forecast period, from 643,000 in 2005 to 674,000 in 2015. This represents an average annual growth rate of 0.5%, well below the 1.2% average recorded between 1996 and 2005.

Graduates by Level of Education, 1985-2015

Sources: (1985-2005) Statistics Canada, Educational Administrative Data
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario
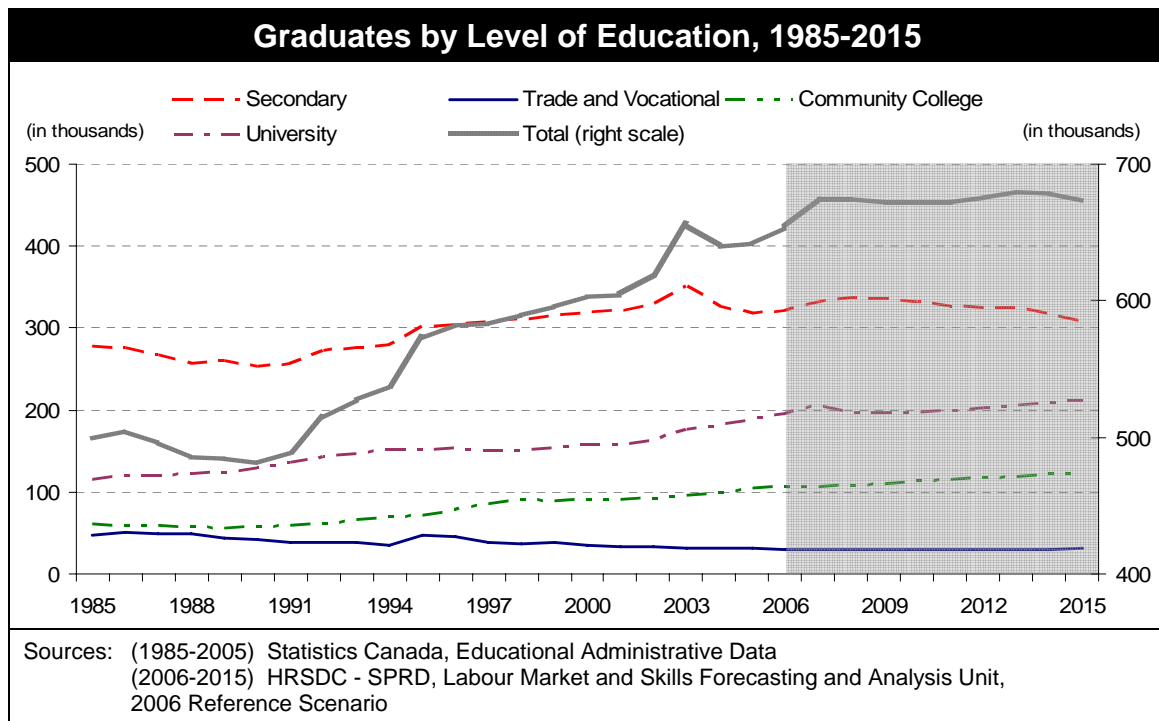
Due to a declining youth population, the number of high school graduates will begin to diminish after 2009. This is consistent with the projected decline in secondary school enrolments.

Graduations from the postsecondary system are expected to rise. Community colleges and universities will continue to supply highly educated graduates – with respective average annual growth rates of 1.7% and 1.2%. The increase in graduates corresponds with the strength of enrolments in community colleges and universities, both historically and in the forecast period. Trade and vocational graduations are expected to remain fairly flat over the forecast period.

Discontinuants

The total number of discontinuants ("dropouts") from the education system will increase over the forecast period, from 252,000 in 2005 to 254,000 in 2015.

Discontinuation from secondary school is expected to decline slightly over the forecast period, continuing a long-run trend observed since the late 1980s.

Discontinuants by Level of Education, 1985-2015

Sources: (1985-2005) Statistics Canada, Educational Administrative Data
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario
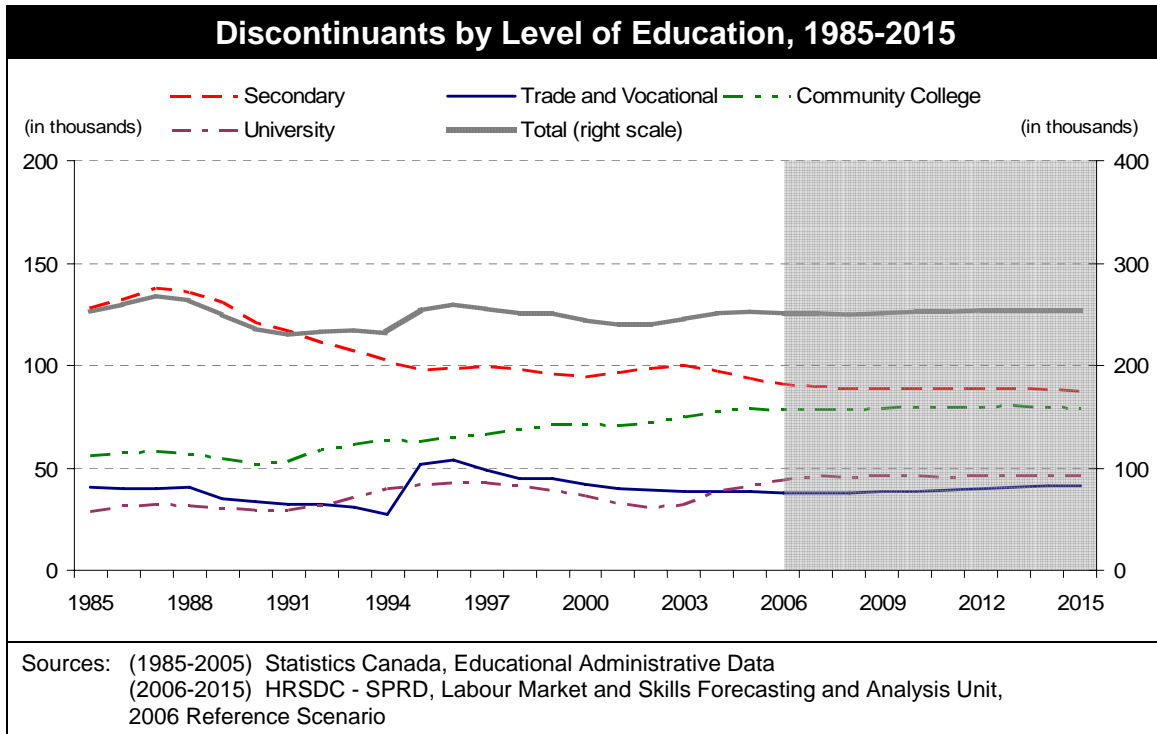
In community colleges and universities, discontinuation will remain flat because completion rates are expected to rise for these levels of schooling. Trade and vocational discontinuants are expected to increase over the forecast period as a result of slight declines in completion rates.

Graduates by field of study

The SLM disaggregates the population of postsecondary graduates by field of study before moving on to occupational conversions. These breakdowns are only considered for the three major postsecondary blocks because secondary and some postsecondary leavers are not considered to have a sufficient level of specialization. In all, 49 fields of study are considered for trade and vocational graduates, 55 for community college graduates and 58 for those at the university level (Bachelor, Master's and Ph.D.). Based on the conclusion that the field-of-study composition tends to stay fairly stable over time, the SLM keeps these distributions fixed over the forecast period. [28]

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[28] In *A Dynamic Analysis of the School-to-Work Transition of Post-Secondary Graduates in Canada* (Human Resources Development Canada, R-99-14E, 1999), Ross Finnie found that broad field-of-study distributions did not change significantly over a 15-year horizon.

School leavers by level of education

School leavers represent the sum of individuals who have graduated (or who have dropped out from a higher education level), are not pursuing further education, and are participating in the labour market.[29]

School Leavers Level of Education, 1985-2015

Sources: (1985-2005) Statistics Canada, Educational Administrative Data
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario
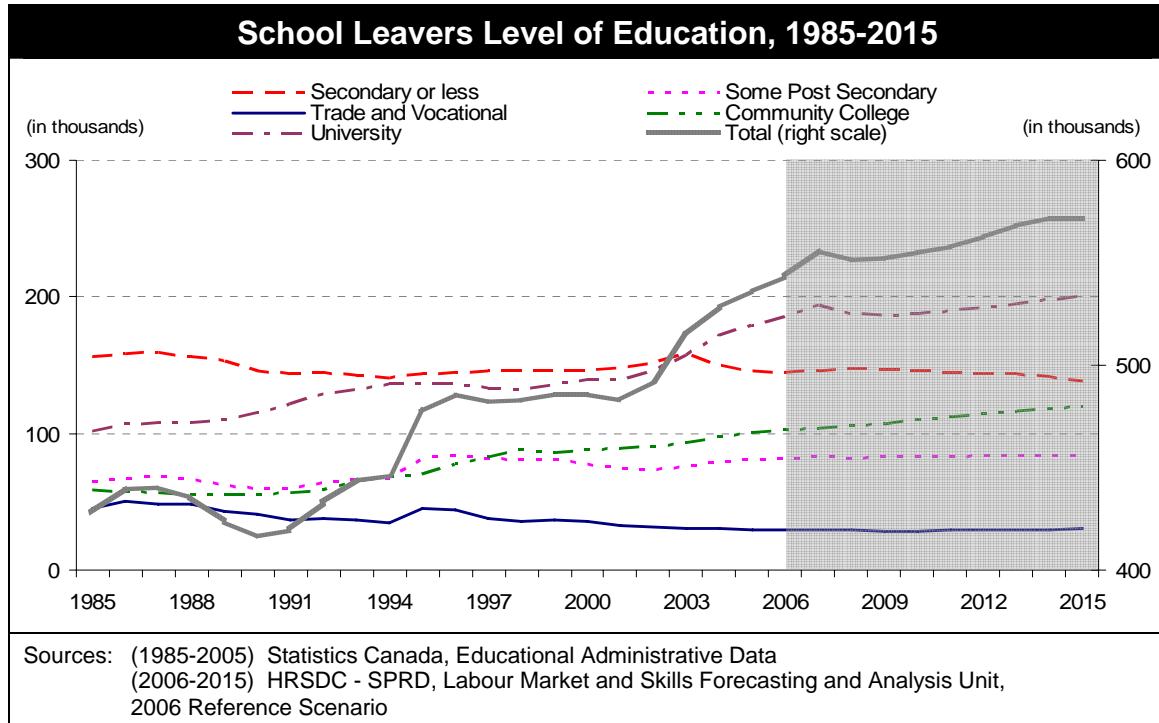
Over the forecast period, the total number of school leavers is expected to increase from 536,000 in 2005 up to 572,000 in 2015 – an average annual growth rate of 0.7%. This is below the 1.2% growth rate recorded over the previous 10-year period (1996-2005). The projected growth surpasses the expected average annual increase of 0.2% in the population aged 17 to 29 over the same period.

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[29] Data on the proportion of individuals pursuing further education and on the labour force participation rate at the secondary level were drawn from Statistics Canada's Youth in Transition Survey (YITS) and Labour Force Survey (LFS). At the postsecondary level, participation rate data come from the NGS.

Historical trends in the number of school leavers by level of education will continue. The most important rise in the number of school leavers is expected to take place at the university and college levels. The number of school leavers with a university education is expected to increase from 179,000 in 2005 to 201,000 in 2015 – an average annual growth rate of 1.2%. For college graduates, the increase is expected to be from 101,000 to 119,000 over the same period – an average annual growth rate of 1.7%.

School Leavers: Share by Level of Schooling, 1986-2015

Sources: (1986-2005) Statistics Canada, Educational Administrative Data
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario
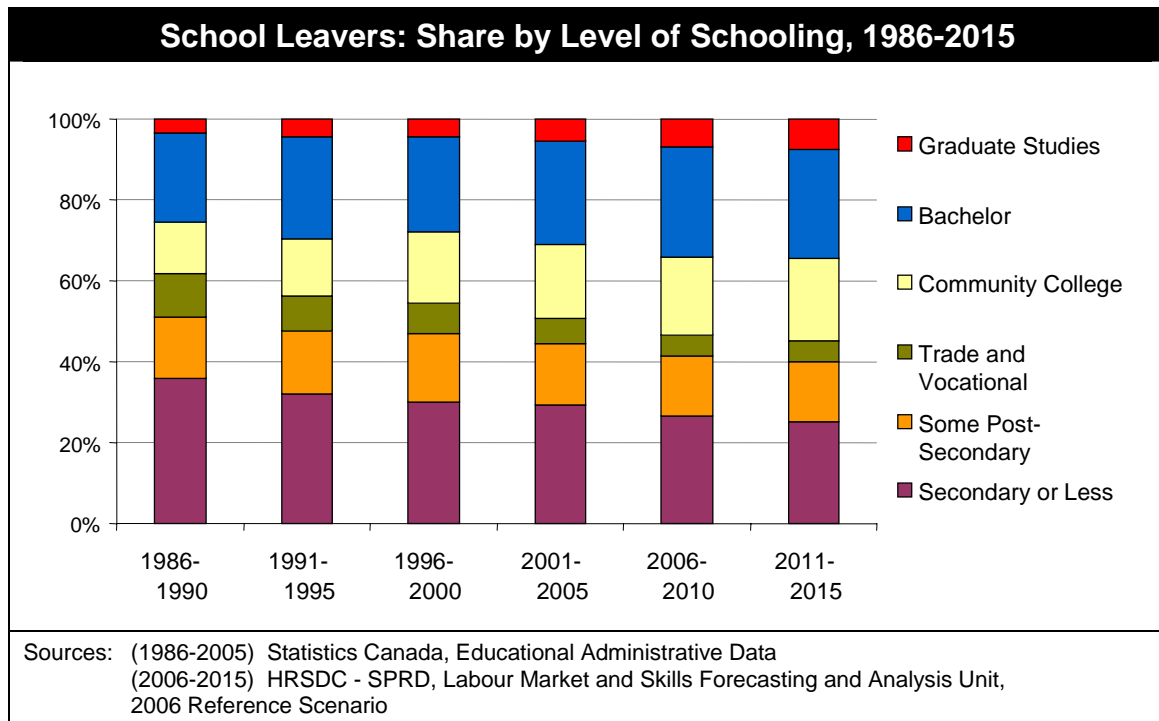
The number of school leavers with some post secondary education[30] or with trade and vocational schooling is expected to remain largely unchanged over the forecast period. Declines are expected to continue for those with secondary schooling or less, from 145,000 in 2005 to 139,000 in 2015 (-0.5%).

Accordingly, the proportion of school leavers with completed postsecondary education is expected to increase from 57.8% in 2005 to 61.1% in 2015. This pattern of rising educational attainment follows historical trends and reflects the growing need for knowledge workers in the economy.

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[30] In the SLM, people with some postsecondary education are treated as a distinct group due to the large size of that group, and their labour market characteristics differ from those with completed high school.

Immigration Projections: Methodology and Results

Methodology

The immigration model uses three steps to estimate the number of recent immigrants who become new job seekers:

- First, the population of recent immigrants is projected. Immigration is assumed to increase proportionally with the Canadian population at an average rate of 0.75% per year. The projection of the Canadian population is obtained using the MEDS demographic model.[31]

- The projected labour force of recent immigrants is derived on the basis of the historical proportion of immigrants who are 15 years and over and the historical participation rates obtained from the Census.

- Recent immigrants entering the labour force are distributed among occupations on the basis of the 2001 Census, which contains information on the occupational distribution of immigrants who entered the Canadian labour market between 1996 and 2001.[32]

Results

Here are key results from the immigration projections.

Immigrant population

Over the past decade, 2.2 million immigrants have settled in Canada. On an annual basis, this represents about 221,000 immigrants or 0.72% of the total population. The graph displays the annual number of immigrants in recent years as well as the immigration rate (the annual number of new immigrants over the total Canadian population).

The Canadian population is expected to increase from 32.3 million in 2005 to 35.0 million by 2015. The number of international immigrants is projected to grow proportionally from 244,600 in 2005 to 260,700 in 2015.

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[31] The Models of Economic-Demographic System (MEDS) derives a population forecast until 2051 for Canada and the provinces by relying on the usual set of factors: birth rates, mortality rates, and migration flows.

[32] An alternate approach would be to use the information on an immigrant's "intended" occupation from the immigration database. However, analysis has shown that the relationship between the "intended" occupation of immigrants before arrival and their "actual" occupation is not statistically significant when considering other occupation-related personal characteristics. This appears to imply that characteristics such as education and location are more important determinants of occupation than statements of intent at the time of landing. For more details, see David A. Green, "Intended and Actual Occupations of Immigrants," in Don J. DeVoretz, ed., *Diminishing Returns: The Economics of Canada's Recent Immigration Policy*. Policy Study 24 (1995).

Immigration and Immigration Rate[1], 1972-2015

Immigration (left axis) ——— Immigration Rate (right axis)

0.75%

[1] Immigration in percentage of total population

Sources: (1972-2005) Statistics Canada, Annual Demographic Statistics 2005
         (2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006
         Reference Scenario, MEDS Demographic Model
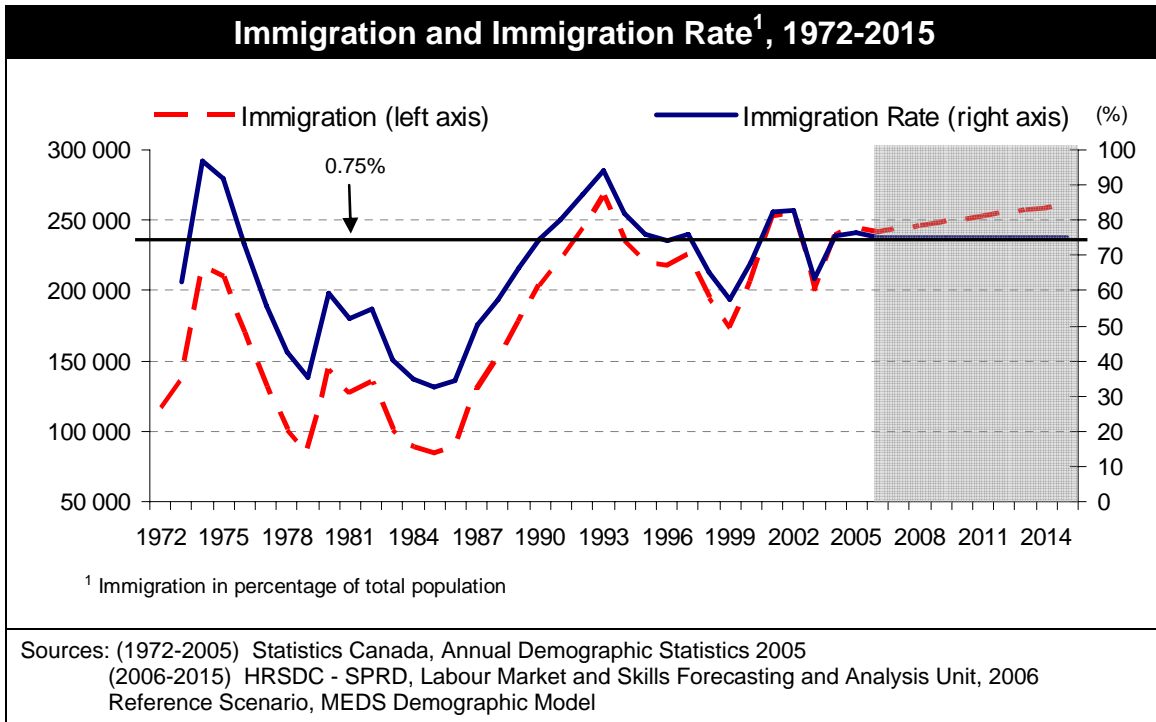
Immigrant labour force

Immigrants are younger than the Canadian population. About 58% of immigrants in 2005 were aged between 15 and 39 years, compared to 35% for the population as a whole. In 2005, over 77% of all immigrants were aged 15 and over.[33] The population of immigrants 15 years and older is projected to increase from 186,500 in 2005 to 202,920 by 2015.

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[33] Based on the latest immigration data by age, obtained from Statistics Canada's *Annual Demographic Statistics 2005.*

Age Distribution of Immigrants and Canadian Population in 2005
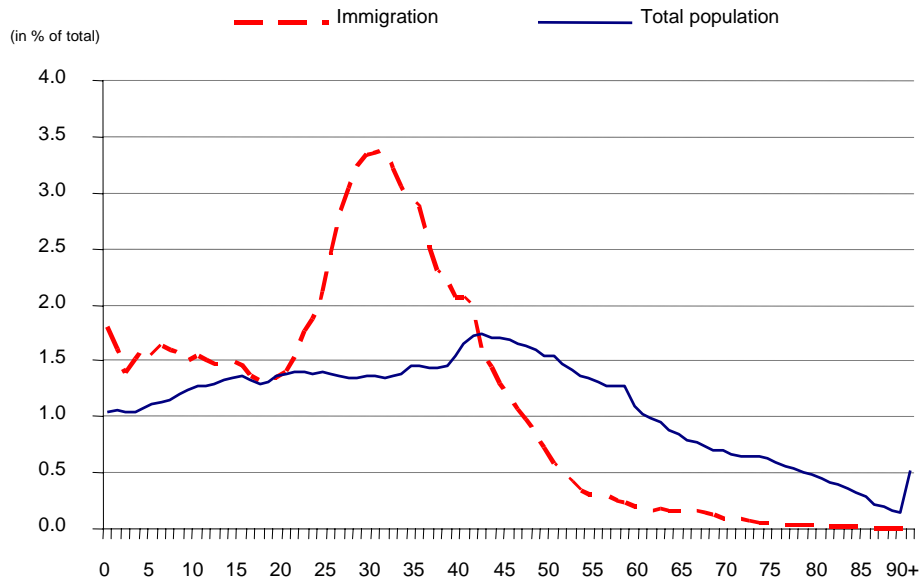
Source: Statistics Canada, Annual Demographic Statistics 2005

As shown in the table, immigrants aged 15 and over who entered the country over the past five years (1996-2000) had a participation rate of 64.8% – a significant increase from 59.4% observed over the previous five-year period. This rate is applied to the population of immigrants 15 years and older to obtain the immigrant labour force. Approximately 120,900 new immigrants were employed or actively looking for a job in 2005 – a number that is expected to climb to about 131,500 in 2015.

Labour Market Indicators for Immigrants and the Non-Immigrant Population (%), 1996 and 2001

	1996 Census			2001 Census		
	Participation rate	Employment rate	Unemployment rate	Participation rate	Employment rate	Unemployment rate
Total Canadian population	65.5	58.9	10.1	66.4	61.5	7.4
Non-immigrant population	66.9	60.2	9.9	68.0	62.9	7.4
Immigrant population	60.7	54.3	10.5	61.4	56.9	7.4
Entered within the past five years	59.4	48.8	18.0	64.8	56.5	12.7

Source: Statistics Canada, 1996 and 2001 Censuses

Immigrant labour force by educational level

Recent immigrants are more educated than the Canadian-born labour force. The proportion is especially high for holders of university degrees: 42.1% of recent immigrants in the labour force had a university degree in 2001, compared with 18.5% for the Canadian-born labour force. The proportion of the recent immigrant labour force with postsecondary education was 9 percentage points above that of the Canadian-born labour force (61.5% and 52.4%, respectively).

Labour Force Proportions by Highest Level of Education for Recent Immigrants (1996-2000), and Total Labour Force (minus recent immigrants) Census 2001

Source: Statistics Canada, Census 2001
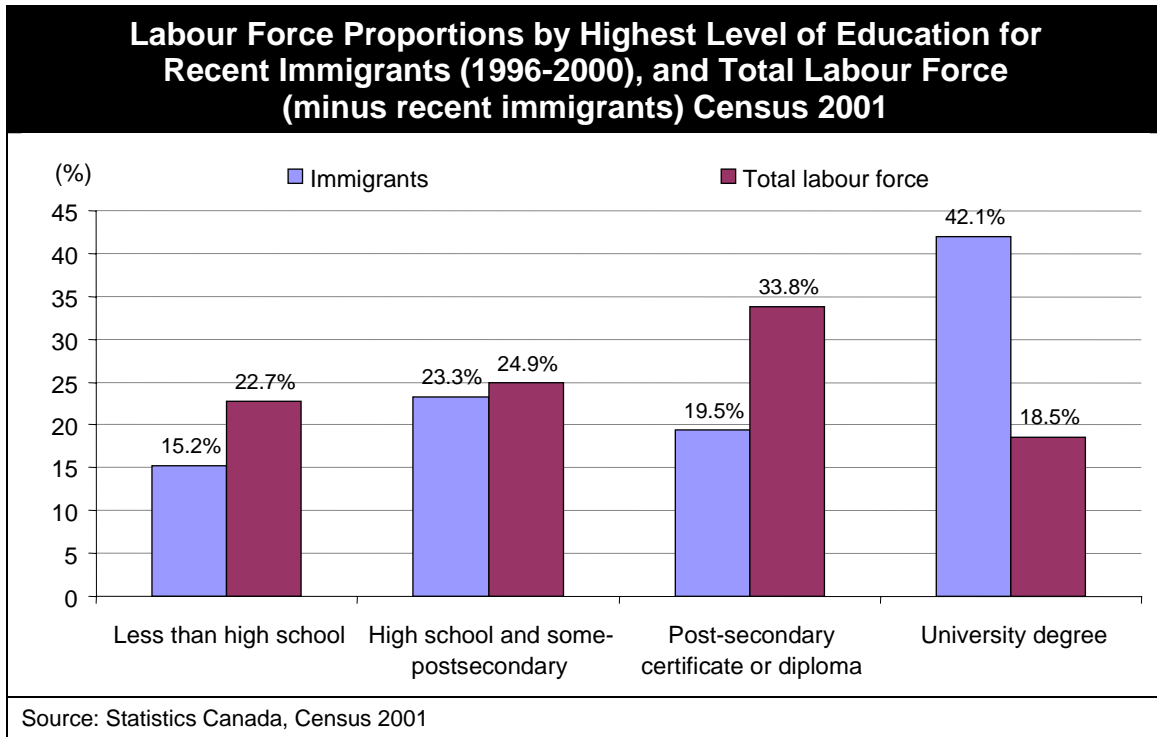
Assessment of Future Labour Market Imbalances by Occupation

The assessment of future labour market imbalances by occupation (and the identification of occupations that are expected to be in labour shortage or surplus over the next 10 years) is based on:

– The current balance between labour demand and supply;

– Projections of the number of new job seekers emerging from the school system and from immigration and of the number of job openings resulting from expansion demand and from retirements.

The table at the end of this section presents the main results of the projections of new job seekers and job openings. It should be noted that these projections provide quantitative indications about <u>potential</u> labour market pressures over the medium term.

In addition, occupations showing signs of pressures as a result of imbalances between projections of new job seekers and job openings may not be necessarily classified as being in an excess demand or excess supply situation. This is due to the fact that labour mobility is taken into account when determining the future labour market situation of an occupation. For example, certain occupations estimated to be currently in excess demand, such as *Supervisors, Library, Correspondence and Related Information Clerks* (1213) and *Accommodation Service Managers* (0632) are expected to return to a balanced situation despite the fact that projections of new job seekers do not exceed the projected number of job openings. The reason is vertical mobility, as workers in *Clerical Occupations* (major group 14) and *Occupations in Travel and Accommodation* (643) can move up the ranks, helping to alleviate excess demand pressures.

Description of the Table

The first column provides data on non-student employment by occupation in 2005. For each of the supply and demand components, the projected flows for the years 2006 to 2015 are added up. A qualitative indicator is then used to rank an occupation relative to the others for the same component. This second classification follows a distribution rule of 25%, 50% and 25%; in other words, 35 occupations are "above average" (AA), 70 occupations are "average" (A) and 35 occupations are "below average" (BA).

In the first column under "equilibrium", expected demand is compared to expected supply (and divided by 10 years) to arrive at an estimate of annual excess demand. The indicator is positive if demand exceeds supply and negative if supply exceeds demand.

The second last column shows the Normalized Future Labour Market Situation (NFLMS) indicator, a summary indicator that estimates the direction of future labour market conditions as follows:

average annual supply (new job seekers) – average annual demand (job openings)

employment during the reference year

A positive NFLMS value indicates that the occupation is showing signs of labour shortage (excess demand), while a negative value indicates that the labour supply tends to exceed demand.

The last column shows the increase (or decrease, if negative) in the number of school leavers and immigrants needed to restore the balance between expected supply and demand. A value of 100% means that the supply of workers must double in order to reach a balance situation. A negative value indicates the percentage by which supply exceeds demand.

Assessment of Future Labour Market Imbalances by Occupation

	Non-student Employment 2005 ('000)	Demand								Supply						Balance		
		Expansion Demand (1) 06-15		Retirements (2) 06-15		Deaths (3) 06-15		Emigration (4) 06-15	Expected Demand (5)=(1+2+3+4) 06-15		School Leavers (6) 06-15		Immigration (7) 06-15		Expected Supply* (8)=(6+7) 06-15		Excess Demand (annual)** (9)=(8-5)/10	NFLMS***	Required Supply Variation****
All Occupations	14,565.9	1,697.9	A	3,800.6	A	601.4	A	450.2	6,550.1	A	5,593.0	A	1,266.9	A	6,441.8	A	10.8	0.1	1.6%
001 Legislators & Senior Management	84.1	11.5	A	45.4	AA	4.4	AA	2.5	63.9	AA	8.0	BA	10.4	AA	17.8	BA	4.6	5.5	250%
011 Administrative Services Managers	109.4	16.7	A	35.0	AA	5.7	AA	3.3	60.7	AA	35.6	A	6.9	A	39.8	A	2.1	1.9	49%
012 Managers in Financial / Business Services	87.9	6.1	A	26.6	A	4.2	AA	2.6	39.7	A	20.2	A	5.9	A	24.5	A	1.5	1.7	58%
013 Managers in Communication (Except Broadcasting)	13.5	1.8	A	4.1	A	0.7	AA	0.4	7.0	A	1.1	BA	1.1	A	2.1	BA	0.5	3.6	217%
021 Engineering / Science / Information Systems Mgr's	58.1	8.1	A	15.1	A	3.0	AA	1.8	28.0	A	14.6	A	7.7	AA	21.3	A	0.7	1.2	30%
031 Health / Education / Social & Community Services Mg	90.6	13.6	A	50.6	AA	4.8	AA	2.8	71.7	AA	26.3	A	2.5	A	26.8	A	4.5	5.0	156%
041 Managers in Public Administration	24.9	2.6	A	16.1	AA	1.2	AA	0.7	20.7	AA	4.3	BA	0.3	BA	4.3	BA	1.6	6.6	355%
051 Art / Culture / Recreation / Sport Managers	12.0	0.5	BA	4.5	AA	0.6	A	0.4	5.9	A	5.5	A	1.1	A	6.1	A	0.0	-0.1	-3%
061 Sales, Marketing & Advertising Managers	121.8	18.4	A	29.8	A	6.2	AA	3.7	58.1	A	17.6	BA	12.0	A	28.3	BA	3.0	2.5	101%
062 Managers in Retail Trade	323.8	29.8	A	82.8	A	16.7	AA	9.8	139.1	A	36.2	BA	23.0	A	56.5	BA	8.3	2.6	140%
063 Managers in Food Service & Accommodation	164.5	21.1	A	43.2	A	8.7	AA	5.0	78.0	A	18.0	BA	16.2	A	32.9	BA	4.5	2.7	132%
064 Managers in Protective Service	5.0	0.8	AA	2.4	AA	0.3	AA	0.2	3.7	AA	1.0	BA	0.2	BA	1.1	BA	0.3	5.2	226%
065 Managers in Other Services	14.6	1.6	A	5.1	A	0.7	AA	0.4	7.8	A	0.1	BA	2.9	AA	3.0	BA	0.5	3.3	160%
071 Managers in Construction & Transportation	142.4	24.9	AA	38.7	A	7.5	AA	4.3	75.4	AA	7.7	BA	4.5	BA	11.6	BA	6.4	4.5	521%
072 Facility Operation & Maintenance Managers	35.9	6.5	AA	8.5	A	1.9	AA	1.1	17.9	A	1.9	BA	2.2	A	4.0	BA	1.4	3.9	335%
081 Primary Production Managers	8.2	1.2	A	1.9	A	0.4	A	0.2	3.8	A	1.4	BA	0.3	BA	1.6	BA	0.2	2.7	133%
091 Managers in Manufacturing & Utilities	80.0	5.2	A	23.2	A	3.9	AA	2.4	34.6	A	10.5	BA	6.3	A	16.0	BA	1.9	2.3	112%
111 Auditors / Accountants / Investment Professionals	304.0	41.8	A	77.0	A	14.2	A	9.1	142.1	A	166.2	AA	28.2	A	181.9	AA	-4.0	-1.3	-21%
112 Human Resources & Business Service Professionals	138.6	29.2	AA	48.4	AA	6.5	A	4.2	88.2	AA	53.0	A	5.2	BA	54.2	A	3.4	2.4	58%
121 Clerical Supervisors	118.4	5.2	BA	45.0	AA	6.0	AA	3.6	59.7	A	20.5	BA	4.0	BA	23.0	BA	3.7	3.1	150%
122 Administrative & Regulatory Occ's	306.9	44.8	A	111.5	AA	16.6	AA	9.3	182.2	AA	76.5	A	16.1	A	86.8	A	9.5	3.1	103%
123 Finance & Insurance Administrative Occ's	206.3	22.7	A	61.6	A	11.3	AA	6.2	101.9	A	45.3	A	8.3	A	50.2	A	5.2	2.5	96%
124 Secretaries, Recorders & Transcriptionists	231.0	-20.4	BA	99.7	AA	10.9	A	7.1	97.4	A	50.7	A	15.5	A	62.3	A	3.5	1.5	53%
141 Clerical Occ's, General Office Skills	230.5	20.2	A	67.1	A	7.7	A	7.2	102.2	A	74.5	A	25.8	A	94.7	A	0.7	0.3	7%
142 Office Equipment Operators	57.5	-8.1	BA	15.6	A	1.6	BA	1.8	10.9	BA	18.3	A	7.7	AA	24.7	A	-1.4	-2.4	-53%
143 Finance & Insurance Clerks	340.9	31.1	A	94.8	A	11.3	A	10.4	147.5	A	119.4	A	26.6	A	137.1	A	1.0	0.3	7%
144 Administrative Support Clerks	226.6	26.7	A	67.9	A	7.4	A	6.9	109.0	A	48.7	A	5.1	BA	50.2	BA	5.9	2.6	109%
145 Library, Correspondence & Related Info. Clerks	180.6	33.0	AA	32.6	BA	6.5	A	5.7	77.8	A	74.0	A	16.7	A	85.2	A	-0.7	-0.4	-8%
146 Mail & Message Distribution Occ's	89.1	4.0	A	28.4	A	3.0	A	2.7	38.1	A	13.5	BA	5.3	A	17.8	BA	2.0	2.3	108%
147 Recording / Scheduling / Distributing Occ's	235.5	26.7	A	47.9	A	7.6	A	7.4	89.7	A	63.7	A	19.2	A	78.2	A	1.1	0.5	14%
211 Physical Science Professionals	27.7	3.2	A	7.8	A	0.8	A	0.8	12.7	A	18.7	AA	6.8	AA	24.1	AA	-1.1	-4.1	-45%
212 Life Science Professionals	22.4	3.9	AA	5.2	A	0.6	A	0.7	10.5	A	24.4	AA	2.8	A	25.3	AA	-1.5	-6.6	-55%
213 Civil / Mechanical / Electrical / Chemical Engineers	115.2	28.6	AA	28.6	A	3.5	BA	3.5	64.2	AA	73.8	AA	23.8	AA	92.1	AA	-2.8	-2.4	-29%
214 Other Engineers	62.3	11.5	AA	12.0	A	1.8	BA	1.9	27.2	A	38.1	AA	18.5	AA	53.8	AA	-2.7	-4.3	-47%
215 Architects / Urban Planners / Land Surveyors	31.0	3.0	A	8.0	A	0.8	BA	0.9	12.8	A	19.8	AA	2.3	A	20.7	AA	-0.8	-2.5	-36%
216 Mathematicians / Statisticians / Actuaries	6.1	1.1	AA	1.2	BA	0.2	BA	0.2	2.6	A	10.6	AA	0.8	AA	10.6	AA	-0.8	-13.2	-70%
217 Computer and Info. Sys. Professionals	301.7	67.8	AA	33.4	BA	8.8	BA	9.1	119.1	A	161.6	AA	85.3	AA	234.8	AA	-11.6	-3.8	-47%
221 Technical Occ's in Physical Sciences	30.3	3.6	A	6.6	A	1.0	A	0.9	12.2	A	24.4	AA	3.6	AA	26.2	AA	-1.4	-4.6	-50%
222 Technical Occ's in Life Sciences	38.8	6.2	A	9.2	A	1.3	A	1.2	17.9	A	43.8	AA	1.7	A	42.2	AA	-2.4	-6.3	-53%
223 Civil / Mechanical / Industrial Engineering Technician	63.9	14.9	AA	13.7	A	2.2	A	1.9	32.7	A	26.5	A	5.4	A	29.9	A	0.3	0.4	9%
224 Electronics / Electrical Engineering Technicians	117.1	27.7	AA	27.7	A	4.0	A	3.6	63.0	AA	75.1	AA	13.1	A	82.6	AA	-2.0	-1.7	-22%
225 Tech. Occ's in Architecture / Drafting / etc.	49.8	2.9	BA	10.1	A	1.5	A	1.5	16.1	BA	32.7	AA	7.1	AA	37.4	AA	-2.1	-4.3	-53%
226 Other Technical Inspectors / Regulatory Officers	43.9	7.9	AA	14.0	A	1.4	A	1.3	24.7	AA	12.3	A	1.2	BA	12.6	A	1.2	2.8	90%
227 Transportation Officers & Controllers	27.8	5.0	AA	8.2	A	0.9	A	0.8	15.0	AA	3.9	BA	1.5	A	5.0	BA	1.0	3.6	186%

Occupation																		
	105.7	18.2	AA	10.4	BA	3.5	A	3.2	35.3	BA	16.7	BA	17.3	AA	32.7	A	0.3	0.2	8%
228 Computer & Info. Sys. Technicians	105.7	18.2	AA	10.4	BA	3.5	A	3.2	35.3	BA	16.7	BA	17.3	AA	32.7	A	0.3	0.2	8%
311 Physicians / Dentists / Veterinarians	82.5	27.9	AA	20.5	A	4.1	AA	2.4	54.9	AA	32.3	A	5.6	A	35.5	A	1.9	2.4	51%
312 Optometrists / Chiropractors / Other Health Professio	13.2	2.9	AA	4.2	AA	0.6	A	0.4	8.2	AA	3.2	A	0.6	A	3.5	A	0.5	3.5	124%
313 Pharmacists, Dietitians & Nutritionists	31.7	9.5	AA	7.7	A	1.4	A	0.9	19.6	AA	16.3	A	2.7	A	17.8	A	0.2	0.6	9%
314 Therapy & Assessment Professionals	43.5	16.4	AA	7.4	BA	2.0	A	1.3	27.2	AA	31.8	AA	1.8	A	31.2	AA	-0.4	-0.9	-12%
315 Nurse Supervisors & Registered Nurses	252.1	71.2	AA	99.3	AA	11.7	A	7.5	189.7	AA	109.0	A	7.0	BA	107.9	A	8.2	3.2	70%
321 Medical Technologists / Technicians	80.3	22.8	AA	21.6	A	2.5	A	2.4	49.3	AA	46.0	AA	5.6	A	48.1	AA	0.1	0.1	2%
322 Tech. Occ's in Dental Health Care	24.7	4.3	AA	4.8	A	0.7	BA	0.7	10.6	A	9.4	A	1.3	A	9.9	A	0.1	0.3	6%
323 Other Tech. Occ's in Health (Except Dental)	108.7	12.0	A	29.3	A	3.2	BA	3.2	47.8	A	23.5	A	4.0	BA	25.7	BA	2.2	2.0	80%
341 Assisting Occ's in Health Services	254.6	50.4	AA	62.4	A	13.2	AA	7.7	133.7	AA	69.1	A	15.9	A	79.8	A	5.4	2.1	63%
411 Judges / Lawyers / Notaries	73.2	7.5	A	14.5	A	3.9	AA	2.2	28.1	A	37.2	A	1.5	BA	35.9	A	-0.8	-1.1	-20%
412 University Professors & Assistants	83.0	18.5	AA	22.9	A	6.8	AA	2.6	50.7	AA	90.8	AA	18.7	AA	102.6	AA	-5.2	-6.3	-47%
413 College & Other Voc. Instructors	78.1	10.5	A	33.8	A	4.5	AA	2.4	51.3	AA	37.0	A	5.2	A	39.4	A	1.2	1.5	28%
414 Secondary / Elementary School Teachers & Counsell	406.6	34.3	A	158.6	A	21.6	AA	12.3	226.9	AA	362.4	AA	11.4	BA	346.8	AA	-12.0	-2.9	-32%
415 Psychologists / Social Workers / Clergy	121.0	20.3	A	47.0	AA	6.8	AA	3.6	77.7	AA	117.2	AA	6.0	A	114.4	AA	-3.7	-3.0	-30%
416 Policy & Program Officers	123.6	20.8	AA	35.2	A	7.1	AA	3.8	66.9	AA	132.4	AA	9.8	A	132.3	AA	-6.5	-5.3	-46%
421 Paralegals / Social Services Workers / etc.	322.7	43.3	A	62.0	BA	9.6	BA	9.8	124.7	A	251.1	AA	20.9	A	253.2	AA	-12.8	-4.0	-47%
511 Librarians, Archivists, Conservators & Curators	12.8	0.7	BA	6.5	AA	0.5	A	0.4	8.0	AA	8.6	AA	0.6	A	8.6	AA	-0.1	-0.4	-6%
512 Writing / Translating / Public Relations Professionals	105.5	8.7	BA	24.2	A	3.9	A	3.2	40.0	A	68.5	AA	6.7	A	70.1	AA	-3.0	-2.8	-40%
513 Creative & Performing Artists	90.1	6.0	BA	22.1	A	3.5	A	2.8	34.4	A	49.2	AA	6.8	A	52.2	A	-1.8	-2.0	-32%
521 Technical Occ's: Libraries / Archives / etc.	18.0	1.5	A	6.4	AA	0.5	BA	0.6	8.9	A	13.4	AA	0.7	A	13.1	AA	-0.4	-2.3	-30%
522 Photographers / Graphic Arts Technicians / etc.	40.5	7.5	AA	7.2	BA	1.1	BA	1.3	17.2	A	23.8	AA	2.9	A	25.0	AA	-0.8	-1.9	-29%
523 Announcers & Other Performers	12.7	0.8	BA	1.4	BA	0.3	BA	0.4	2.9	BA	3.9	A	0.6	A	4.2	A	-0.1	-1.0	-28%
524 Creative Designers & Craftspersons	87.3	17.3	AA	17.8	A	2.3	BA	2.7	40.0	A	64.7	AA	7.7	A	67.5	AA	-2.7	-3.1	-38%
525 Athletes, Coaches, Referees & Related Occ's	56.6	13.4	AA	6.9	BA	2.4	A	1.8	24.5	A	60.4	AA	2.6	A	58.4	AA	-3.4	-6.0	-54%
621 Sales & Service Supervisors	220.6	36.4	A	43.9	A	7.4	A	6.7	94.4	A	75.1	A	7.8	BA	77.3	BA	1.7	0.8	21%
622 Technical Sales Specialists, Wholesale Trade	113.1	19.4	AA	24.7	A	3.8	A	3.4	51.3	A	17.3	BA	4.7	A	20.7	A	3.1	2.7	140%
623 Insurance & Real Estate Sales Occ's	154.1	14.3	A	46.6	A	5.0	A	4.6	70.5	A	17.6	BA	5.9	A	22.2	A	4.8	3.1	206%
624 Chefs & Cooks	174.7	32.7	AA	18.8	BA	6.6	A	5.6	63.8	BA	101.5	AA	24.1	AA	118.0	AA	-5.4	-3.1	-43%
625 Butchers & Bakers	62.0	10.3	A	11.0	BA	2.3	A	1.9	25.5	A	32.1	AA	7.6	AA	37.4	AA	-1.2	-1.9	-30%
626 Police Officers & Firefighters	90.6	7.7	A	32.8	A	2.7	AA	2.7	45.8	A	28.5	A	0.7	BA	27.1	A	1.9	2.1	64%
627 Technical Occ's in Personal Service	94.0	9.0	A	21.1	BA	2.9	A	2.8	35.9	A	18.6	BA	5.4	A	22.6	BA	1.3	1.4	56%
641 Sales Rep's, Wholesale Trade	230.7	18.3	A	52.7	A	5.8	BA	7.1	84.0	BA	53.3	A	9.7	A	59.1	A	2.5	1.1	39%
642 Retail Salespersons & Sales Clerks	409.2	38.0	A	91.3	A	13.6	A	12.9	155.8	A	206.1	A	47.0	AA	237.7	AA	-8.2	-2.0	-32%
643 Occ's in Travel & Accommodation	70.8	8.6	A	16.4	A	1.9	BA	2.2	29.0	A	33.6	A	9.1	AA	40.2	AA	-1.1	-1.6	-26%
644 Tour & Rec. Guides & Casino Occ's	16.4	1.9	A	3.6	BA	0.4	BA	0.5	6.4	A	4.3	A	2.9	AA	6.9	A	0.0	-0.3	-7%
645 Occ's in Food & Beverage Service	185.1	30.7	A	26.1	BA	6.3	A	5.8	69.0	BA	126.4	AA	20.1	A	137.1	AA	-6.8	-3.7	-47%
646 Other Occ's in Protective Service	32.3	4.2	A	10.3	A	0.9	BA	1.0	16.3	A	14.2	A	1.2	BA	14.4	BA	0.2	0.6	13%
647 Childcare & Home Support Workers	159.6	5.8	BA	62.2	AA	4.4	BA	5.0	77.4	A	79.2	AA	26.2	AA	99.4	AA	-2.2	-1.4	-21%
648 Other Occ's in Personal Service	50.2	1.7	BA	9.2	BA	1.3	BA	1.5	13.7	BA	19.4	A	3.8	A	21.7	A	-0.8	-1.6	-35%
661 Cashiers	211.6	13.3	BA	29.3	BA	10.2	A	6.7	59.4	BA	84.6	AA	27.9	AA	106.2	AA	-4.7	-2.2	-42%
662 Other Sales & Related Occ's	161.7	13.8	A	26.3	BA	7.1	A	5.2	52.4	BA	102.3	AA	19.8	AA	114.5	AA	-6.2	-3.8	-51%
664 Food Counter Attendants & Helpers	169.9	15.3	A	26.8	BA	8.4	AA	5.5	56.1	BA	122.8	AA	38.0	AA	151.7	A	-9.6	-5.6	-59%
665 Security Guards & Related Occ's	79.0	16.3	AA	26.0	AA	3.2	A	2.5	47.9	AA	32.6	A	10.8	AA	40.9	A	0.7	0.9	16%
666 Cleaners	375.7	19.7	BA	125.0	A	12.8	A	11.8	169.4	A	79.2	A	40.9	A	114.3	A	5.5	1.5	46%
667 Travel / Accommodation / Recreation Attendants	21.7	3.5	A	4.4	A	1.0	A	0.7	9.6	A	14.6	A	1.2	A	14.7	A	-0.5	-2.4	-32%
668 Other Elemental Service Occ's	40.8	2.6	BA	14.7	BA	1.5	AA	1.3	20.1	A	12.5	A	7.5	AA	19.1	A	0.1	0.3	5%
721 Contractors & Supervisors, Trades & Related	208.5	23.6	AA	66.7	AA	8.1	A	6.3	104.6	A	14.1	BA	3.3	BA	16.3	BA	8.8	4.2	509%
722 Supervisors- Railway & Motor Trans	27.2	2.0	A	12.3	AA	1.1	A	0.8	16.2	AA	1.2	BA	0.2	BA	1.3	BA	1.5	5.5	1090%
723 Machinists & Related Occ's	70.7	10.2	A	14.9	A	2.8	A	2.2	30.0	A	20.3	A	7.5	A	26.2	A	0.4	0.5	14%
724 Electrical Trades & Telecommunications Occ's	140.6	11.7	A	46.4	AA	5.4	A	4.4	67.9	A	51.7	A	7.5	A	55.4	A	1.2	0.9	21%
725 Plumbers, Pipefitters & Gas Fitters	57.3	5.6	A	13.4	A	2.3	A	1.8	23.0	A	16.3	A	1.8	BA	16.9	BA	0.6	1.1	34%
726 Metal Forming / Shaping / Erecting Occ's	132.2	13.1	A	27.1	A	5.1	A	4.2	49.5	A	51.3	A	8.3	A	55.7	A	-0.6	-0.5	-10%
727 Carpenters & Cabinetmakers	128.3	10.0	A	24.2	BA	4.9	BA	4.2	43.3	BA	32.4	A	6.0	A	36.0	A	0.7	0.6	19%
728 Masonry & Plastering Trades	62.0	8.9	A	9.4	BA	2.5	BA	2.0	22.8	BA	12.4	BA	3.5	A	15.0	A	0.8	1.3	49%
729 Other Construction Trades	85.3	7.9	A	17.6	A	3.3	A	2.8	31.5	A	27.5	A	6.0	A	31.4	A	0.0	0.0	0%
731 Machinery / Transportation Equipment Mechanics	173.0	15.4	A	52.3	A	6.7	A	5.3	79.6	A	52.5	A	6.9	A	55.5	A	2.4	1.4	41%

Occupation																			
732 Motor Vehicle Mechanics	149.9	16.2	A	28.5	BA	5.9	A	4.6	55.2	BA	59.8	A	6.6	A	62.0	A	-0.7	-0.4	-10%
733 Other Mechanics	28.0	3.4	A	6.3	A	1.1	A	0.8	11.6	A	11.4	A	1.5	A	12.0	A	0.0	-0.2	-3%
734 Upholsterers / Tailors / Shoe Repairers / etc.	29.3	1.1	BA	15.1	AA	1.2	A	0.9	18.2	AA	5.9	BA	5.7	AA	11.2	A	0.7	2.4	61%
735 Stationary Engineers / Power System Operators	27.8	-1.6	BA	10.2	AA	0.9	A	0.8	10.3	BA	5.3	BA	0.8	BA	5.6	BA	0.5	1.7	78%
736 Train Crew Operating Occ's	12.1	-0.3	BA	4.8	AA	0.4	A	0.4	5.3	A	0.4	BA	0.1	BA	0.4	BA	0.5	4.0	1062%
737 Crane Operators, Drillers & Blasters	11.7	1.5	A	4.7	AA	0.5	A	0.4	7.0	AA	2.7	A	0.3	BA	2.8	A	0.4	3.6	140%
738 Printing Press Operators / Commercial Divers / etc.	34.4	0.8	BA	11.7	AA	1.3	A	1.1	14.8	A	7.5	A	1.5	A	8.4	A	0.6	1.9	71%
741 Motor Vehicle & Transit Drivers	431.8	45.0	A	120.1	A	18.8	A	13.4	197.2	A	51.7	BA	26.5	A	74.4	BA	12.3	2.8	157%
742 Heavy Equipment Operators	88.0	9.6	A	18.8	A	3.8	A	2.8	35.0	A	13.2	BA	1.2	BA	13.4	BA	2.2	2.5	150%
743 Other Transport Equipment Operators	19.3	0.1	BA	4.9	A	0.8	A	0.6	6.4	BA	3.3	BA	1.1	A	4.2	BA	0.2	1.1	49%
744 Other Installers / Repairers / Servicers	61.7	4.1	BA	11.6	BA	2.7	A	1.9	20.3	BA	25.7	A	2.5	A	26.3	A	-0.6	-1.0	-21%
745 Longshore Workers & Material Handlers	182.1	25.6	A	38.0	A	8.3	A	5.9	77.8	A	72.2	A	16.4	A	83.3	A	-0.5	-0.3	-6%
761 Trades Helpers & Labourers	105.5	3.3	BA	12.4	BA	2.6	BA	3.7	22.0	BA	71.3	AA	6.4	A	72.4	AA	-5.0	-4.8	-65%
762 Public Works & Other Labourers	20.9	3.9	AA	5.5	A	0.5	BA	0.7	10.6	A	7.1	A	0.7	BA	7.2	A	0.3	1.6	44%
821 Supervisors, Logging & Forestry	8.3	-0.8	BA	2.1	A	0.8	AA	0.3	2.4	BA	2.7	A	0.0	BA	2.6	A	0.0	-0.2	-7%
822 Supervisors, Mining / Oil / Gas	19.9	1.8	A	3.7	BA	2.1	AA	0.6	8.2	A	1.8	BA	0.1	BA	1.8	BA	0.6	3.2	338%
823 Underground Miners / Oil & Gas Drillers / etc.	38.0	8.4	AA	6.2	BA	4.5	AA	1.2	20.3	AA	7.5	BA	0.2	BA	7.1	BA	1.3	3.5	172%
824 Logging Machinery Operators	14.2	-1.0	A	3.3	A	1.4	AA	0.5	4.2	BA	3.3	A	0.0	BA	3.1	BA	0.1	0.8	34%
825 Contractors / Operators / Supervisors: Agriculture	212.2	14.4	A	67.9	AA	26.4	AA	6.4	115.1	AA	20.8	BA	8.0	BA	27.2	BA	8.8	4.1	305%
826 Fishing Vessel Masters & Skippers	18.3	0.6	BA	3.3	BA	1.9	AA	0.6	6.4	BA	4.1	A	0.1	BA	3.9	BA	0.2	1.4	59%
841 Mine Service Workers & Operators in Oil	11.6	2.5	AA	1.3	BA	0.5	A	0.4	4.7	A	6.2	AA	0.1	BA	5.8	A	-0.1	-1.0	-18%
842 Logging & Forestry Workers	14.8	-1.2	BA	4.6	A	0.5	A	0.6	4.4	BA	6.5	A	0.2	BA	6.3	A	-0.2	-1.2	-27%
843 Agriculture & Horticulture Workers	76.4	-0.5	BA	9.5	BA	3.0	A	2.6	14.5	BA	31.3	A	10.8	AA	39.7	A	-2.5	-3.3	-60%
844 Other Fishing & Trapping Occ's	6.6	0.0	BA	0.4	BA	0.2	A	0.3	1.0	BA	2.4	A	0.1	BA	2.3	A	-0.1	-2.0	-53%
861 Primary Production Labourers	83.0	7.7	A	10.1	BA	2.2	BA	3.0	23.0	BA	54.4	AA	6.5	A	56.9	AA	-3.4	-4.1	-56%
921 Supervisors, Processing Occ's	72.8	8.3	A	29.3	AA	3.1	A	2.2	42.9	AA	5.8	BA	2.8	A	8.2	BA	3.5	4.8	403%
922 Supervisors, Assembly & Fabrication	57.0	4.1	A	24.0	AA	2.4	A	1.7	32.2	AA	4.4	BA	3.8	A	7.9	BA	2.4	4.3	294%
923 Central Control Operators: Manufacturing / Processin	23.4	2.9	A	8.3	AA	1.0	A	0.7	12.9	AA	3.9	BA	0.6	BA	4.3	BA	0.9	3.7	190%
941 Machine Operators: Metal & Mineral Products	30.3	1.1	BA	7.2	A	0.8	BA	1.0	10.1	BA	8.3	A	4.1	AA	11.8	A	-0.2	-0.6	-14%
942 Machine Operators: Chemical / Plastic / Rubber	75.2	11.3	A	11.7	BA	2.0	BA	2.3	27.3	BA	16.0	A	8.8	AA	23.6	A	0.4	0.5	15%
943 Machine Operators: Pulp & Paper Prod	60.8	-2.6	BA	10.5	BA	1.4	BA	1.9	11.1	BA	16.1	A	2.3	BA	17.2	A	-0.6	-1.0	-33%
944 Machine Operators: Textile Processing	18.1	-0.4	BA	4.1	A	0.4	A	0.6	4.7	BA	4.2	A	5.7	AA	9.6	A	-0.5	-2.7	-49%
945 Machine Operators: Fabric / Fur / Leather	47.7	-1.8	BA	15.1	A	1.1	A	1.6	16.1	BA	6.9	BA	21.5	AA	27.9	A	-1.2	-2.5	-41%
946 Machine Operators: Food / Beverage / Tobacco	82.3	4.3	BA	15.1	BA	2.1	BA	2.7	24.1	BA	24.5	A	8.2	A	30.8	A	-0.7	-0.8	-21%
947 Printing Machine Operators & Related Occ's	28.5	2.0	A	4.4	BA	0.8	BA	0.9	8.1	BA	10.8	A	4.2	AA	14.2	A	-0.6	-2.1	-41%
948 Mechanical, Electrical & Electronics Assemblers	105.5	14.0	A	30.4	A	2.8	BA	3.4	50.6	A	33.2	A	26.9	AA	57.6	A	-0.7	-0.7	-12%
949 Other Assembly & Related Occ's	107.5	1.9	BA	16.0	BA	2.6	BA	3.4	23.9	BA	33.6	A	20.1	AA	51.2	A	-2.7	-2.5	-51%
951 Machining / Metalworking/Woodworking Operators	135.7	17.0	A	21.9	BA	3.6	BA	4.3	46.8	BA	35.3	A	13.2	A	45.9	A	0.1	0.1	2%
961 Processing / Manufacturing / Utilities Labourers	197.7	-2.2	BA	39.4	A	5.0	BA	6.6	48.7	BA	78.1	A	49.0	AA	121.4	AA	-7.3	-3.7	-57%

AA = Above Average, A = Average and B = Below Average. These classifications are determined by a cutoff that assigns 50% to the A category, 25% to the BA category and 25% to the AA category.

* Expected supply is not equal to the sum of the parts due to other factors (such as movements of workers in and out of the labour market).

** Excess demand (annual) represents the difference between job openings (expected demand) and job seekers (expected supply) expressed annually by dividing by the numbers of years in the forecast (i.e. 10 years).

*** NFLMS is an indicator of excess demand (excess supply if negative) normalized to the base year employment (2005); NFLMS stands for Normalized Future Labour Market Situation.

**** That indicator reflect the percent increase of school leavers and immigration (reduction if negative) required to balance demand and supply. For example, a 100% increase indicates that the expected supply would need to double in size to achieve a labour demand and supply while a -50% indicates the expected supply would need to be cut in half to achieve balance.

Other Support Materials

Annual Economic and Labour Market Statistics, 1987-2005

Annual Economic And Labour Market Statistics, 1987-2005

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Gross Domestic Product (GDP) at market prices (millions $ 1997)	709,058	744,333	763,837	765,311	749,294	755,848	773,528	810,695	833,456	846,952	882,733	918,910	969,750	1,020,488	1,038,702	1,070,789	1,092,388	1,124,428	1,157,446
GDP growth rate		5.0	2.6	0.2	-2.1	0.9	2.3	4.8	2.8	1.6	4.2	4.1	5.5	5.2	1.8	3.1	2.0	2.9	2.9
Employment (000s)	12,333	12,710	12,995	13,085	12,857	12,730	12,795	13,057	13,296	13,422	13,706	14,046	14,409	14,765	14,945	15,310	15,672	15,949	16,169
Employment growth (%)		3.1	2.3	0.7	-1.8	-1.0	0.5	2.1	1.8	0.9	2.1	2.5	2.6	2.5	1.2	2.4	2.4	1.8	1.4
Labour force (000s)	13,523	13,778	14,053	14,247	14,334	14,340	14,438	14,570	14,688	14,855	15,077	15,318	15,589	15,849	16,111	16,576	16,959	17,183	17,341
Labour force growth		1.9	2.0	1.4	0.6	0.0	0.7	0.9	0.8	1.1	1.5	1.6	1.8	1.7	1.7	2.9	2.3	1.3	0.9
Unemployment rate (%)	8.8	7.8	7.5	8.2	10.3	11.2	11.4	10.4	9.5	9.6	9.1	8.3	7.6	6.8	7.2	7.6	7.6	7.2	6.8
Participation rate (%)	66.5	66.8	67.3	67.2	66.6	65.7	65.4	65.1	64.8	64.7	64.8	65.1	65.5	65.8	65.9	66.8	67.5	67.5	67.2
Employment rate (%)	60.6	61.7	62.2	61.7	59.7	58.3	57.9	58.4	58.7	58.4	58.9	59.7	60.6	61.3	61.1	61.7	62.4	62.7	62.7

Source: Statistics Canada, Labour Force Survey and National Economic Accounts.

Employment by Industry

Employment by Industry*, 1987-2005				
	Employment (000s)		**Change**	**Share of**
	1987	**2005**	**1988-2005 (AAGR**)**	**employment 2005**
All industries	**12,333.0**	**16,169.7**	**1.5%**	
Goods-producing sector	**3,633.9**	**4,002.4**	**0.5%**	**24.8%**
Agriculture	464.5	343.7	-1.7%	2.1%
Forestry and logging	68.5	69.5	0.1%	0.4%
Fishing, hunting and trapping	34.2	26.3	-1.4%	0.2%
Oil and gas extraction	48.4	68.0	1.9%	0.4%
Mining (except oil and gas)	101.9	60.1	-2.9%	0.4%
Support activities for mining, oil and gas extraction	34.1	82.6	5.0%	0.5%
Construction	726.6	1,019.5	1.9%	6.3%
Utilities	114.8	125.3	0.5%	0.8%
Manufacturing	2,041.0	2,207.4	0.4%	13.7%
Food and beverages	275.1	302.7	0.5%	1.9%
Wood products	120.4	169.2	1.9%	1.0%
Pulp and paper, paper products	123.3	101.2	-1.1%	0.6%
Printing and related activities	89.1	99.3	0.6%	0.6%
Rubber, plastics and chemicals	197.9	259.7	1.5%	1.6%
Manufactured mineral products	206.9	171.8	-1.0%	1.1%
Metal products and machinery	258.6	321.3	1.2%	2.0%
Computer, electronic and electric products	179.9	150.7	-1.0%	0.9%
Motor vehicles, trailers and parts	169.1	231.8	1.8%	1.4%
Other transportation equipment	66.8	77.5	0.8%	0.5%
Other manufacturing (textiles, clothing, furniture and supplies)	354.0	322.0	-0.5%	2.0%
Service sector	**8,699.2**	**12,167.3**	**1.9%**	**75.2%**
Wholesale trade	417.4	607.1	2.1%	3.8%
Retail trade	1,564.6	1,967.5	1.3%	12.2%
Transportation and warehousing	634.0	793.6	1.3%	4.9%
Finance, insurance, real estate and leasing	765.8	987.8	1.4%	6.1%
Professional business services	314.6	510.7	2.7%	3.2%
Computer system design services	48.2	253.6	9.7%	1.6%
Other professional services	127.0	285.8	4.6%	1.8%

Employment by Industry*, 1987-2005 (continued)				
	Employment (000s)		Change 1988-2005 (AAGR**)	Share of employment 2005
	1987	2005		
Management, administrative and support services	272.6	654.4	5.0%	4.0%
Educational services	776.6	1,106.1	2.0%	6.8%
Health care and social assistance	1,152.0	1,734.6	2.3 %	10.7%
Information, culture and recreation	511.1	735.1	2.0 %	4.5%
Accommodation and food services	716.7	1,004.5	1.9 %	6.2%
Other services	633.1	693.4	0.5 %	4.3%
Public administration	765.4	833.1	0.5 %	5.2%
Source: Statistics Canada, Labour Force Survey. * This breakdown of 33 industries is used by the Canadian Occupational Projection System (COPS). ** AAGR: average annual growth rate.				

National Occupation Classification Matrix

http://www23.hrdc-drhc.gc.ca/2001/e/generic/matrix.pdf

Human Resources Development Canada — Développement des ressources humaines Canada

NATIONAL OCCUPATIONAL CLASSIFICATION MATRIX 2001

The National Occupational Classification (NOC) matrix provides an overview of the classification at the minor group level. It also illustrates how the NOC is accessible on the basis of skill level, skill type, or on a combination of these two criteria. The four skill level categories (in the skill type matrix, whereas the skill type categories are listed across the top. The tenth skill type category (0 Management Occupations) is organized across the top of the matrix. In most cases, each matrix cell consists of a major group.

	1 BUSINESS, FINANCE AND ADMINISTRATION OCCUPATIONS	2 NATURAL AND APPLIED SCIENCES AND RELATED OCCUPATIONS	3 HEALTH OCCUPATIONS	4 OCCUPATIONS IN SOCIAL SCIENCE, EDUCATION, GOVERNMENT SERVICE AND RELIGION	5 OCCUPATIONS IN ART, CULTURE, RECREATION AND SPORT	6 SALES AND SERVICE OCCUPATIONS	7 TRADES, TRANSPORT AND EQUIPMENT OPERATORS AND RELATED OCCUPATIONS	8 OCCUPATIONS UNIQUE TO PRIMARY INDUSTRY	9 OCCUPATIONS UNIQUE TO PROCESSING, MANUFACTURING AND UTILITIES
0 MANAGEMENT OCCUPATIONS				**Major Group 00** SENIOR MANAGEMENT OCCUPATIONS 001 Legislators and Senior Management					
SKILL LEVEL A — Occupations usually require university education.	011 Administrative Services Managers 012 Managers in Financial and Business Services 013 Managers in Communication (Except Broadcasting)	021 Managers in Engineering, Architecture, Science and Information Systems	031 Managers in Health, Education, Social and Community Services 041 Managers in Public Administration	051 Managers in Art, Culture, Recreation and Sport	061 Sales, Marketing and Advertising Managers 062 Managers in Retail Trade 063 Managers in Food Service and Accommodation 064 Managers in Protective Service 065 Managers in Other Services	071 Managers in Construction and Transportation 072 Facility Operation and Maintenance Managers	081 Managers in Primary Production (Except Agriculture)	091 Managers in Manufacturing and Utilities	

SKILL LEVEL A

Major Group 11 PROFESSIONAL OCCUPATIONS IN BUSINESS AND FINANCE
111 Auditors, Accountants and Investment Professionals
112 Human Resources and Business Service Professionals

Major Group 21 PROFESSIONAL OCCUPATIONS IN NATURAL AND APPLIED SCIENCES
211 Physical Science Professionals
212 Life Science Professionals
213 Civil, Mechanical, Electrical and Chemical Engineers
214 Other Engineers
215 Architects, Urban Planners and Land Surveyors
216 Mathematicians, Statisticians and Actuaries
217 Computer and Information Systems Professionals

Major Group 31 PROFESSIONAL OCCUPATIONS IN HEALTH
311 Physicians, Dentists and Veterinarians
312 Optometrists, Chiropractors and Other Health Diagnosing and Treating Professionals
313 Pharmacists, Dietitians and Nutritionists
314 Therapy and Assessment Professionals
315 Nurse Supervisors and Registered Nurses

Major Group 41 PROFESSIONAL OCCUPATIONS IN SOCIAL SCIENCE, EDUCATION, GOVERNMENT SERVICES AND RELIGION
411 Judges, Lawyers and Quebec Notaries
412 University Professors and Assistants
413 College and Other Vocational Instructors
414 Secondary and Elementary School Teachers and Educational Counsellors
415 Psychologists, Social Workers, Counsellors, Clergy and Probation Officers
416 Policy and Program Officers, Researchers and Consultants

Major Group 51 PROFESSIONAL OCCUPATIONS IN ART AND CULTURE
511 Librarians, Archivists, Conservators and Curators
512 Writing, Translating and Public Relations Professionals
513 Creative and Performing Artists

SKILL LEVEL B — Occupations usually require college education or apprenticeship training.

Major Group 12 SKILLED ADMINISTRATIVE AND BUSINESS OCCUPATIONS
121 Clerical Supervisors
122 Administrative and Regulatory Occupations
123 Finance and Insurance Administrative Occupations
124 Secretaries, Recorders and Transcriptionists

Major Group 22 TECHNICAL OCCUPATIONS RELATED TO NATURAL AND APPLIED SCIENCES
221 Technical Occupations in Physical Sciences
222 Technical Occupations in Life Sciences
223 Technical Occupations in Civil, Mechanical and Industrial Engineering
224 Technical Occupations in Electronics and Electrical Engineering
225 Technical Occupations in Architecture, Drafting, Surveying and Mapping
226 Other Technical Inspectors and Regulatory Officers
227 Transportation Officers and Controllers
228 Technical Occupations in Computer and Information Systems

Major Group 32 TECHNICAL AND SKILLED OCCUPATIONS IN HEALTH
321 Medical Technologists and Technicians (Except Dental Health)
322 Technical Occupations in Dental Health Care
323 Other Technical Occupations in Health Care (Except Dental)

Major Group 42 PARA-PROFESSIONAL OCCUPATIONS IN LAW, SOCIAL SERVICES, EDUCATION AND RELIGION
421 Paralegals, Social Services Workers and Occupations in Education and Religion, n.e.c.

Major Group 52 TECHNICAL AND SKILLED OCCUPATIONS IN ART, CULTURE, RECREATION AND SPORT
521 Technical Occupations in Libraries, Archives, Museums and Art Galleries
522 Photographers, Graphic Arts Technicians and Technical and Co-ordinating Occupations in Motion Pictures, Broadcasting and the Performing Arts
523 Announcers and Other Performers
524 Creative Designers and Craftspersons
525 Athletes, Coaches, Referees and Related Occupations

Major Group 62 SKILLED SALES AND SERVICE OCCUPATIONS
621 Sales and Service Supervisors
622 Technical Sales Specialists
623 Insurance and Real Estate Sales Occupations and Buyers
624 Chefs and Cooks
625 Butchers and Bakers
626 Police Officers and Firefighters
627 Technical Occupations in Personal Service

Major Group 72/73 TRADES AND SKILLED TRANSPORT AND EQUIPMENT OPERATORS
721 Contractors and Supervisors, Trades and Related Workers
722 Supervisors, Railway and Motor Transportation Occupations
723 Machinists and Related Occupations
724 Electrical Trades and Telecommunication Occupations
725 Plumbers, Pipefitters and Gas Fitters
726 Metal Forming, Shaping and Erecting Trades
727 Carpenters and Cabinetmakers
728 Masonry and Plastering Trades
729 Other Construction Trades
731 Machinery and Transportation Equipment Mechanics and Related Occupations
732 Automotive Service Technicians
733 Other Mechanics
734 Upholsterers, Tailors, Shoe Repairers, Jewellers and Related Occupations
735 Stationary Engineers and Power Station and System Operators
736 Train Crew Operating Occupations
737 Crane Operators, Drillers and Blasters
738 Printing Press Operators, Commercial Divers and Other Trades and Related Occupations, n.e.c.

Major Group 82 SKILLED OCCUPATIONS IN PRIMARY INDUSTRY
821 Supervisors, Logging and Forestry
822 Supervisors, Mining, Oil and Gas
823 Underground Miners, Oil and Gas Drillers and Related Workers
824 Logging Machinery Operators
825 Contractors, Operators and Supervisors in Agriculture, Horticulture and Aquaculture
826 Fishing Vessel Masters and Skippers and Fishermen/women

Major Group 92 PROCESSING, MANUFACTURING AND UTILITIES SUPERVISORS AND SKILLED OPERATORS
921 Supervisors, Processing Occupations
922 Supervisors, Assembly and Fabrication
923 Central Control and Process Operators in Manufacturing and Processing

SKILL LEVEL C — Occupations usually require secondary school and/or occupation-specific training.

Major Group 14 CLERICAL OCCUPATIONS
141 Clerical Occupations, General Office Skills
142 Office Equipment Operators
143 Finance and Insurance Clerks
144 Administrative Support Clerks
145 Library, Correspondence and Related Information Clerks
146 Mail and Message Distribution Occupations
147 Recording, Scheduling and Distributing Occupations

Major Group 34 ASSISTING OCCUPATIONS IN SUPPORT OF HEALTH SERVICES
341 Assisting Occupations in Support of Health Services

Major Group 64 INTERMEDIATE SALES AND SERVICE OCCUPATIONS
641 Sales Representatives, Wholesale Trade
642 Retail Salespersons and Sales Clerks
643 Occupations in Travel and Accommodation
644 Tour and Recreational Guides and Casino Occupations
645 Occupations in Food and Beverage Service
646 Other Occupations in Protective Service
647 Childcare and Home Support Workers
648 Other Occupations in Personal Service

Major Group 74 INTERMEDIATE OCCUPATIONS IN TRANSPORT, EQUIPMENT OPERATION, INSTALLATION AND MAINTENANCE
741 Motor Vehicle and Transit Drivers
742 Heavy Equipment Operators
743 Other Transport Equipment Operators and Related Workers
744 Other Installers, Repairers and Servicers
745 Longshore Workers and Material Handlers

Major Group 84 INTERMEDIATE OCCUPATIONS IN PRIMARY INDUSTRY
841 Mine Service Workers and Operators in Oil and Gas Drilling
842 Logging and Forestry Workers
843 Agriculture and Horticulture Workers
844 Other Fishing and Trapping Occupations

Major Group 94/95 PROCESSING AND MANUFACTURING MACHINE OPERATORS AND ASSEMBLERS
941 Machine Operators and Related Workers in Metal and Mineral Products Processing
942 Machine Operators and Related Workers in Chemical, Plastic and Rubber Processing
943 Machine Operators and Related Workers in Pulp and Paper Production and Woodworking
944 Machine Operators and Related Workers in Textile Processing
945 Machine Operators and Related Workers in Fabric, Fur and Leather Products Manufacturing
946 Machine Operators and Related Workers in Food, Beverage and Tobacco Processing
947 Printing Machine Operators and Related Occupations
948 Mechanical, Electrical and Electronics Assemblers
949 Other Assembly and Related Occupations
951 Machining, Metalworking, Woodworking and Related Machine Operators

SKILL LEVEL D — On-the-job training is usually provided for occupations.

Major Group 66 ELEMENTAL SALES AND SERVICE OCCUPATIONS
661 Cashiers
662 Other Sales and Related Occupations
663 Food Counter Attendants, Kitchen Helpers and Related Occupations
664 Security Guards and Related Occupations
665 Other Elemental Service Occupations

Major Group 76 TRADES HELPERS, CONSTRUCTION LABOURERS AND RELATED OCCUPATIONS
761 Trades Helpers and Labourers
762 Public Works and Other Labourers, n.e.c.

Major Group 86 LABOURERS IN PRIMARY INDUSTRY
861 Primary Production Labourers

Major Group 96 LABOURERS IN PROCESSING, MANUFACTURING AND UTILITIES
961 Labourers in Processing, Manufacturing and Utilities

LM-279-06-01   MP53-25-3-2001

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Looking-Ahead: A 10-Year Outlook for the Canadian Labour Market (2006-2015)

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Looking-Ahead: A 10-Year Outlook for the Canadian Labour Market (2006-2015)

Employment by Three-Digit Occupations, 1987-2015

	Employment by Three-Digit Occupations, 1987-2015					
		Non-student Employment (000s)			Past Growth	Future Growth
		1987	2005	2015	1988-2005 (AAGR[1])	2006-2015 (AAGR[1])
000	**Total**	**11,242.9**	**14,566.0**	**16,263.7**	**1.4%**	**1.1%**
001	Legislators and senior management	67.8	84.1	95.6	1.2%	1.3%
011	Managers in administrative services	92.8	109.4	126.1	0.9%	1.4%
012	Managers in financial and business services	69.0	87.9	94.0	1.3%	0.7%
013	Managers in communication (except broadcasting)	10.7	13.5	15.3	1.3%	1.2%
021	Managers in engineering, architecture, science and information systems	24.2	58.1	66.2	5.0%	1.3%
031	Managers in health, education, social and community services	54.2	90.6	104.1	2.9%	1.4%
041	Managers In public administration	9.0	24.9	27.6	5.8%	1.0%
051	Managers in art, culture, recreation and sport	12.1	12.0	12.5	0.0%	0.4%
061	Sales, marketing and advertising managers	97.5	121.8	140.2	1.2%	1.4%
062	Managers in retail trade	269.2	323.8	353.6	1.0%	0.9%
063	Managers in food services and accommodation	107.6	164.5	185.6	2.4%	1.2%
064	Managers in protective services	3.8	5.0	5.8	1.6%	1.6%
065	Managers in other services	13.7	14.6	16.2	0.3%	1.0%
071	Managers in construction and transportation	80.9	142.4	167.3	3.2%	1.6%
072	Facility operation and maintenance managers	19.9	35.9	42.3	3.3%	1.7%
081	Managers in primary production (except agriculture)	4.4	8.2	9.4	3.5%	1.3%
091	Managers in manufacturing and utilities	72.7	80.0	85.2	0.5%	0.6%
111	Auditors, accountants and investment professionals	198.6	304.0	345.8	2.4%	1.3%
112	Human resources and business service professionals	42.0	138.6	167.7	6.9%	1.9%
121	Clerical supervisors	83.8	118.4	123.6	1.9%	0.4%
122	Administrative and regulatory occupations	191.5	306.9	351.8	2.7%	1.4%
123	Finance and insurance administrative occupations	163.0	206.3	229.0	1.3%	1.1%
124	Secretaries, recorders and transcriptionists	451.8	231.0	210.7	-3.7%	-0.9%
141	Clerical occupations, general office skills	386.8	230.5	250.7	-2.8%	0.8%
142	Office equipment operators	92.6	57.5	49.4	-2.6%	-1.5%
143	Finance and insurance clerks	235.5	340.9	371.9	2.1%	0.9%
144	Administrative support clerks	35.7	226.6	253.3	10.8%	1.1%
145	Library, correspondence and related information clerks	61.0	180.6	213.5	6.2%	1.7%
146	Mail and message distribution occupations	91.4	89.1	93.1	-0.1%	0.4%
147	Recording, scheduling and distributing occupations	185.7	235.5	262.3	1.3%	1.1%
211	Physical science professionals	27.2	27.7	31.0	0.1%	1.1%
212	Life science professionals	15.3	22.4	26.3	2.1%	1.6%
213	Civil, mechanical, electrical and chemical engineers	66.9	115.2	143.8	3.1%	2.2%

		Non-student Employment (000s)			Past Growth	Future Growth
					1988-2005 (AAGR[1])	2006-2015 (AAGR[1])
		1987	**2005**	**2015**		
214	Other engineers	38.0	62.3	73.8	2.8%	1.7%
215	Architects, urban planners and land surveyors	23.8	31.0	34.0	1.5%	0.9%
216	Mathematicians, systems analysts and computer programmers	7.9	6.1	7.2	-1.4%	1.7%
217	Computer and information systems professionals	103.4	301.7	369.5	6.1%	2.0%
221	Technical occupations in physical sciences	20.2	30.3	33.9	2.3%	1.1%
222	Technical occupations in life sciences	27.5	38.8	45.0	1.9%	1.5%
223	Technical occupations in civil, mechanical and industrial engineering	28.2	63.9	78.7	4.7%	2.1%
224	Technical occupations in electronics and electrical engineering	74.2	117.1	144.8	2.6%	2.1%
225	Technical occupations in architecture, drafting, surveying and mapping	56.4	49.8	52.7	-0.7%	0.6%
226	Other technical inspectors and regulatory officers	22.6	43.9	51.8	3.7%	1.7%
227	Transportation officers and controllers	21.5	27.8	32.8	1.4%	1.7%
228	Technical occupations in computer and information systems	44.2	105.7	123.9	5.0%	1.6%
311	Physicians, dentists and veterinarians	57.1	82.5	110.4	2.1%	3.0%
312	Optometrists, chiropractors and other health diagnosing and treating professionals	8.6	13.2	16.1	2.4%	2.0%
313	Pharmacists, dietitians and nutritionists	20.8	31.7	41.2	2.4%	2.7%
314	Therapy and assessment professionals	16.6	43.5	60.0	5.5%	3.3%
315	Nurse supervisors and registered nurses	211.1	252.1	323.3	1.0%	2.5%
321	Medical technologists and technicians (except dental health)	53.2	80.3	103.1	2.3%	2.5%
322	Technical occupations in dental health care	14.1	24.7	29.0	3.1%	1.6%
323	Other technical occupations in health care (except dental)	86.0	108.7	120.7	1.3%	1.1%
341	Assisting occupations in support of health services	103.8	254.6	305.0	5.1%	1.8%
411	Judges, lawyers and Quebec notaries	48.1	73.2	80.7	2.4%	1.0%
412	University professors and assistants	51.4	83.0	101.4	2.7%	2.0%
413	College and other vocational instructors	56.4	78.1	88.6	1.8%	1.3%
414	Secondary and elementary school teachers and counsellors	238.4	406.6	440.9	3.0%	0.8%
415	Psychologists, social workers, counsellors, clergy and probation officers	60.1	121.0	141.3	4.0%	1.6%
416	Policy and program officers, researchers and consultants	50.0	123.6	144.3	5.2%	1.6%
421	Paralegals, social services workers and occupations in education and religion, N.E.C.[2]	166.3	322.7	366.0	3.8%	1.3%
511	Librarians, archivists, conservators and curators	12.9	12.8	13.5	0.0%	0.5%
512	Writing, translating and public relations professionals	59.5	105.5	114.2	3.2%	0.8%
513	Creative and performing artists	53.4	90.1	96.1	2.9%	0.6%
521	Technical occupations in libraries, archives, museums and galleries	12.6	18.0	19.5	2.0%	0.8%
522	Photographers, graphic arts technicians and technical occupations	25.4	40.5	48.0	2.6%	1.7%
523	Announcers and other performers	11.2	12.7	13.5	0.7%	0.6%
524	Creative designers and craftspersons	51.4	87.3	104.6	3.0%	1.8%
525	Athletes, coaches, referees and related occupations	25.0	56.6	70.0	4.6%	2.1%

Employment by Three-Digit Occupations, 1987-2015 (continued)

	Employment by Three-Digit Occupations, 1987-2015 (continued)					
		Non-student Employment (000s)			Past Growth	Future Growth
		1987	2005	2015	1988-2005 (AAGR[1])	2006-15 (AAGR[1])
621	Sales and service supervisors	91.2	220.6	256.9	5.0%	1.5%
622	Technical sales specialists, wholesale trade	76.9	113.1	132.5	2.2%	1.6%
623	Insurance and real estate sales occupations and buyers	130.0	154.1	168.4	1.0%	0.9%
624	Chefs and cooks	132.0	174.7	207.4	1.6%	1.7%
625	Butchers and bakers	45.2	62.0	72.3	1.8%	1.5%
626	Police officers and firefighters	77.4	90.6	98.3	0.9%	0.8%
627	Technical occupations in personal service	83.4	94.0	103.0	0.7%	0.9%
641	Sales representatives, wholesale trade	100.6	230.7	249.0	4.7%	0.8%
642	Retail salespersons and sales clerks	393.5	409.2	447.2	0.2%	0.9%
643	Occupations in travel and accommodation	50.4	70.8	79.4	1.9%	1.1%
644	Tour and recreational guides and amusement occupations	4.9	16.4	18.4	7.0%	1.1%
645	Occupations in food and beverage service	140.5	185.1	215.8	1.5%	1.5%
646	Other occupations in protective service	28.2	32.3	36.4	0.8%	1.2%
647	Childcare and home support workers	191.4	159.6	165.4	-1.0%	0.4%
648	Other occupations in personal service	25.2	50.2	51.9	3.9%	0.3%
661	Cashiers	156.9	211.6	224.9	1.7%	0.6%
662	Other sales and related occupations	95.8	161.7	175.5	3.0%	0.8%
664	Food counter attendants and kitchen helpers	153.7	169.9	185.2	0.6%	0.9%
665	Security guards and related occupations	66.1	79.0	95.3	1.0%	1.9%
666	Cleaners	303.9	375.7	395.4	1.2%	0.5%
667	Other attendants in travel, accommodation and recreation	10.8	21.7	25.2	3.9%	1.5%
668	Other elemental service occupations	46.1	40.8	43.4	-0.7%	0.6%
721	Contractors and supervisors, trades and related workers	183.5	208.5	232.1	0.7%	1.1%
722	Supervisors, railway and motor transportation occupations	20.7	27.2	29.3	1.6%	0.7%
723	Machinists and related occupations	58.5	70.7	81.0	1.1%	1.4%
724	Electrical trades and telecommunications occupations	124.0	140.6	152.3	0.7%	0.8%
725	Plumbers, pipefitters and gas fitters	49.4	57.3	62.8	0.8%	0.9%
726	Metal forming, shaping and erecting occupations	124.5	132.2	145.4	0.3%	1.0%
727	Carpenters and cabinetmakers	131.3	128.3	138.3	-0.1%	0.8%
728	Masonry and plastering trades	50.0	62.0	70.9	1.2%	1.4%
729	Other construction trades	60.1	85.3	93.2	2.0%	0.9%
731	Machinery and transportation equipment mechanics (except motor vehicle)	158.7	173.0	188.3	0.5%	0.9%
732	Motor vehicle mechanics	147.0	149.9	166.1	0.1%	1.0%
733	Other mechanics	24.3	28.0	31.4	0.8%	1.1%
734	Upholsterers, tailors, shoe repairers, jewellers and related occupations	38.4	29.3	30.4	-1.5%	0.4%
735	Stationary engineers and power station and system operators	30.7	27.8	26.1	-0.6%	-0.6%
736	Train crew operating occupations	14.5	12.1	11.8	-1.0%	-0.2%
737	Crane operators, drillers and blasters	20.9	11.7	13.2	-3.2%	1.2%

Employment by Three-Digit Occupations, 1987-2015 (continued)

		Non-student Employment (000s)			Past Growth 1988-2005 (AAGR[1])	Future Growth 2006-15 (AAGR[1])
		1987	2005	2015		
738	Printing press operators, commercial divers and other trades, and related occupations,	46.2	34.4	35.1	-1.6%	0.2%
741	Motor vehicle and transit drivers	379.3	431.8	476.8	0.7%	1.0%
742	Heavy equipment operators	74.1	88.0	97.6	1.0%	1.0%
743	Other transport equipment operators and related workers	24.4	19.3	19.4	-1.3%	0.0%
744	Other installers, repairers and servicers	45.5	61.7	65.8	1.7%	0.6%
745	Longshore workers and materials handlers	137.7	182.1	207.7	1.6%	1.3%
761	Trades helpers and labourers	104.6	105.5	108.8	0.0%	0.3%
762	Public works and other labourers, N.E.C.[2]	15.3	20.9	24.7	1.7%	1.7%
821	Supervisors, logging and forestry	7.8	8.3	7.5	0.4%	-1.0%
822	Supervisors, mining, oil and gas	11.8	19.9	21.8	3.0%	0.9%
823	Underground miners, oil and gas drillers and related workers	20.8	38.0	46.4	3.4%	2.0%
824	Logging machinery operators	11.6	14.2	13.2	1.1%	-0.7%
825	Contractors, operators and supervisors in agriculture, horticulture and aquaculture	263.0	212.2	226.6	-1.2%	0.7%
826	Fishing vessel masters and skippers and fishermen/women	21.4	18.3	18.9	-0.9%	0.3%
841	Mine service workers and operators in oil and gas drilling	7.0	11.6	14.1	2.8%	2.0%
842	Logging and forestry workers	26.3	14.8	13.6	-3.1%	-0.8%
843	Agriculture and horticulture workers	111.6	76.4	75.8	-2.1%	-0.1%
844	Other fishing and trapping occupations	11.4	6.6	6.6	-3.0%	0.1%
861	Primary production labourers	61.8	83.0	90.7	1.7%	0.9%
921	Supervisors, processing occupations	54.3	72.8	81.2	1.6%	1.1%
922	Supervisors, assembly and fabrication	38.2	57.0	61.1	2.3%	0.7%
923	Central control and process operators in manufacturing and processing	29.5	23.4	26.3	-1.3%	1.2%
941	Machine operators and related workers in metal and mineral products processing	43.7	30.3	31.4	-2.0%	0.4%
942	Machine operators and related workers in chemical, plastic and rubber processing	47.5	75.2	86.5	2.6%	1.4%
943	Machine operators and related workers in pulp and paper production and wood processing	47.3	60.8	58.1	1.4%	-0.4%
944	Machine operators and related workers in textile processing	25.5	18.1	17.7	-1.9%	-0.2%
945	Machine operators and related workers in fabric, fur and leather	83.8	47.7	45.9	-3.1%	-0.4%
946	Machine operators and related workers in food, beverage and tobacco processing	62.2	82.3	86.6	1.6%	0.5%
947	Printing machine operators and related occupations	29.1	28.5	30.4	-0.1%	0.7%
948	Mechanical, electrical and electronics assemblers	124.8	105.5	119.5	-0.9%	1.3%
949	Other assembly and related occupations	80.1	107.5	109.4	1.6%	0.2%
951	Machining, metalworking, woodworking and related machine operators	68.8	135.7	152.6	3.8%	1.2%
961	Labourers in processing, manufacturing and utilities	185.9	197.7	195.5	0.3%	-0.1%

Source: HRSDC, Strategic Policy Research Directorate, 2006 Scenario Reference.

[1] AAGR: average annual growth rate.

[2] N.E.C.: not elsewhere classified.

Reasons why There is not Perfect Correspondence Between the Educational Attainment of a Worker and the Skill Level of his/her Occupation

There are several factors that can explain why high-educated individuals are found in low-skilled occupations:

- People with high educational attainment not being able to fill an occupation requiring that education because of other skills deficiencies (such as interpersonal skills, work ethics etc.);

- Normal career progression, where young educated workers must fill low-skilled occupations before moving to higher skilled jobs (e.g. from retail trade clerk to supervisor);

- Older educated workers or parents of young children choosing to work in low-skilled occupations that offer more flexible work arrangements;

- People voluntarily withdrawing from the graduate labour market for personal reasons (e.g. because they need more time to take care of their children) or as a result of a joint decision, with one spouse taking a higher-paid job;

- Demand deficiencies or oversupply in certain fields of study, forcing graduates to seek employment in low-skilled occupations (e.g. low demand for biology graduates may force them to settle in lower skilled jobs as they cannot simply apply in other sciences occupations);

- Coordination failures, with potential candidates being unaware of vacancies or jobs being offered in a different region;

- The occupational classification system, which is updated every 10 years or so, not capturing the increase in skills requirements of some occupations.

Conversely, there is also a sizeable proportion of individuals with lower educational attainment in high-skilled occupations, and most particularly in management and in occupations usually requiring college education or apprenticeship training. Several reasons can explain why low-educated individuals may fill higher skilled jobs:

- Individuals may have been able to accumulate job experience that sufficiently qualifies them for a position normally requiring a higher level of educational attainment. This is especially the case in management occupations where an individual can start as a clerk and rise up the career ladder to become a manager.

- In a tight labour market, some other individuals with exceptional skills may be hired because no individuals with appropriate educational qualifications are available.

- The occupational classification system may not always capture the heterogeneity between occupations when bundling occupations together. For example, "chefs and cooks" is considered as one 3-digit occupation and is defined in the occupational classification system as "usually requiring college education or apprenticeship training". However, cook positions generally require much lower education.

Methodology for Forecasting the Probability that Those with a Given Level of Education will Fill Occupations with a Given Level of Skills

Determining future labour supply by broad skill level on the basis of forecasts of labour supply by educational attainment can be accomplished by forecasting the probability that an individual with a given level of education will be in an occupation normally requiring a given level of skills. In some cases, there is a relatively straight match between a given educational field of study and a given occupation – for example, a medical school graduate who becomes a doctor. In other instances, however, the match is not as straightforward, with school leavers being spread across a wide range of occupations. In addition, as the population ages, upward occupational mobility, which includes movements to management ranks as workers gain labour force experience, and downward occupational mobility, where workers choose to enter lower-skilled occupations as part of their transition towards retirement, will become increasingly important in determining the future labour supply by broad skill level.

With this in mind, match probabilities were estimated for five skill levels, four educational attainment categories (university, college, high school, less than high school), and nine age groups (15-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-64, and 65 and over). Overall, this approach ensures that the impact of population aging will be reflected in the labour force projections by skill level.

Labour force aged 15-34

The probabilities that young workers with given levels of education will fill occupations with given levels of skills were simply projected as a constant based on the most recent five-year moving average, which was used to eliminate cyclical variations. This approach makes it possible to follow young workers who move between skill levels as they transition from school to the workforce. For example, in the model, as young people move into career jobs and away from student-type jobs, the proportion of the university educated labour force in occupations usually requiring university education (skill level A) rises from 43% for the 15-24 age group to 53% for the 25-29 age group and remains steady at 52% for the 30-34 age group.

Labour force aged 35-49

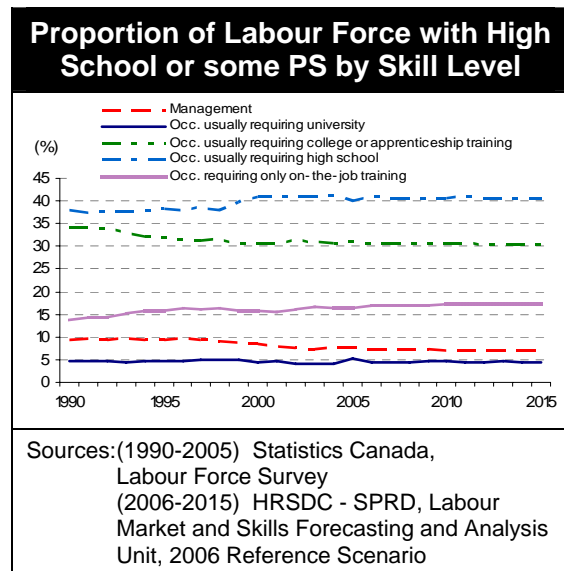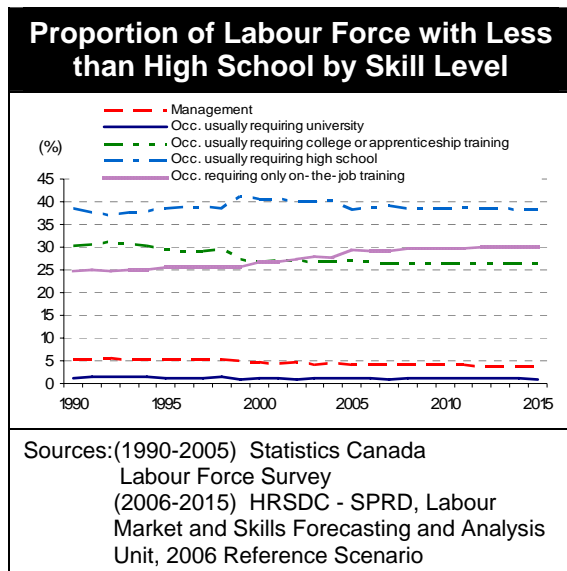Among the core-age workers, the probabilities are projected using the synthetic cohort approach. For example, the proportion of university graduates aged 40-44 who are at skill level A will depend on the proportion of university graduates at skill level A who were aged between 35 and 39 five years earlier. In addition, upward occupational mobility estimated from historical behaviour is incorporated into the model; this includes

movements to management ranks and transitions whereby individuals employed in an occupation with a skill level requiring education less than they actually possess are allowed to move into higher-skilled occupations. For example, the historical relationship between university- educated workers aged 40 to 44 and those aged 35 to 39 five years earlier suggests that a proportion of these workers have moved to the management level. Note that in the core-age groups, downward occupational mobility – a process in which workers move to a skill level usually requiring less education from one requiring more – is not permitted. This type of transition is considered to be a response to demand fluctuations and is not part of the normal progression of a typical individual's career.

Labour force 50 and over

For older workers, the same approach is used as for core-age workers. However, downward occupational mobility is now allowed as part of the transition towards retirement. For example, the historical relationship between university-educated workers aged 55 to 64 and those aged 50 to 54 five years earlier suggests that a proportion of workers move out of management ranks and occupations usually requiring university education into lower-skilled occupations.

The following charts display forecasts of the probability that individuals with a given level of education will fill occupations with a given level of skills. For example, the probability that a university-educated individual will fill a management position is expected to decline in the future, given the tendency towards downward mobility as workers transition towards retirement. Conversely, the probability that a university-educated individual will fill an occupation usually requiring high school education is expected to rise. In the case of university-educated workers filling occupations that usually require university education, the match probability is expected to remain relatively stable in the future, as pressures from downward mobility, due to an ageing population, are offset by recent improvements in skill matching among younger age groups.

Proportion of Labour Force with Less than High School by Skill Level

- - - Management
— Occ. usually requiring university
- · - Occ. usually requiring college or apprenticeship training
– · – Occ. usually requiring high school
— Occ. requiring only on-the-job training

Sources:(1990-2005) Statistics Canada Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Proportion of Labour Force with High School or some PS by Skill Level

- - - Management
— Occ. usually requiring university
- · - Occ. usually requiring college or apprenticeship training
– · – Occ. usually requiring high school
— Occ. requiring only on-the-job training

Sources:(1990-2005) Statistics Canada, Labour Force Survey
(2006-2015) HRSDC - SPRD, Labour Market and Skills Forecasting and Analysis Unit, 2006 Reference Scenario

Proportion of Labour Force with College by Skill Level

(%)

- - - Management
—— Occ. usually requiring university
- - - Occ. usually requiring college or apprenticeship training
- · - Occ. usually requiring high school
—— Occ. requiring only on-the-job training

50
45
40
35
30
25
20
15
10
5
0

1990   1995   2000   2005   2010   2015

Sources:(1990-2005) Statistics Canada,
        Labour Force Survey
        (2006-2015) HRSDC - SPRD, Labour
        Market and Skills Forecasting and Analysis
        Unit, 2006 Reference Scenario

Proportion of Labour Force with University by Skill Level

(%)

- - - Management
—— Occ. usually requiring university
- - - Occ. usually requiring college or apprenticeship training
- · - Occ. usually requiring high school
—— Occ. requiring only on-the-job training

60

50

40

30

20

10

0

1990   1995   2000   2005   2010   2015

Sources:(1990-2005) Statistics Canada,
        Labour Force Survey
        (2006-2015) HRSDC - SPRD, Labour
        Market and Skills Forecasting and Analysis
        Unit, 2006 Reference Scenario

Assessing Potential Pressures by Occupation

Aggregate Macroeconomic and Labour Market Forecast (10-year horizon) Annual projection of major economic (e.g. Canadian GDP components) and labour market variables.	**Demographic and Labour Force Outlook** Development of demographic and labour force projections.

Expansion Demand by Industry

Annual projection of industrial employment (33 NAICS industry groupings) and GDP.

Expansion Demand by Occupation Annual projection of new jobs openings resulting from increased economic activity.	**Retirement by Occupation** Projection of retirements arising from people leaving the workforce.	**Labour Supply by Occupation** Projection of new job seekers from school leavers and immigration.

Potential Pressures by Occupation

Upward pressures will arise if the number of job openings (due to expansion demand and retirements) is expected to exceed the number of new job seekers by a significant margin. Alternatively, if the number of job seekers is expected to exceed the number of job openings by a significant margin, downward pressures will occur.