

labour force surveys
information technology

April 2006

Analysis of Labour Force Survey Data for the Information Technology Occupations 2000–2005

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Highlights

This is the fifth in a series of regular reports prepared for the Software Human Resource Council (SHRC) on an Analysis of Labour Force Survey (LFS) Data for the Information Technology (IT) occupations.¹ This report (called the “2005 Update Report”) differs from the previous ones in that it includes 21 IT occupations; previous reports covered only 17 occupations.

Here are some highlights from this latest report:

- Between 2000 and 2003, the **IT labour force** grew from a base of about 540,000 workers to a peak of about 625,000 workers. There was a decline at the end of 2003 to 600,000 workers, a level maintained since then, except for a swift contraction and recovery in the first half of 2005.
- The **Analyst** labour force (which in this 2005 Update Report includes Systems Auditors) has exhibited strong secular growth over the study period. From a low of 85,000 workers in the Fall of 2000, it grew to 155,000 workers in mid-2004, to become the largest IT occupational labour force. There has been a decline since then, to third largest, with a labour force of about 120,000 at the end of 2005.
- For most of the study period, the **Technician** labour force was the largest; at its peak in 2003, this labour force was almost 175,000 workers. Thereafter, there was a decline to a low of about 120,000 workers in mid-2005. Since then, there has been a recovery and, by the end of 2005, the Technician labour force stood as the largest once again, at a level of almost 140,000 workers.
- From a peak of 165,000 workers in 2001, the **Programmer** labour force exhibited a secular decline to 115,000 workers at the beginning of 2004. There has been growth since then, to about 135,000 workers at the end of 2005.
- The **Engineer** labour force exhibited a long-term growth trend over the six-year period. The trend has been clear: at the beginning of 2000, there were about 55,000 Engineers; by the end of 2005, there were over 80,000 workers in this labour force.
- The **Manager** labour force (which in this 2005 Update Report includes HR Managers) has been consistently the smallest, typically around 40,000 workers.
- The labour force for **Other IT** workers, a new category in this 2005 Update Report (consisting of Technical Writers and Graphic Designers and Illustrators), ranged from a low of 50,000 workers in the Fall of 2000 to a high of 90,000 workers in the Fall of 2002. At the end of 2005, this labour force stood at almost 80,000 workers, the same size as the Engineer labour force.
- The **unemployment rate** for all IT workers has been consistently below the national average for the labour force as a whole. It has also been more volatile. The dot-com boom and bust in the early 2000s appears to be evident as the unemployment rate soared from a low of 2 percent in the Fall of 2000 to a high of 5.8 percent in the Summer of 2002. Since the Spring of 2003, there has been a trend downwards in the unemployment rate for all IT workers. At the end of 2005, the rate stood at 1.9 percent, a very tight labour market indeed!



¹ The first report, released in November 2002, covered 31 months from January 2000 to July 2002. The second report, issued in May 2003, covered the same time period, but reflected a more complete database of IT workers. The third report, issued in February 2004, extended the coverage to 48 months, from January 2000 to December 2003. The fourth report, issued in April 2005, added an additional year to December 2004.

- As noted in previous reports, there is remarkable stability in the **profile data** across the time period under review. That is to say, the characteristics of the IT labour force (age, gender, education, location, etc.) remain essentially the same year after year.
- Here are some findings regarding the profile of the IT labour force:
 - It is relatively young, with 46 percent less than 35 years old.
 - Males predominate, at 75 percent of the labour force.
 - It is highly educated, with about three-quarters of the labour force having a post-secondary degree.
 - Central Canada (Ontario and Quebec) has almost three-quarters of the labour force.
 - Jobs in IT are predominately full-time, at 95 percent of the total.
 - Jobs in IT are predominately permanent, at 92 percent of the total.
 - Job tenure appears to becoming more secure as the proportion of workers with short tenure (less than three years) has been falling and the proportion with long tenure (more than four years) has been rising.
 - Five Industry sectors account for 80 percent of IT jobs: Professional, Scientific and Technical Services; Manufacturing; Information and Cultural Industries; Public Administration; and Finance and Insurance.
- Only one in five workers is covered by a collective bargaining agreement.
- The regular workweek (excluding paid overtime) is 31 to 40 hours for 85 percent of workers.
- The wage rate for IT occupations follows a natural progression, from Managers and Engineers at the top end, through

Programmers and Analysts in the middle range, to Other IT workers and Technicians at the low end. There is evidence that average weekly wages (in nominal terms) have been rising over the last few years for all occupational groups except Other IT workers.



Background

The Labour Force Survey (LFS) is a survey of about 55,000 households carried out monthly by Statistics Canada. The results of the survey are used to divide the working age population into three mutually exclusive categories: employed, unemployed and not in the labour force, and to provide descriptive data on each group.

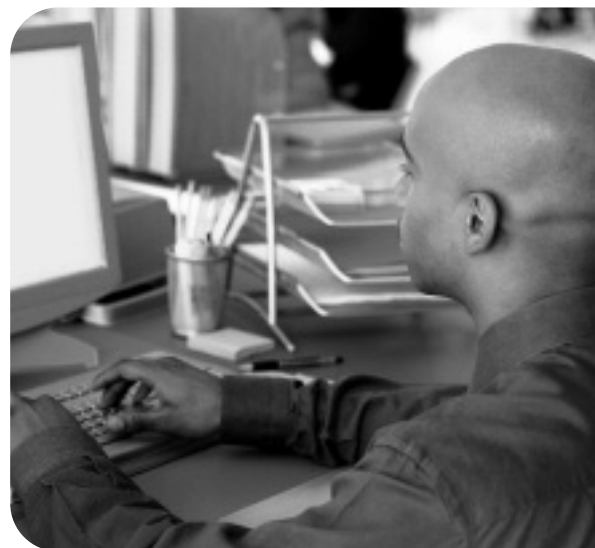
The substantial increase in information technology (IT) in the last two decades of the Twentieth Century had significant impacts on the labour market. New IT occupations emerged such as e-Commerce Managers, Software Engineers, Systems Security Analysts, Web Design Developers and Web Technicians. However, until a few years ago, the occupational classification system for the LFS and for the Census did not reflect the emergence of these new occupations; instead, it used three groups: computer engineers, systems analysts and computer programmers.

In 2002, Human Resources Development Canada (HRDC)² and the Software Human Resource Council (SHRC) identified 21 occupations within the new National Occupational Classification System (NOC) that comprise the IT labour force. SHRC supported this initiative through the development of its Occupational Skills

Profile Model. SHRC contracted with Statistics Canada to recode the LFS data from January 2000 onwards using the 21 IT classifications. The recoding involved a review of the three occupations cited above, plus a number of others where it was thought IT workers might be found e.g., Electrical and Electronics Engineers, Telecommunications Carriers Managers, and Computer Operators. This recoding produced a new database describing the IT labour force.

In the fall of 2002, SHRC engaged Mr. William G. Wolfson of WGW Services Ltd. to prepare a report analyzing the IT labour force, utilizing this database for the period from January 2000 to July 2002. A first report was released in November 2002. Statistics Canada continued its work to identify additional IT workers from a variety of occupations for inclusion in the database.

A revised database of the IT labour force was developed in the Spring of 2003. A second report dated May 2003 was prepared for SHRC using this more complete database for that same January 2000 to July 2002 time period. A third report for the four-year period from January 2000 to December 2003 was released in the Spring of 2004. A fourth report for the



five-year period from January 2000 to December 2004 was released in the Spring of 2005 (hereafter called the “2004 Update Report”).

This fifth report (called the “2005 Update Report”) now provides a further update to the end of 2005, a six-year period. In comparison to previous reports, it should be noted that:

- Further work was undertaken by Statistics Canada to refine the database all the way back to 2000; and
- SHRC conducted an internal review of the IT occupational categories for use within its reports to bring greater conformity across studies, leading to a decision to include all 21 occupations in the 2005 Update Report. (In the previous four reports, only 17 occupations were included). Accordingly, this document contains the results of the analysis of all 21 IT occupations, compiled into six occupational groups, as shown in Table 1 below.

² Now Human Resources and Social Development (HRSD).

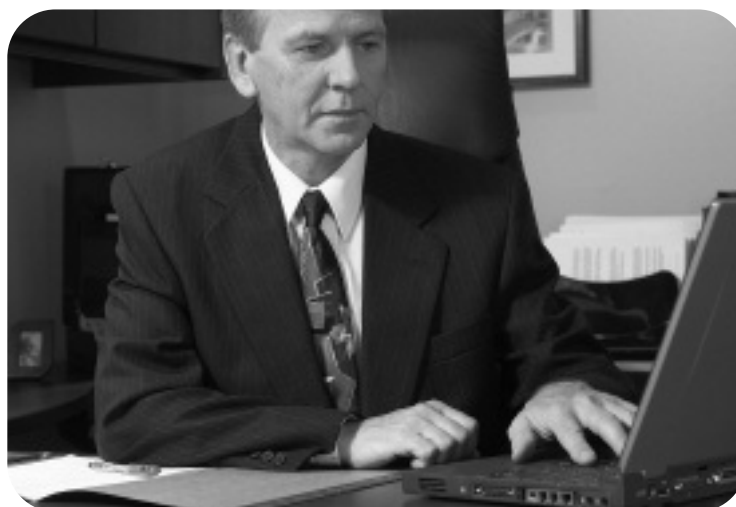
Table 1: Analysis of the LFS Data for the IT Occupations 2000–2005
Occupational Groupings

Group	NOC	Occupation
Managers	0112	HR Managers *
	0213	Computer and Information System Managers
	6115	e-Commerce Managers
Engineers	2133	Electrical and Electronics Engineers
	2147	Computer Engineers (excluding Software)
	2173	Software Engineers
Analysts	21711	Information Systems Business Analysts
	21712	Systems Security Analysts
	21713	Information Systems Quality Assurance Analysts
	21714	Systems Auditors *
	21721	Database Administrators
	21722	Database Administration Analysts
Programmers	21741	Computer Programmers
	21742	Interactive Media Developers
	2175	Web Design Developers
Technicians	22811	Computer Network Technicians
	22812	Web Technicians
	2282	User Support Technicians
	2283	Systems Testing Technicians
Other IT	51212	Technical Writers *
	5241	Graphic Designers and Illustrators *

* These occupations added for the first time in the 2005 Update Report.

This report is divided into two parts:

- An *Overview of Labour Force Activity* that describes the trends in the size of the labour force and the unemployment rate for the entire IT workforce and each of the six occupational groups; and
- A *Profile of the IT Occupations* that details the characteristics and labour market experiences of the workers in the entire IT workforce and each occupational group.



Note to Readers: In this document, the terms “Total IT” as in Total IT Labour Force, and “All IT” as in All IT Occupations are used. In titles to Charts and Figures, the term “IT Occupations” can be found. All these terms refer to the sum of the six occupational groups comprising the 21 occupations listed above in Table 1.

1. Overview of Labour Force Activity

This section contains an analysis of trends³ in the labour force and the unemployment rate, starting in January 2000 and ending in December 2005, for the Total IT Labour Force and each of the six occupational groups (Managers, Engineers, Analysts, Programmers, Technicians, Other IT workers). As monthly data are often erratic, a three-month rolling average has been used to smooth the data series.

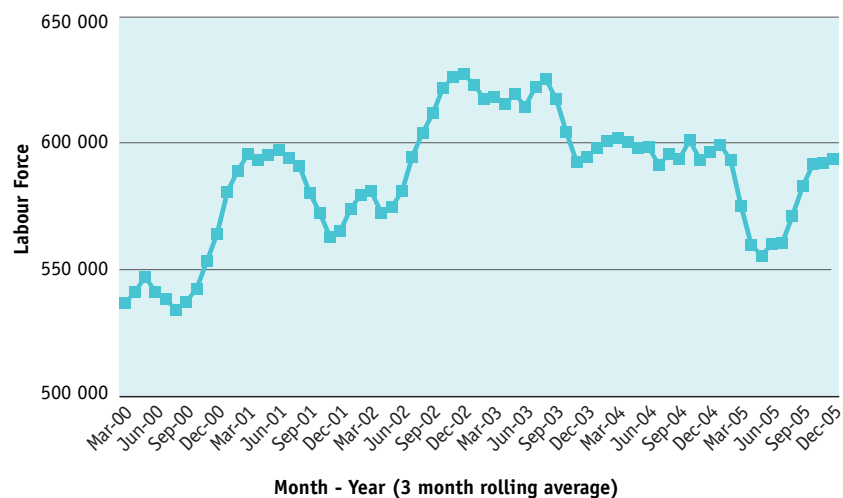
1.1 The Total IT Labour Force: 600,000 Workers At the End of 2005

As shown in Figure 1, the Total IT labour force has been about 600,000 workers since the Fall of 2003. There was a sharp contraction at the beginning of 2005, but this has been quickly reversed and, by the end of the year, the labour force was once again approaching the 600,000 level.

Earlier in the study period, the IT labour force had two major time-periods of expansion followed by contraction:

- from a low of about 535,000 workers in the Summer of 2000 to a high of almost 600,000 workers in mid-2001 back to a level of 565,000 workers at the end of the year; and

Figure 1: Analysis of the LFS Data for the IT Occupations 2000–2005
Total IT Labour Force



- from 560,000 workers at the end of 2001 to a high of 625,000 in the Fall of 2002 (and reached again in the Summer of 2003) back to a “steady state” level of 600,000 workers for all of 2004.

1.2 Occupational Labour Forces: Three Occupations Have More Than 100,000 Workers, Three Have Less

There is a clear split between the occupational groups having more than 100,000 workers and those groups that

have fewer workers. Figure 2 below shows trends in the labour force for the three occupations that have more than 100,000 workers: Technicians, Programmers and Analysts.

From the beginning of 2000 to the Spring of 2004, Technicians and Programmers had the two largest occupational groups. For almost all of that period, the Technicians labour force was the largest, with a peak of almost 175,000 workers at the beginning of 2003. Programmers reached a peak of almost 165,000 at the beginning of 2001. Both of these occupations exhibited declines from these peaks to reach a “steady state” in 2004 of about 140,000 workers.

³ What has caused these trends to occur cannot be discerned from the LFS dataset alone, and consequently is beyond the scope of this report. In the language of economists, the demand for IT workers is a “derived demand”. That is to say the demand is driven by the output of goods and services that require IT workers in their production. This demand can be related to two factors: the flow of investment in new technologies requiring IT workers and the stock of current IT applications requiring IT support. The LFS dataset provides no information on these drivers of demand.

Simultaneously, over the 2000-2003 period, the Analyst labour force showed strong and steady growth from a low of 85,000 workers to a high of 155,000 workers in the Spring of 2004. The Analyst labour force has also declined since that peak was reached.

As can be seen in the diagram, these three labour forces (Technicians, Programmers, Analysts) have now almost converged in size: at the end of 2005, their labour forces were 138,000, 134,000 and 122,000 respectively.

Figure 3 below shows trends in the labour force for the three remaining occupations that have fewer than 100,000 workers: Other IT workers, Engineers and Managers.

Throughout most of the study period, Other IT workers had the largest labour force among these three occupational groups, although not much larger in most years than the Engineer labour force. By 2005, these two occupational groups both had labour forces in the range of 75,000 to 80,000 workers. The Engineer labour force exhibited a long-term growth trend over the six-year period from about 55,000 workers to 80,000 workers. The Other IT labour force exhibited greater volatility with a low of 50,000 workers in the Fall of 2000 and a high of 90,000 workers in the Fall of 2002. At the end of 2005, this labour force stood at almost 80,000 workers, the same size as the Engineer labour force.

The Manager labour force has been consistently the smallest, typically around 40,000 workers. However, there has been considerable variability from a low of about 30,000 workers in early

Figure 2: Analysis of the LFS Data for the IT Occupations 2000–2005
Labour Force for the Three IT Occupational Groups >100,000 Workers

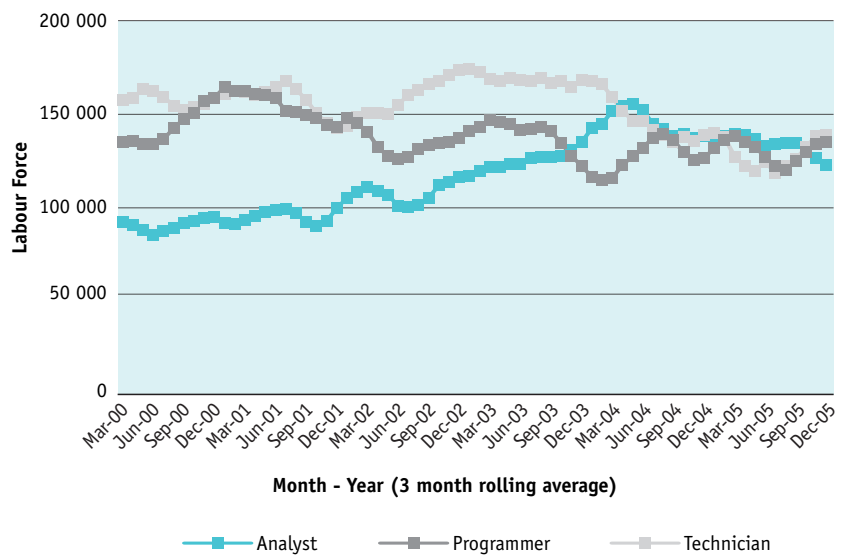
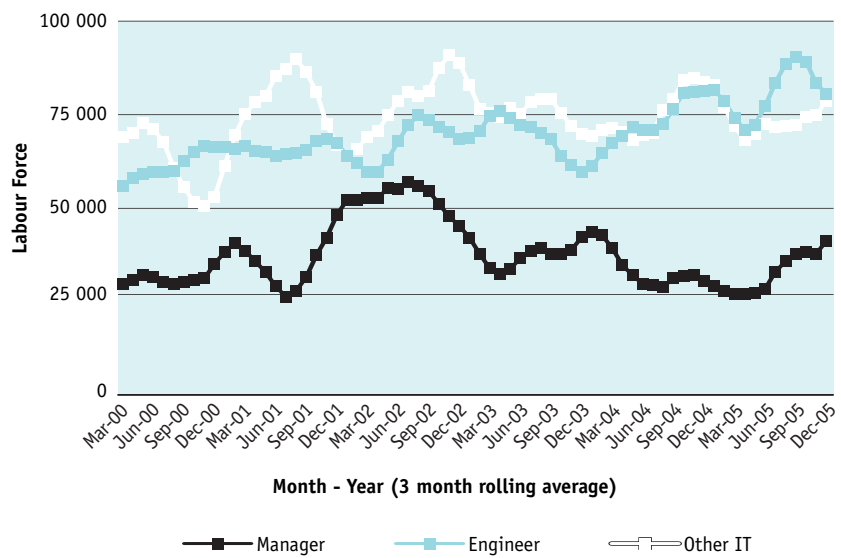


Figure 3: Analysis of the LFS Data for the IT Occupations 2000–2005
Labour Force for the Three IT Occupational Groups <100,000 Workers



2000 to a high of 55,000 workers in the Summer of 2002 to a low of 27,000 in the Summer of 2005. By the end of 2005, the Manager labour force was back at about 40,000 workers.

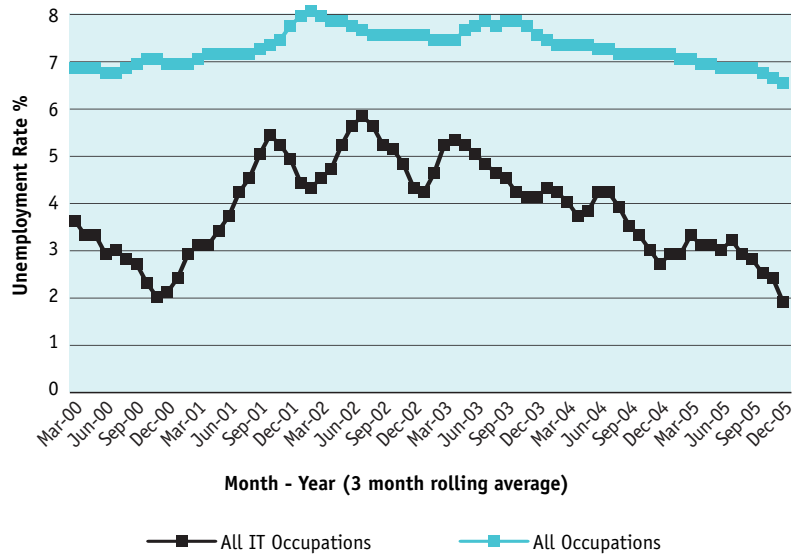
1.3 Unemployment Rate For All IT Occupations: Consistently Below The National Average

As shown in Figure 4 below, the unemployment rate for all the IT occupations has been consistently below the national average of all occupations in the economy.⁴

Furthermore, the unemployment rate for IT workers has been more volatile than the rate for the labour force as a whole. The “dot-com” boom appears to be evident in 2000 when the unemployment rate was at a low of 2 percent; the following bust in 2001 and 2002 also appears to be evident as the unemployment rate soared almost three-fold over that period and reached a high of 5.8 percent by the Summer of 2002.

Since the Spring of 2003, there has been a trend downwards in the unemployment rate. At the end of 2005, the rate stood at 1.9 percent, indicating a very tight labour market. As can be seen from the diagram, there have been some modest cycles around the downward secular trend since 2003, but the amplitude of those cycles has been far less than the cycles experienced in the 2000-2002 time period. Note, for instance, that the increase in the unemployment rate in 2001 was 3.5 percentage points whereas the tick up at the beginning of 2005 was only 0.6 points.

Figure 4: Analysis of the LFS Data for the IT Occupations 2000–2005
Unemployment Rate: All IT Occupations vs. All Occupations

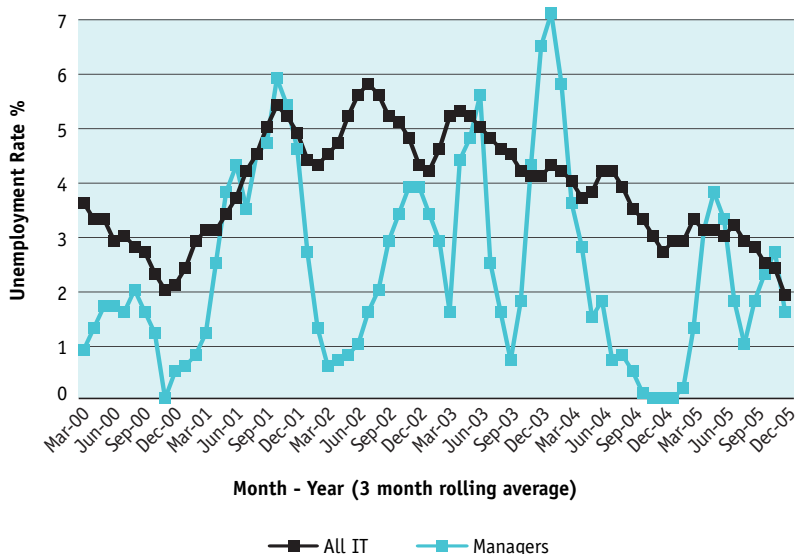


1.4 Unemployment Rates For IT Occupations: Some Differences Evident

The analyses and graphs below are based on a comparison between the unemployment rate for all IT occupations and the unemployment rate for each of the occupational groups.

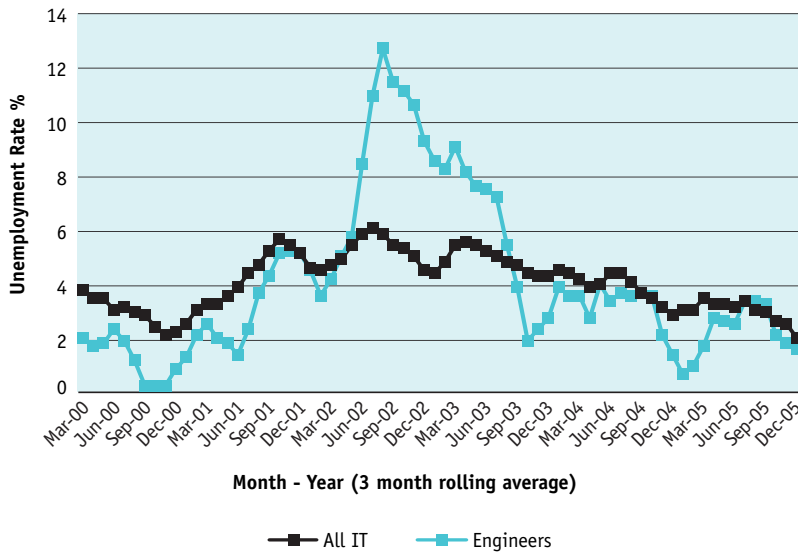
The **Manager** unemployment rate was typically (but not always) below the average for all IT occupations, and the two rates moved in most time periods in the same direction. The notable exception was the spike in the Manager unemployment rate that occurred in late 2003. Also notable are the very low unemployment rates reported, reaching as low as under

Figure 5: Analysis of the LFS Data for the IT Occupations 2000–2005
Unemployment Rate: Managers



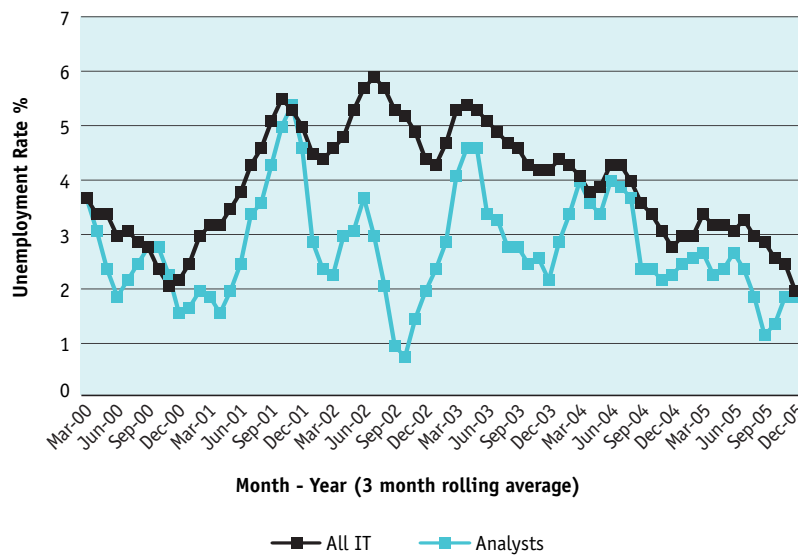
⁴ Indeed, except for Engineers (in certain months in 2002 and 2003), every IT occupational group has experienced a lower unemployment rate than the national average for the entire study period.

**Figure 6*: Analysis of the LFS Data for the IT Occupations 2000–2005
Unemployment Rate: Engineers**



* In Figure 6, the scale on the vertical axis has a maximum value of 14%; for five other figures depicting unemployment rates (Figures 4, 5, 7, 9 and 10), the scale has a maximum value of 10%.

**Figure 7: Analysis of the LFS Data for the IT Occupations 2000–2005
Unemployment Rate: Analysts**

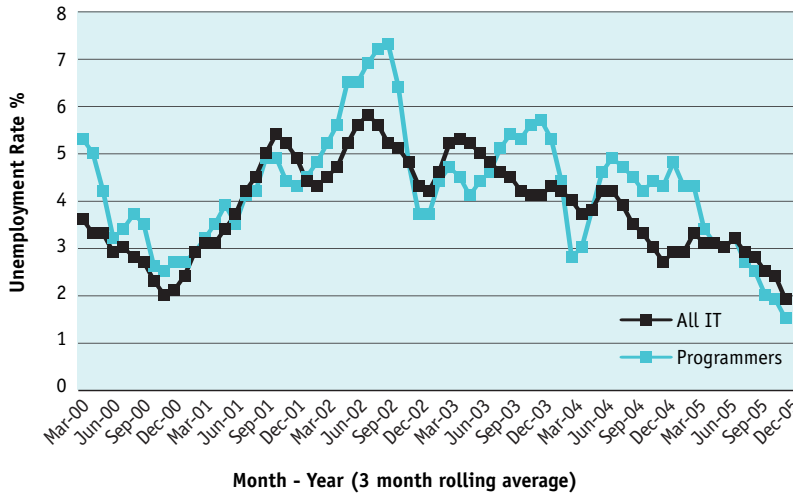


0.5 percent at certain points. At the end of 2005, the Manager unemployment rate stood at 1.6 percent.

The **Engineer** unemployment rate was consistently below the average for all IT occupations except for one notable period from mid-2002 to mid-2003, during the fallout from the “dot-com” boom and bust. During that time period, the Engineer unemployment rate spiked to over 12 percent, 6.5 points above the average for all IT occupations (and almost 5 points above the national average for all occupations). At the end of 2005, the rate was 1.5 percent.

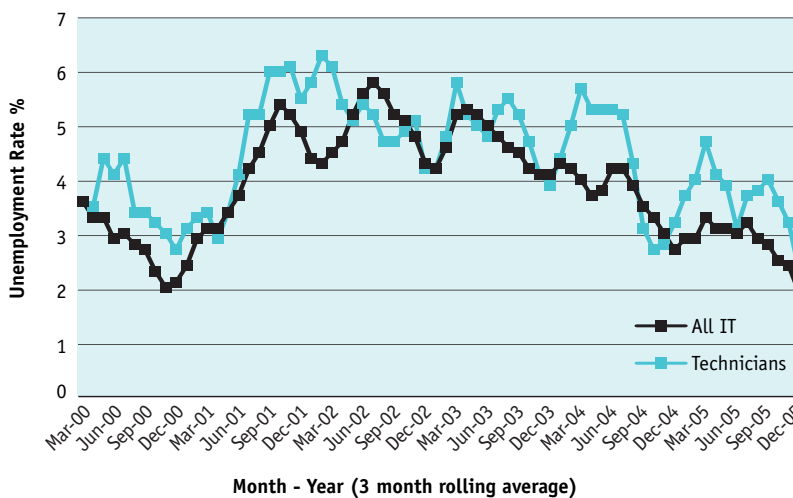
The **Analyst** unemployment rate mirrored the movement of the average for all IT occupations, albeit at a marginally lower rate (within one percentage point) for many months in the six-year period. Two periods of exception stand out where the difference in rates, although not the direction, was considerably more than one percentage point. In 2002, the gap was more than three percentage points. In the Fall of 2003 and the Spring of 2004, there were months where the gap was growing and exceeded 1.5 percentage points. However, for the last two years, the traditional difference (within one percentage point) was seen again. See Figure 7.

Figure 8: Analysis of the LFS Data for the IT Occupations 2000–2005
Unemployment Rate: Programmers



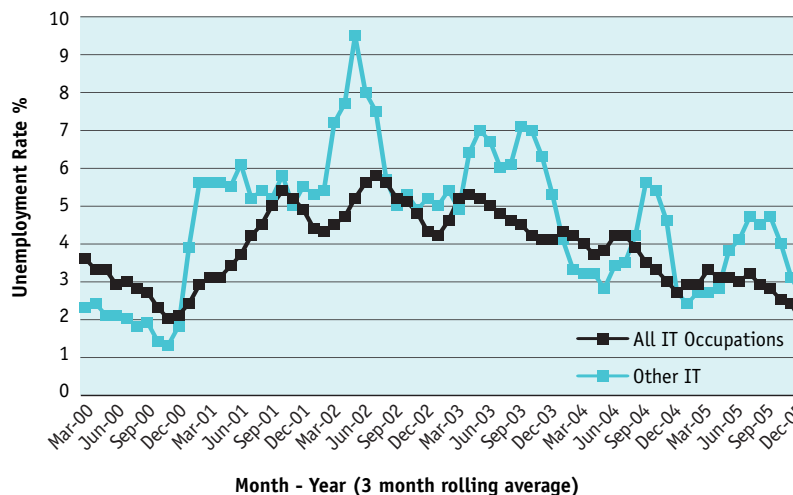
The **Programmer** unemployment rate also mirrored the average for all IT occupations. However, it exhibited somewhat greater volatility as about two-thirds of the time the unemployment rate was above the average for all IT occupations and for the remaining one-third it was below the average. At the end of the study period, the unemployment rate for Programmers was below the average for all IT occupations, at 1.5 percent vs. 1.9 percent. See Figure 8.

Figure 9: Analysis of the LFS Data for the IT Occupations 2000–2005
Unemployment Rate: Technicians



The **Technician** unemployment rate mirrored the average for all IT occupations, but remained above the average of all IT occupations for almost the entire period. The gap was quite close in most months, at about 1 percentage point. See Figure 9.

Figure 10: Analysis of the LFS Data for the IT Occupations 2000–2005
Unemployment Rate: Other IT Workers



The **Other IT** workers unemployment rate was also above the average for all IT occupations for most of the period. However, there were a number of time periods where the unemployment rate for this group was considerably above the average (e.g., in the Summer of 2002 at 9.5 percent, over 5 points above the average; in the Fall of 2003 at 7 percent, about 3 points above the average). Throughout 2005 the unemployment rate for Other IT workers fell along with the average for all IT occupations; by the end of the year, it stood at 2.6 percent, less than one point above the average.

2. Profile of the IT Labour Force

This section of the report presents an analysis of the characteristics of the IT labour force (age, gender, education, location, etc.) with particular emphasis on comparisons among the six occupational groups.

The first finding of some note is that, for almost all profile items, there is very little variation in the results over the six-year period.⁵ Consequently, the profile results are presented in this section as the average of the six years. With so little variability over time, there is essentially no information loss created thereby; when, in rare cases, some trend in the data is clearly evident, it is noted below.

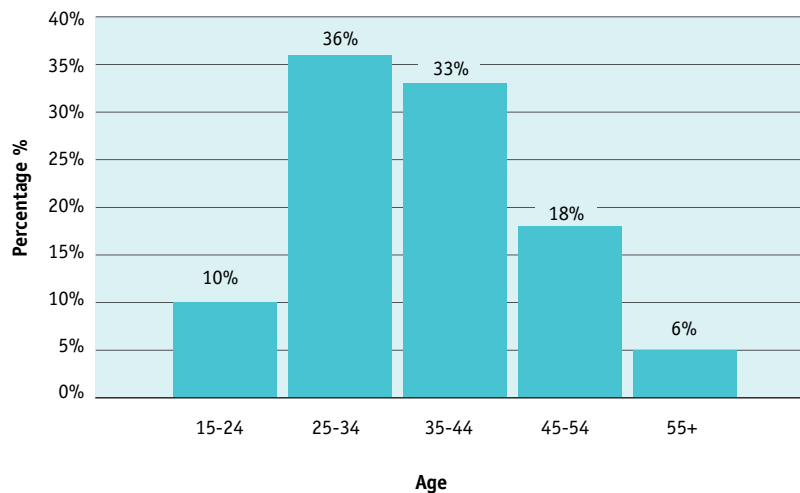
The second finding is that the addition of four IT occupations in this report has not in most instances altered the profile results. In the few cases where there has been a significant change, it is noted below. Also noted below are the few situations where the new group, Other IT (consisting of Technical Writers and Graphical Designers and Illustrators), exhibits a result that stands out from the other occupations.

2.1 Age: The IT Labour Force Is Young

IT is a young occupation, with 46 percent of workers under 35 years of age. Another 33 percent of workers are in the 35 to 44 age group, leaving just 23 percent in the older worker category, from age 45 onwards.⁶ See Figure 11.

A further analysis of the age profile by IT occupational groups shows that Programmers, Technicians and Other IT workers are somewhat younger and that Managers and Analysts are somewhat older than the average IT worker. See Table 2. Over one-half of Programmers, Technicians and Other IT workers are under 35 years of age, whereas 30 percent of Managers and Analysts are over 44 years of age.

Figure 11: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Age



Note to Readers: The responses to some questions in the LFS survey are coded into categories (e.g., salary ranges, age ranges) as established by Statistics Canada. Consequently, it is not possible to calculate an accurate average figure (e.g., average salary or average age). Instead, the results are presented in ranges.

⁵ For instance, the percentage of the IT labour force working full-time was 95.4 percent (2000), 94.9 percent (2001), 94.3 percent (2002), 93.9 percent (2003), 94.2 percent (2004) and 94.8 (2005). Following this document's convention of reporting integer results, these data round to 95 percent, 95 percent, 94 percent, 94 percent, 94 percent and 95 percent. To cite another example, the percentage of males in the IT labour force was 76 percent, 75 percent, 75 percent, 75 percent, 76 percent and 75 percent respectively.

⁶ In this document, totals may not add to 100 percent due to rounding of cell data.

Table 2: Analysis of the LFS Data for the IT Occupations 2000–2005

Profile: Age

Group	15-24	25-34	35-44	45-54	55+
All IT	10%	36%	33%	18%	5%
Managers	2%	29%	39%	23%	7%
Engineers	5%	35%	37%	17%	6%
Analysts	4%	30%	37%	23%	7%
Programmers	11%	40%	32%	15%	3%
Technicians	14%	36%	30%	17%	3%
Other IT	14%	40%	27%	14%	5%

2.2 Gender: The IT Labour Force Is Predominately Male

As shown in Figure 12, the IT occupations are predominately staffed by male workers. Less than one-quarter of workers are female.

Males have even greater dominance in the Engineering occupation, where they comprise 89 percent of the workforce. Females have above average⁷ representation in two occupational groups: Analysts and Other IT. However, only the Other IT group approaches a 50-50 split with 41 percent of that occupation being female.⁸ See Table 3.

Figure 12: Analysis of the LFS Data for the IT Occupations 2000–2005

Profile: Gender

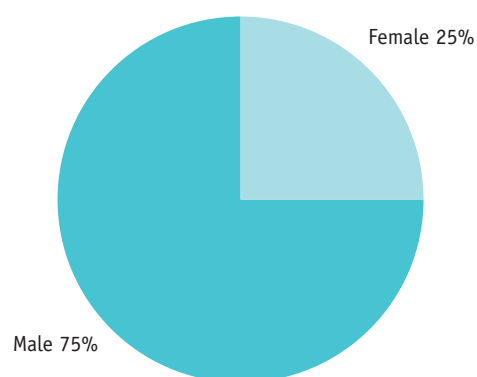


Table 3: Analysis of the LFS Data for the IT Occupations 2000–2005

Profile: Gender

Group	Male	Female
All IT	75%	25%
Managers	76%	23%
Engineers	89%	12%
Analysts	72%	27%
Programmers	78%	23%
Technicians	78%	21%
Other IT	59%	41%

⁷ “Above average” refers to a comparison to all IT occupations; females in these two occupations are still below the 50 percent required for an even split between genders.

⁸ The addition of the Other IT occupational group, with its above average female representation, has reduced the male dominance overall from 78 percent in the 2004 Update Report to 75 percent in this 2005 Update Report.

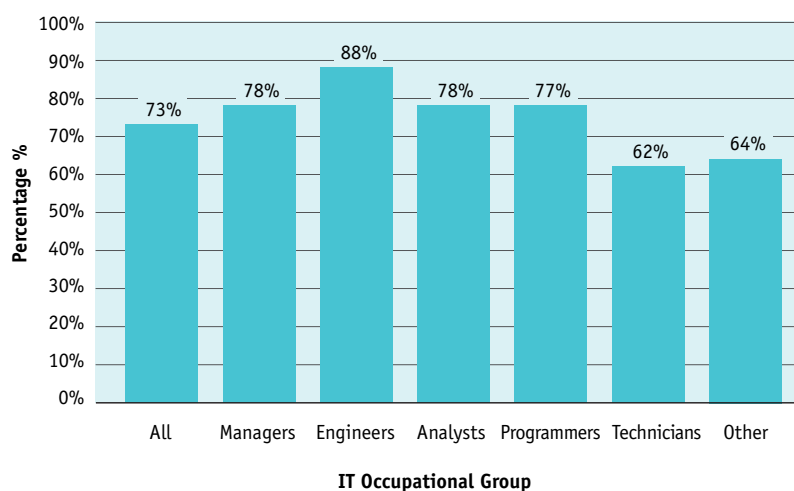
2.3 Education Level: The IT Labour Force Is Well Educated

The IT workforce is well educated, with more than three-quarters having attained a post-secondary degree in all occupations except Technicians and Other IT workers. Engineers are particularly highly educated, as one would expect, with almost 90 percent having a post-secondary degree. See Figure 13.⁹

Table 4 below provides additional detail on the high levels of educational attainment. Particularly noteworthy is the high percentage of post-graduate degrees in three occupations: Engineers (26 percent), Managers (17 percent), and Analysts (15 percent). The percentage of Programmers with a post-graduate degree is lower, at 13 percent. Only Technicians and Other IT workers are below 10 percent.



**Figure 13: Analysis of the LFS Data for the IT Occupations 2000–2005
Educational Profile: Post-Secondary Graduate
(College, University, Post-Graduate)**



**Table 4: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Educational Attainment**

Group	1 Sec/Trade	2 College	3 Some U	4 Bachelor	5 Post-Grad
All IT	16%	28%	11%	34%	12%
Managers	12%	21%	10%	40%	17%
Engineers	6%	11%	6%	51%	26%
Analysts	12%	24%	10%	40%	15%
Programmers	12%	26%	10%	39%	13%
Technicians	24%	38%	14%	19%	5%
Other IT	16%	36%	13%	23%	5%

1 Secondary School Completion or Less, plus Trade Certificate / Diploma

4 Bachelors Degree

2 Community College, CEGEP

5 MA or PhD

3 Some Post-Secondary, University Diploma Below Bachelors

⁹ The addition of the Other IT occupational group, with a below average proportion of workers with a post-secondary degree (64 percent), has reduced the overall proportion of workers with that level of educational attainment from 75 percent in the 2004 Update Report to 73 percent in this 2005 Update Report.

We turn now to the “typical” level of educational achievement, as measured by the modal level.¹⁰ For IT workers as a whole, the modal level is a Bachelor’s degree. This is the case for all occupational groups, except Technicians and Other IT workers, where the modal level is a College diploma. See Table 5.

For all occupational groups, the next modal level is a post-secondary degree. For Engineers, it is higher than Bachelor’s i.e., a post-graduate degree.

Table 5: Analysis of the LFS Data for the IT Occupations 2000–2005
Educational Profile: Modal Achievement Level

Group	Modal Education Level	Next Modal Level
All IT	Bachelor	College
Managers	Bachelor	College
Engineers	Bachelor	Post Graduate
Analysts	Bachelor	College
Programmers	Bachelor	College
Technicians	College	Bachelor
Other IT	College	Bachelor

2.4 Location: The IT Labour Force Is Concentrated in Central Canada

Almost three-quarters of IT workers are located in Ontario and Quebec. Ontario alone has one-half of the workforce. See Figure 14.

Ontario’s predominance in the IT sector is further exhibited by the high percentage of Engineers (55 percent) located in that province. Indeed, for every occupational group except Technicians and Other IT workers, Ontario has nearly half or more of the labour force. See Table 6.

Figure 14: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Location

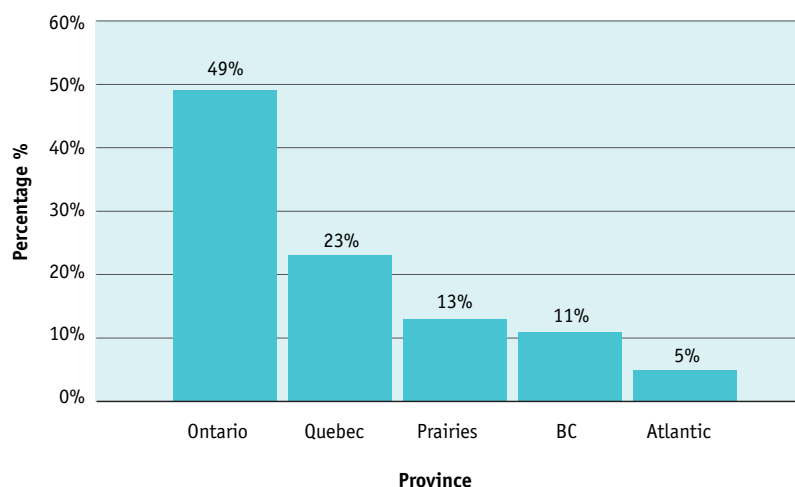


Table 6: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Location

Group	Atlantic	Quebec	Ontario	Prairies	BC
All IT	5%	23%	49%	13%	11%
Managers	4%	23%	50%	12%	12%
Engineers	4%	20%	55%	10%	12%
Analysts	3%	24%	51%	13%	8%
Programmers	4%	23%	49%	13%	12%
Technicians	7%	22%	46%	15%	11%
Other IT	4%	25%	45%	12%	14%

¹⁰ The educational category with the highest percentage of workers is the modal level.

2.5 Job Status: Employment in IT Is Predominately Full-Time

Full-time work is defined by Statistics Canada as working more than 30 hours per week. Almost all workers in the IT labour force are full-time, with only 5 percent working less than 30 hours per week. See Figure 15.

As would be expected, Managers are almost exclusively full-time workers, with only 2 percent stating they work part-time. Engineers are also almost exclusively (99 percent) full-time workers. Of the remaining occupations, only the Other IT occupational group has a significant number working on a part-time basis, with 13 percent in that category. See Table 7.

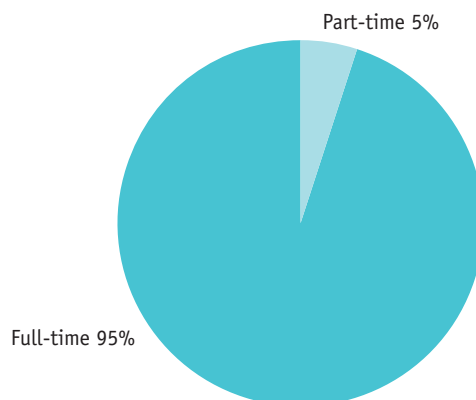
2.6 Job Permanency: Most IT Jobs Are Permanent

The Labour Force Survey asks respondents the following question: “Is your job permanent, or is there some way that it is not permanent? (e.g., seasonal, temporary, term, casual, etc.)” Readers will note that the question does not prompt for the possibility of contract employment. However, Statistics Canada provided data for the following non-permanent categories:

- seasonal;
- temporary, term or contract;
- casual;
- work done through a temporary help agency; and
- other.

As shown in Figure 16, seven percent of the IT workforce in the LFS survey indicated that they were temporary, term or contract employees (labelled as “contract”).

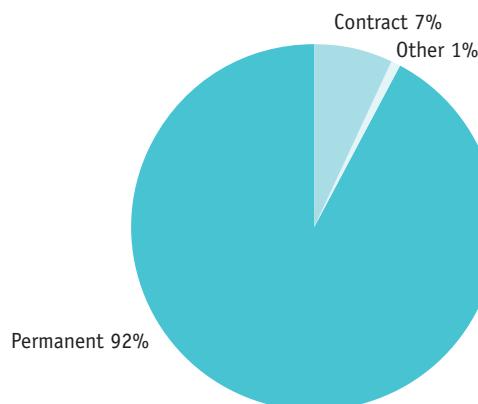
**Figure 15: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Full-Time vs. Part-Time**



**Table 7: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Full-Time vs. Part-Time**

Group	Full-Time	Part-Time
All IT	95%	5%
Managers	98%	2%
Engineers	99%	1%
Analysts	95%	5%
Programmers	96%	4%
Technicians	94%	6%
Other IT	87%	13%

**Figure 16: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Permanent vs. Contract**



According to the Labour Force Survey, Managers and Engineers describe themselves almost exclusively as permanent employees. Some Programmers, Technicians and Other IT workers are on contract or other non-permanent arrangements; however, these account for 10 percent or less of the labour force in each case. See Table 8.

2.7 Job Tenure Trend: Fewer Short Tenure IT Workers and More Long Tenure IT Workers

Job tenure is defined as the number of consecutive months a person has worked for the current employer (or, if employed within the previous twelve months, the most recent employer). The LFS data were provided in annual categories (i.e., 1-12 months; 13-24 months; etc.) Unlike the other profile items, job tenure for the entire IT workforce does show some trends over time, as shown in Table 9 below.

The percentage with one to three years (up to 36 months) of job tenure has fallen from above 50 percent in 2000

**Table 8: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Permanent vs. Contract**

Group	Permanent	Contract	Other
All IT	92%	7%	1%
Managers	97%	3%	
Engineers	96%	4%	
Analysts	94%	6%	1%
Programmers	91%	8%	1%
Technicians	90%	8%	2%
Other IT	90%	8%	2%

to less than 40 percent in 2005.¹² On the other hand, the percentage with longer tenure, more than four years, has increased from about 40 percent in 2000 to over 50 percent in 2005. In the middle, the percentage with tenure of three to four years has remained more or less stable at slightly less than 10 percent of the workforce. The pattern shown in the table above suggests that the longer an IT worker is in a job, the more likely the worker is to stay in it, particularly after reaching tenure of four years.

In the last Update Report, it was noted that, for the first time, every occupational group in 2004 had over

40 percent of its members in the longest tenure category (over 60 months). This observation almost held true in 2005: the first four of the six groups remained above that level, while Technicians and Other IT workers almost achieved that level (they were both at 39 percent).

The three highest wage groups¹³ exhibit even stronger evidence of long-term tenure: Managers, Engineers and Analysts. In every year except one (2001), Managers had over 50 percent of members in this longest tenure category. Further, over the last two years, about one-half of Engineers and Analysts have also reached this level of tenure.

**Table 9: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile for All IT Occupations: Job Tenure**

	1-12 Months	13-24 Months	25-36 Months	37-48 Months	49-60 Months	>60 Months
2000	24%	15%	13%	8%	5%	36%
2001	25%	15%	11%	9%	6%	34%
2002	19%	16%	12%	9%	7%	37%
2003	18%	12%	12%	10%	8%	40%
2004	18%	10%	9%	10%	8%	45%
2005	20%	11%	8%	9%	7%	45%
Trend	Falling ¹¹	Falling	Falling	Stable	Rising	Rising
	Falling			Stable	Rising	

¹¹ It remains to be seen whether the increase in 2005 is maintained into 2006; for now, the best descriptor for this category is “falling”.

¹² In fact, the third category of 25 to 36 months was shifted from the descriptor “stable” in the 2004 Update Report to the descriptor “falling” in this 2005 Update Report. In sum, it has become even clearer now with an additional year of data that the proportion of IT workers in shorter tenure categories has been falling.

¹³ The analysis of wage data can be found in Section 2.11 below.

Table 10: Analysis of the LFS Data for the IT Occupations 2000–2005

Profile: Industry Sectors

Group	Prof Sci Tech	Manuf	Public Admin	Info & Culture	Fin & Ins	Total
All IT	44%	13%	8%	9%	6%	80%
Managers	44%	9%	11%	11%	9%	85%
Engineers	36%	33%	3%	10%	2%	85%
Analysts	54%	6%	11%	6%	9%	86%
Programmers	52%	11%	8%	7%	8%	85%
Technicians	28%	10%	11%	10%	7%	65%
Other IT	56%	15%	3%	12%	2%	88%

In sum, across all occupational groups, it would seem that there is now greater stability of employment in the IT labour market.

2.8 Industry Sectors: Five Industries Account For Most IT Employment

As shown in Table 10, five Industry sectors account for 80 percent of IT jobs. They are:

- Professional, Scientific and Technical Services;
- Manufacturing;
- Information and Culture Industries;
- Public Administration; and
- Finance and Insurance.

Professional, Scientific and Technical Services is the largest industry sector for all IT occupations. Engineers have a significant percentage (33 percent) of their employment in Manufacturing. Technicians are more broadly distributed across the economy, as these five industry sectors account for only 65 percent of their employment.

Figure 17: Analysis of the LFS Data for the IT Occupations 2000–2005

Profile: Union Membership

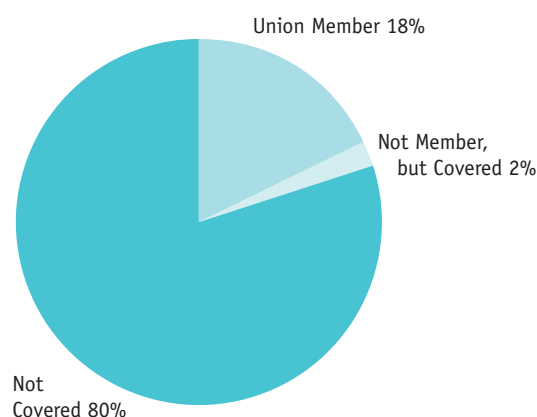


Table 11: Analysis of the LFS Data for the IT Occupations 2000–2005

Profile: Union Membership

Group	Union Member	Not, But Covered	Not Covered
All IT	18%	2%	80%
Managers	11%	3%	87%
Engineers	13%	2%	84%
Analysts	20%	2%	78%
Programmers	15%	3%	82%
Technicians	23%	3%	75%
Other IT	14%	2%	84%

2.9 Unionization: One in Five IT Workers Is Covered by a Union CBA

Twenty percent of the IT labour force are covered by a union's collective bargaining agreement (CBA). However, only 18 percent are actually union members, with the remainder covered by a CBA even though they themselves are not members. See Figure 17.

As indicated in Table 11, Managers, Engineers, Programmers and Other IT workers show relatively lower rates of unionization, whereas Analysts and Technicians show higher rates. As noted in the previous Table, the latter two occupational groups show a somewhat higher proportion employed in the public administration where unionization is more prevalent; this may help to explain their higher rates of unionization.

2.10 Regular Hours Worked Per Week¹⁴: Most Work 31 to 40 Hours Weekly

We saw earlier that most of the IT labour force is employed full-time. It is not surprising therefore that only 7 percent have a regular workweek of less than 30 hours per week. By far the majority of workers, 83 percent, indicate a regular workweek between 31 and 40 hours. Only 10 percent of the IT labour force has a workweek of more than 40 hours per week. See Figure 18.

A long workweek (defined here as more than 40 hours per week with no additional pay) is most heavily concentrated among Managers, 20 percent of whom report working beyond 40 hours. See Table 12. The remaining IT occupations show a consistent pattern at about 10 percent of workers exceeding a regular workweek of 40 hours, with Analysts and Other IT workers being somewhat higher, and Technicians somewhat lower than that figure.

Figure 18: Analysis of the LFS Data for the IT Occupations 2000–2005 Profile: Hours In Regular Workweek

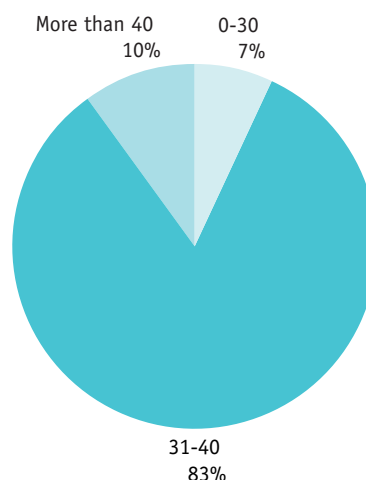


Table 12: Analysis of the LFS Data for the IT Occupations 2000–2005 Profile: Hours In Regular Workweek

Group	0-30	31-40	41-50	51-60	60 +
All IT	7%	83%	7%	2%	1%
Managers	3%	78%	11%	7%	2%
Engineers	2%	89%	7%	2%	1%
Analysts	7%	81%	8%	3%	1%
Programmers	6%	86%	6%	2%	1%
Technicians	7%	87%	5%	1%	1%
Other IT	18%	69%	9%	3%	1%

¹⁴ The terms “regular hours worked per week” and “regular workweek” refer to the number of paid hours worked weekly, excluding paid overtime.

Analysts, Programmers and Technicians also show slightly higher percentages of workers who have a regular workweek of 30 hours or less, a reflection of the higher proportion of part-time workers in those occupations. The Other IT group stands out, with 18% reporting a workweek of less than 30 hours, but as shown earlier in Table 7, this group has the highest proportion of part-time workers. On the other hand, Engineers, almost all of whom work full-time, are most likely to have a regular workweek between 31 and 40 hours.

2.11 Wages Paid Per Week: The Wage Rate Varies By IT Occupation According to a Natural Progression

There is a clear progression in nominal wages paid, with Managers drawing the highest, followed by Engineers, Analysts, Programmers, Technicians and Other IT workers in that order.

One way to illustrate the ranking is through the modal salary range, as shown in Table 13. As further evidence of the wage ranking, the last column indicates the percentage of workers in the ranges above the modal one. For instance, although Analysts and Programmers have the same modal category, there are more Analysts in



**Table 13: Analysis of the LFS Data for the IT Occupations 2000–2005
Profile: Weekly Wages**

Group	Modal Salary Range	Modal Category as a % of Total Group	% in Higher Salary Ranges
All IT	\$801-\$1000	20%	
Managers	> \$1600	29%	NA
Engineers	>\$1600 ¹⁵	21%	NA
Analysts ¹⁶	\$801-\$1000	21%	48%
Programmers	\$801-\$1000	25%	34%
Technicians	\$601-\$800	24%	45%
Other IT	\$601-\$800	26%	34%

¹⁵ In the previous 2004 Update Report, the modal category for Engineers was reported as the lower range of \$1201-\$1400; in fact, the modal range was the higher category of >\$1600, with 20% of Engineers at that wage level. In this 2005 Update Report, as in the previous timeframe, the \$1201-\$1400 range stood second highest at 18 percent of the total.

¹⁶ In the previous 2004 Update Report, the modal category for Analysts was the next higher range of \$1001-\$1200. In this 2005 Update Report, that range stood second highest at 19 percent of the total.

the higher salary ranges, putting them ahead of Programmers in the ranking. A similar analysis places Technicians above Other IT workers in the wage progression.

The data on weekly wages, unlike most of the other profile elements, do exhibit some evidence of trends, as would be expected over a six-year period in which the IT unemployment rate was below the national average.

- The percentage of Managers in the highest income category (more than \$1600 per week) rose in the 2000-2002 time period encompassing three years. The percentage in this category remained steady over the next two years, 2003-2004. In 2005, there was a significant increase in the proportion of Managers in this category, suggesting a recent rise in the average wage.
- The percentage of Engineers in the highest income category (more than \$1600 per week) was stable in the first three years, 2000-2003. In 2004, the proportion increased and has remained stable since then. However, the proportion in the next lower category of \$1401-1600 has been rising in this latter period, suggesting once again a rise in the average wage.
- It was noted in the 2004 Update Report that the percentage of Analysts in their modal range of \$1001-\$1200 had been falling, while the percentage in the next (higher) wage category had been rising. In this 2005 Update Report, the modal range indeed dropped one category to \$801-\$1000. However, this reflects a continuing increase in the proportion of Analysts spread across all the higher wage categories, above \$1201 per week.
- The percentage of Programmers in their modal range of \$801-\$1000 per week was steady for the first three years, but has been declining in the last three years. During this latter period, proportionately more Programmers have entered the next two (higher) wage categories.
- The percentage of Technicians in their modal range of \$601-\$800 per week was steady for the first three years of the period, but declined in the last three years, as more Technicians moved into the next two (higher) wage categories.
- The percentage of Other IT workers in their modal range of \$601-\$800 per week showed little variability over the six-year period. The same was true of the category above and the category below the modal range, suggesting that there was not much movement in the average wage of this occupational group over the full period.¹⁷

Put another way, it is estimated that the average annual wage income of each of the IT occupations, except Other IT workers, has been rising over the last few years.



¹⁷ The profile data exhibited earlier showed that this occupational group held fewer full-time posts, worked shorter hours per week, had a lower rate of unionization and was comprised of a higher proportion of female workers. Which, if any, of these factors explain the lack of evident wage progression cannot be determined from the dataset.

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The Canadian IT Labour Market Initiative is funded in part by the Government of Canada's Sector Council Program.

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