labour force surveys

information technology

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# Analysis of Labour Force Survey Data for the Information Technology Occupations 2000–2003

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# Contents

# Highlights

This is the third 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. The first report, released in November 2002, covered 31 months, from January 2000 to July 2002. The second report, issued in June 2003, covered the same time period, but reflected a more complete database of IT workers. This third report extends the coverage to 48 months, from January 2000 to December 2003.

Among the highlights of this third report:

- The IT labour force is currently about 500,000 workers; after substantial growth in 2000 it has been cycling around the level of 510,000 workers since the summer of 2002.
- The Technician labour force, the largest IT occupational group, showed growth in 2003 and exceeded 160,000 workers by the end of the year, almost reaching its peak level of July 2001.
- The Programmer labour force seems to be exhibiting a secular decline: from a peak of 160,000 workers in early 2001, it has fallen to under 120,000 workers at the end of 2003.
- The Analyst labour force seems to be enjoying secular growth: from a low of 80,000 workers in the Fall of 2000, it has grown to 120,000 workers at the end of 2003, challenging Programmers for the status as second largest component of the IT labour force.
- The unemployment rate for all IT workers reached a low of two percent at the end of 2000. It grew to a high point of 5.5 percent by the fall of 2001. Since then, it has cycled twice between a low of four percent and a high of about 5.5 percent. At the end of the period, it was trending down again and was below four percent for the last three months of 2003.
- As in the previous two 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.
- Key findings regarding the profile of the IT labour force include:
  - It is relatively young, with 46 percent younger than 35 years old;
  - Males predominate, at 78 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 predominantly full-time, at 96 percent of the total;
  - Jobs in IT are predominantly permanent, at 93 percent of the total;
  - Five industry sectors account for 80 percent of IT jobs: Professional, Scientific and Technical Services; Manufacturing; Information and Culture; 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; and
  - The wage rate for IT occupations follows a natural progression, from Technicians at the low end, through Programmers, Analysts, and Engineers to Managers at the high end.

# Background

The Labour Force Survey 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 in the last two decades of the 20th 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. Until recently, however, 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) identified 21 occupations within the new National Occupational Classifications System (NOC) that comprise the IT labour force. SHRC supported this initiative through the development of its Occupational Skills Profile Model. HRDC arranged for Statistics Canada to recode the LFS data from January 2000 onward 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.

**Table 1 – Analysis of the LFS Data for the IT Occupations 2000–2003**
**Occupational Groupings**

| Group | NOC | Occupation |
|---|---|---|
| Managers | 0213 | Computer and Information Systems Managers |
| | 06115 | 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 |
| | 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 |

In the fall of 2002, HRDC engaged 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 June 2003, was prepared using this more complete database for that same January 2000 to July 2002 time period. The first two reports are available on the SHRC Web site at **www.shrc.ca**

This third report covers a much longer time period, from January 2000 to December 2003. As in the November 2002 and June 2003 reports, this document contains the results of the analysis of 17 of the 21 occupations, compiled into five IT occupational groups, as shown in Table 1.

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 five 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 five occupational groups comprising the 17 occupations listed previously in Table 1. Subsequent reports analyzing the LFS might include additional occupations.*

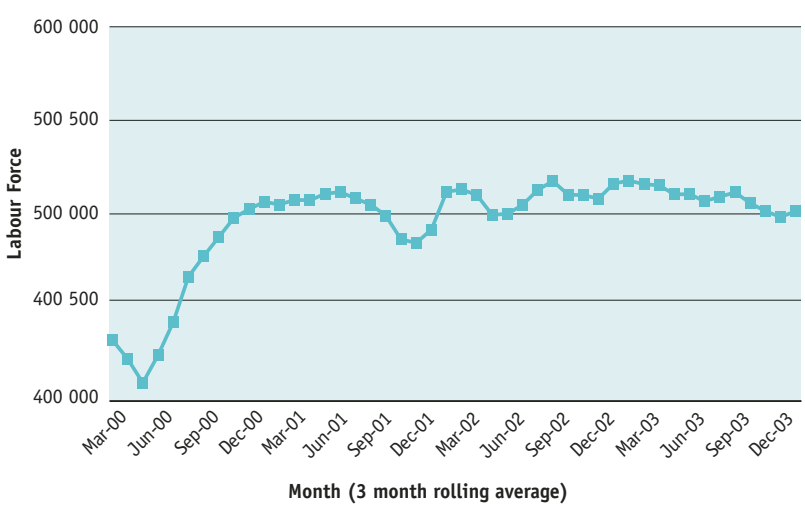
# 1. Overview of Labour Force Activity

This section contains an analysis of trends in the labour force and the unemployment rate, starting in January 2000 and ending in December 2003, for the Total IT Labour Force and each of the five occupational groups (Managers, Engineers, Analysts, Programmers, Technicians). 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: Cycling Around 510,000 Workers Since Summer 2002

As shown in Figure 1, the Total IT labour force grew steadily from about 410,000 workers in the summer of 2000 through to mid-2001 when it reached about 510,000 workers. From mid-2001 onward, the IT labour force exhibited a cyclical pattern (down, then up for four cycles). At the end of 2001, it reached the low point of any cycle at about 485,000 workers. The growth spurt in two of the subsequent cycles generated a labour force at the peak of 516,000 workers (in August 2002 and January 2003). There has been a modest decline to about 500,000 workers at the end of 2003, slightly less than at the peak period in the summer of 2001.

**Figure 1: Analysis of the LFS Data for the IT Occupations 2000–2003**




There are two points of particular note above, as compared to the second Update Report of June 2003:

- Although the labour force showed a cyclical pattern from the summer of 2001 onward, the amplitude has been smaller since the fall of 2002. The first two cycles in late 2001 and mid-2002 had a trough-to-peak difference of 28,000 and 18,000 workers respectively; the second two in late 2002 and mid-2003 were 7,000 and 5,000 workers respectively. Put another way, since the summer of 2002, the labour force has been more stable, cycling modestly around 510,000 workers.
- The labour force reached an all-time high of 516,000 workers, as noted above, on two occasions: August 2002 and January 2003. Except for two months in mid-2002 and one month in late 2003, the labour force has not been below 500,000 workers since the beginning of 2002.

## 1.2 Occupational Labour Forces: Exhibit Different Patterns Over Time

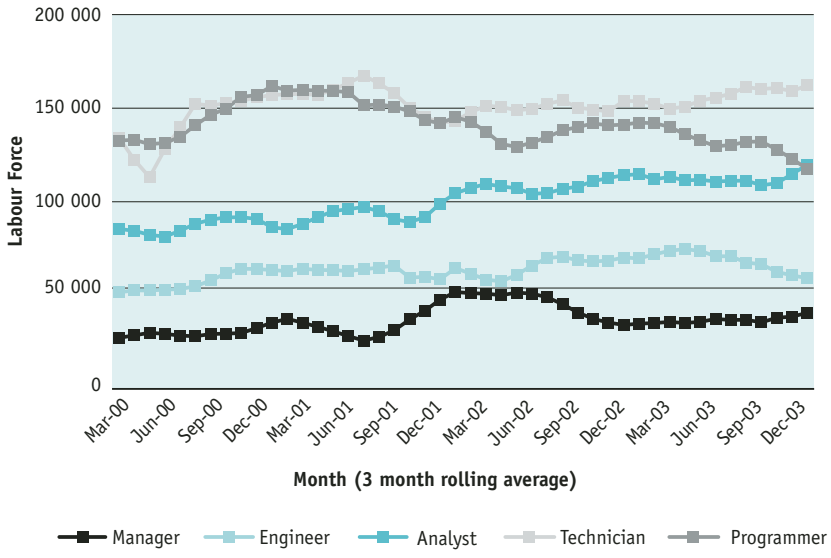
Figure 2 shows trends in the labour force for each of the five occupational groups over the 48-month study period.

Technicians and Programmers are the largest occupational groups, with between 120,000 and 160,000 workers each for most of the period. There are more Analysts (ranging from 80,000 to 120,000 over the period) than Engineers (more stable at roughly 60,000). Managers are the smallest occupational group, at somewhat less than 40,000 workers for most of the period.

Additional detailed observations on each occupational group include:

- The **Manager** labour force was stable from 2000 to mid-2001 at about 30,000 workers; after a slight dip to 26,000 workers, it grew at a steady rate to reach a level of 50,000 workers by the end of 2001 and remained at that level until the summer of 2002. In the fall of 2002, it fell to 35,000 workers and has showed modest growth towards 40,000 workers during 2003. (Further work is underway to investigate the accuracy of the underlying dataset).
- The **Engineer** labour force has shown long periods of relative stability over the 48-month period. From January 2000 until the summer of 2002, it was quite stable around 60,000 workers. There was modest growth through the fall of 2002, followed by another period of stability at about 70,000 workers until mid-2003, at which time a downward trend became evident. At the end of 2003, there were 60,000 workers, the same number as at the end of 2000.
- The **Analyst** labour force seems to have been somewhat more variable until the summer of 2002. From spring 2000 to fall 2001, it cycled around 85,000 workers, with a low of 81,000 workers in June 2000 and a high of 97,000 workers in July 2001. There was growth in early 2002, to almost 110,000 workers in March 2002, with a small decline to 105,000 by July 2002. Since then, the labour force has shown modest growth, reaching 120,000 workers at the end of 2003, equal to the size of the Programmer labour force.
- The **Programmer** labour force grew steadily from about 130,000 workers until it reached about 150,000 workers in the early summer of 2001. There has been a decline since then, to about 135,000 in the summer of 2002, slightly higher than the initial level at the beginning of 2000. The labour force began growing again in the late summer of 2002, reaching 143,000 in the spring of 2003. There has been a decline since then, to 120,000 by the end of 2003, lower than any other point in the 48-month period.
- The **Technician** labour force has increased since the beginning of 2000. The labour force included about 115,000 workers at its lowest point in early 2000; the labour force in the summer of 2002 comprised about 150,000 workers. At the peak, in July 2001, the labour force consisted of almost 170,000 workers. It fell from that high point to about 140,000 in the fall of 2001. Growth since then has brought this labour force back to 160,000 by the end of the period, making it the largest group among the IT occupations. Note that the gap between Technicians and the second largest occupation – Programmers – was, at the end of the period, as large as it has ever been, at 42,000 workers.

Figure 2: Analysis of the LFS Data for the IT Occupations 2000–2003



## 1.3 Unemployment Rate For All IT Occupations: Exhibits Cyclical Pattern

As shown in Figure 3 below, the unemployment rate for all the IT occupations, as a whole, has exhibited a cyclical pattern. The rate showed a steady decline to the end of 2000, reaching a very tight rate of two percent at the bottom, followed by a steady increase to the end of 2001, to a peak of 5.5 percent by the fall of 2001. Since then, there have been two swift cycles down to about four percent, followed in each case by a rise to about 5.5 percent. From mid-2003, the unemployment rate has been trending down; by the end of 2003 the rate was below four percent, slightly less than the trough on the previous two cycles.

## 1.4 Unemployment Rate For Occupations: Some Mirror All IT

The analyses and graphs that follow 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 is typically below the average for all IT occupations, and showed more variability than the total, until the summer of 2002. At times, the rate hovered at a very low level around one percent (and even lower), considerably below the average. At the end of 2001, it skyrocketed to more than six percent, above the average for all IT occupations; by March 2002, the rate had returned to the one percent level. For more than a year, to July 2003, it remained in the range of one to two percent. Once again, in the last half of 2003, it rose significantly to under four percent by the end of the period. See Figure 4. (As noted earlier, further work is underway to investigate the accuracy of the underlying dataset for this occupational group; these results may be revised).

Figure 3: Analysis of the LFS Data for the IT Occupations 2000–2003
**Unemployment Rate: All IT Occupations**

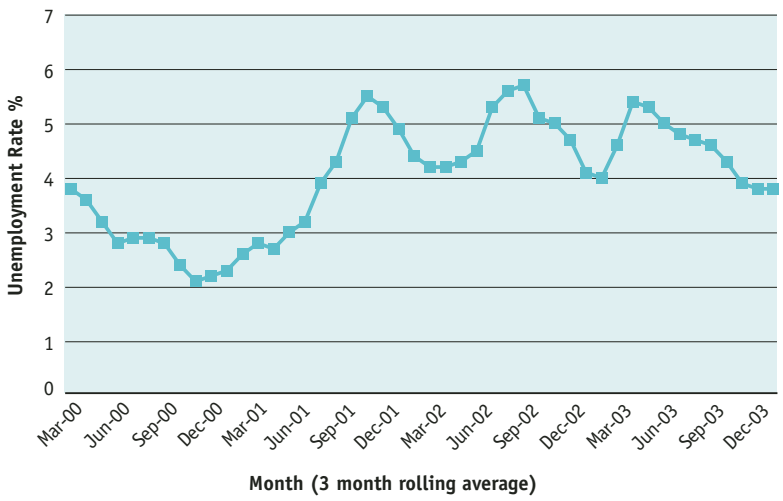
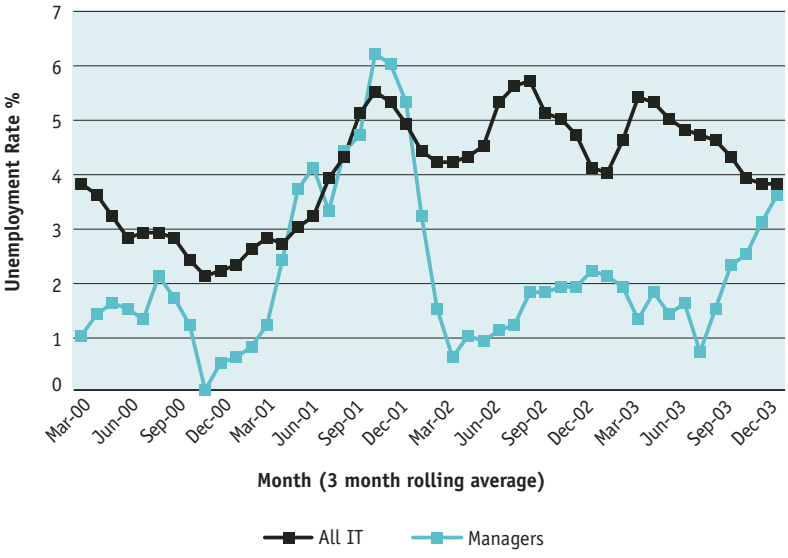


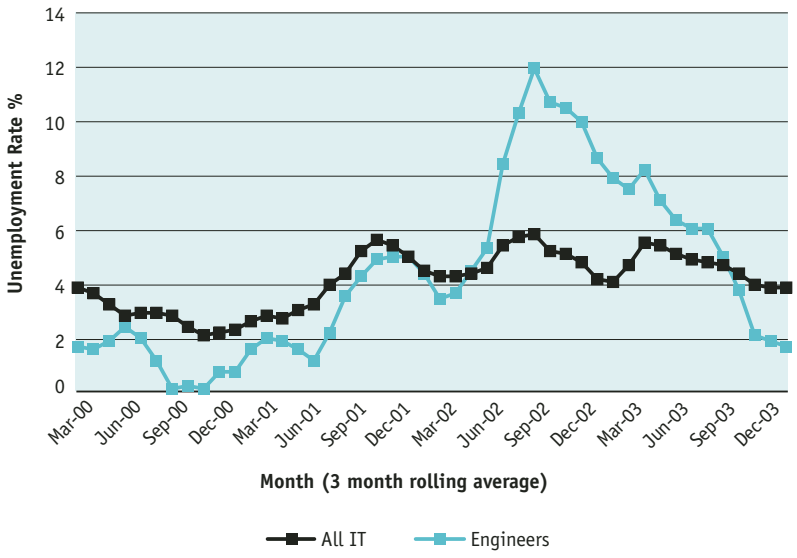

Figure 4: Analysis of the LFS Data for the IT Occupations 2000–2003
**Unemployment Rate: Managers**



The **Engineer** unemployment rate was below the average for all IT occupations for the first half of the period and was above it for most of the second half. In the fall of 2000 the rate was extremely low, less than one percent. The rate grew in 2001 until it exceeded four percent. The rate spiked in 2002 to almost 12 percent in August 2002. Although it has fallen steadily since then, the rate was above the average until the last quarter of 2003, when it was below four percent. See Figure 5.

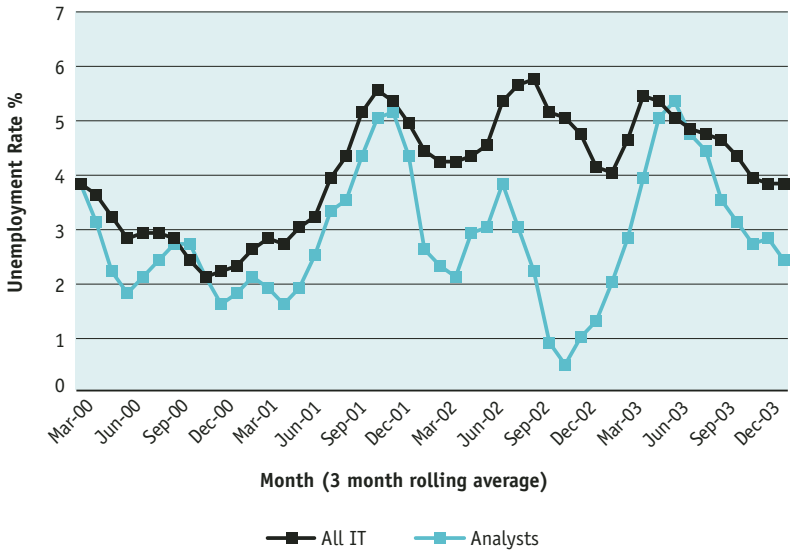
The **Analyst** unemployment rate mirrored the movement of the average for all IT occupations, albeit at a marginally lower rate (within one percentage point) for the first half of the period. In most of the second half, the unemployment rate for Analysts continued to mirror the direction of the average, but a considerable divergence in rates emerged. By the fall of 2002, the Analyst unemployment rate was below one percent, whereas the average was about four percent. By early 2003, this gap had been closed, as there was a considerable rise in the Analyst unemployment rate and the one percentage point difference was seen again. As 2003 came to a close it appeared that a greater divergence was opening up, as the Analyst unemployment rate was falling faster than the average for all IT occupations. See Figure 6.

**Figure 5*: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Unemployment Rate: Engineers**




* In Figure 5, the scale on the vertical axis has a maximum value of 14 percent; for four other figures depicting unemployment rates (Figures 3, 4, 6, and 8), the scale has a maximum value of seven percent; Figure 7 has a maximum value of eight percent.

**Figure 6: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Unemployment Rate: Analysts**



The **Programmer** unemployment rate also mirrored the average for all IT occupations, albeit at a somewhat higher rate (about one percentage point higher) for most of the period. Only for two brief periods, at the end of 2001 and in early 2003, did the unemployment rate for Programmers fall below the average for all IT occupations. At the end of the survey period, the rate for Programmers was once again above the average for all IT occupations, at 5.4 percent vs. 3.8 percent. See Figure 7.

The **Technician** unemployment rate mirrored the average for all IT occupations, but remained above the average of all IT occupations in every month from April 2000 onwards, except for two months in the summer of 2002. See Figure 8.

**Figure 7: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Unemployment Rate: Programmers**

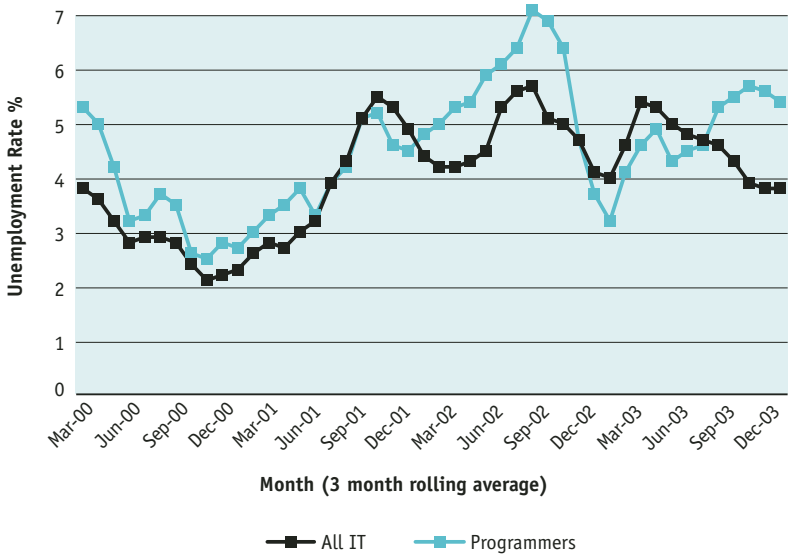
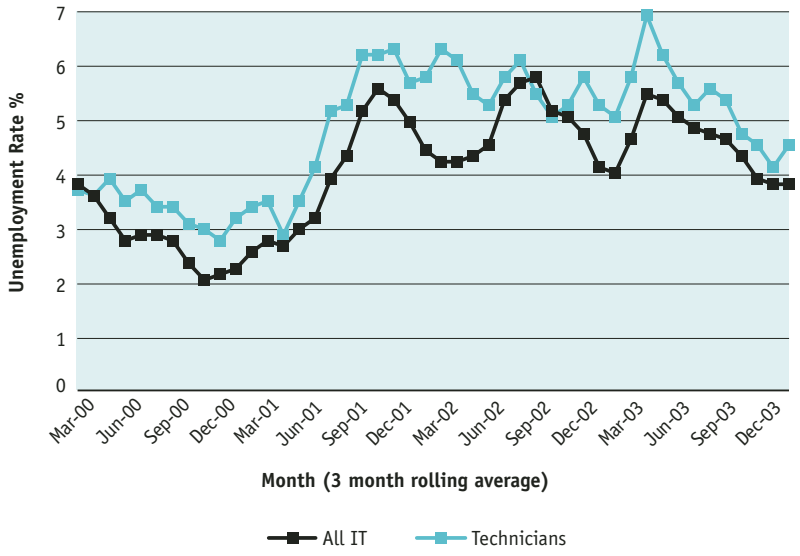



**Figure 8: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Unemployment Rate: Technicians**



# 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 five occupational groups.

The first finding of some note is that, for almost all profile items, there is very little variation in the results for 2000 (12-month average), 2001 (12-month average), 2002 (12-month average), and 2003 (12-month average). For instance, the percentage of the IT labour force working full-time was 96.4 percent in 2000, 96 percent in 2001, 95.5 percent in 2002, and 95.3 percent in 2003. To cite another example, the percentage of the IT labour force working in Ontario was 50.2 percent, 51.1 percent, 49.5 percent and 49.1 percent, respectively. With so little variability over time, the profile results are presented in this section as the average of the four years. When, in rare cases, some trend in the data is evident, it is noted below.

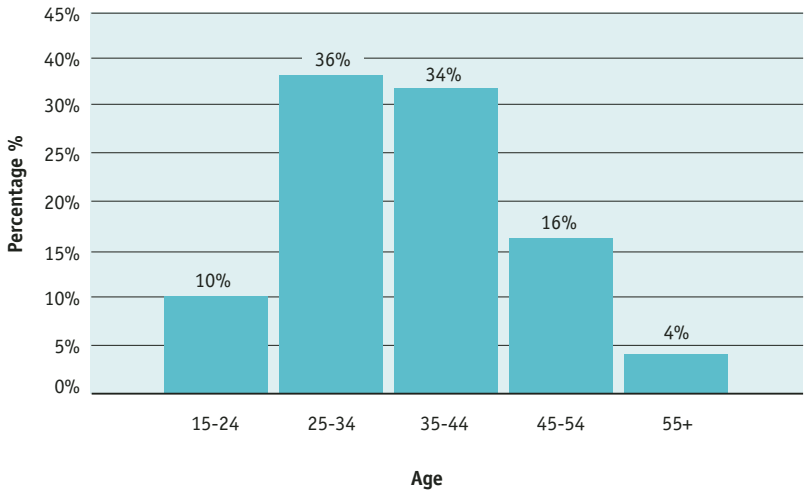
This report updates the profile information provided in the Update Report of June 2003. In almost all cases, however, there are no significant differences in the findings: most figures have been altered, if at all, by one or two percentage points.

## 2.1 Age: The IT Labour Force Is Young

IT is a young occupational sector, with 46 percent of workers under 35 years of age. Another 34 percent of workers are in the 35-to-44 age group, leaving just 20 percent in the older worker category, from age 45 onward. See Figure 9.

A further analysis of the age profile by IT occupational groups shows that Programmers and Technicians are somewhat younger, and that Managers and Analysts are somewhat older than the average IT worker. See Table 2.[1] More than one-half of Programmers and Technicians are under 35 years of age. Almost 30 percent of Managers and Analysts are over 44 years of age.

**Figure 9; Analysis of the LFS Data for the IT Occupations 2000–2003**
**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.*

[1] 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 2000–2003**
**Profile: Age**

| Group | 15-24 | 25-34 | 35-44 | 45-54 | 55+ |
|---|---|---|---|---|---|
| All IT | 10 % | 36 % | 34 % | 16 % | 4 % |
| | | | | | |
| Managers | 2 % | 31 % | 40 % | 22 % | 5 % |
| Engineers | 6 % | 37 % | 38 % | 15 % | 5 % |
| Analysts | 5 % | 31 % | 38 % | 20 % | 7 % |
| Programmers | 11% | 40 % | 32 % | 14 % | 2 % |
| Technicians | 14 % | 37 % | 31 % | 15 % | 3 % |

## 2.2 Gender: The IT Labour Force Is Predominantly Male

As shown in Figure 10, the IT occupations are predominantly staffed by male workers. Less than one-quarter of workers are female.

Males have even greater dominance in the Engineering occupation, where they comprise more than 85 percent of the workforce. Females have above average representation in one occupation: Analysts. ("Above average" refers to a comparison to all IT occupations; females in these two occupations are still far below the 50 percent required for an even split between genders). See Table 3.

**Figure 10: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Gender**

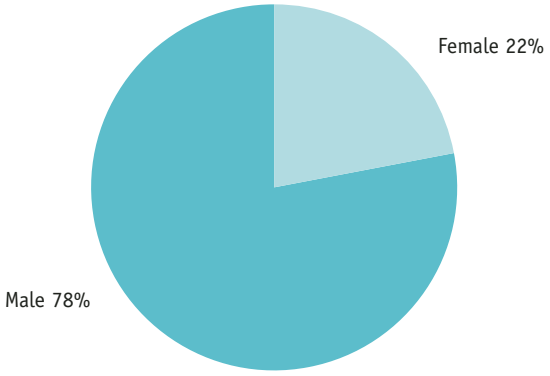



**Table 3: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Gender**

| Group | Male | Female |
|---|---|---|
| All IT | 78 % | 22 % |
| | | |
| Managers | 77 % | 23 % |
| Engineers | 88 % | 12 % |
| Analysts | 72 % | 28 % |
| Programmers | 77 % | 23 % |
| Technicians | 78 % | 22 % |

## 2.3 Education Level: The IT Labour Force Is Well Educated

The workforce in IT is well educated, with more than three-quarters having attained a post-secondary degree in all occupations except Technicians. Engineers are particularly highly educated, as one would expect, with almost 90 percent having a post-secondary degree. See Figure 11.

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 (28 percent), Managers (17 percent), and Analysts (16 percent). The percentage of Programmers with a post-graduate degree is lower, at 13 percent. Only the Technicians group is below 10 percent.

**Figure 11: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Educational Profile: Post-Secondary Graduate (College, University, Post-Graduate)**

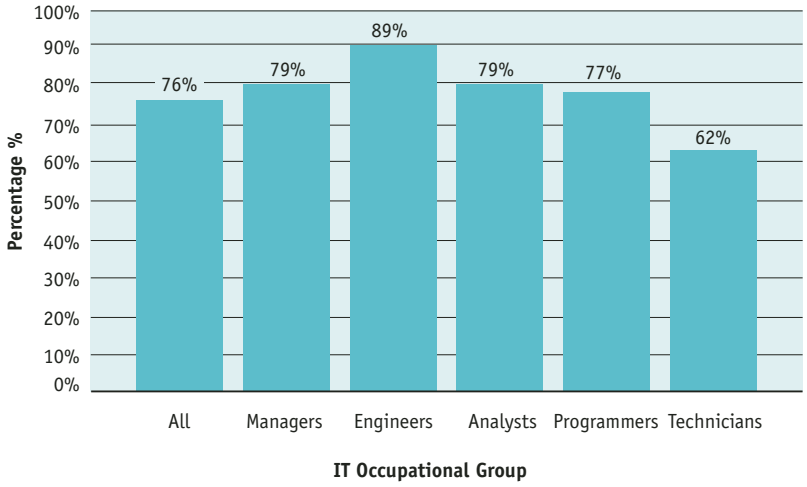



**Table 4: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Educational Attainment**

| Group | 1 Sec/Trade | 2 College | 3 Some U | 4 Bachelor | 5 Post-Grad |
|---|---|---|---|---|---|
| All IT | 15 % | 27 % | 11 % | 34 % | 14 % |
| | | | | | |
| Managers | 12 % | 21 % | 10 % | 41% | 17 % |
| Engineers | 5 % | 11 % | 6 % | 50 % | 28 % |
| Analysts | 11 % | 22 % | 10 % | 41 % | 16 % |
| Programmers | 13 % | 26 % | 10 % | 38 % | 13 % |
| Technicians | 24 % | 38 % | 14 % | 18 % | 6 % |

1 Secondary School or Less, plus Trade Certificate / Diploma
2 Community College, CEGEP
3 Some Post-Secondary, University Diploma Below Bachelor's
4 Bachelor's Degree
5 MA or PhD

We turn now to the "typical" level of educational achievement, as measured by the modal level. (The educational category with the highest percentage of workers is the modal level.) For IT workers as a whole, the modal level is a Bachelor's degree. This is the case for all occupational groups, except Technicians, 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 2000–2003**
**Educational Profile: Modal Achievement Level**

| Group | Modal Education Level | Next Modal Level |
|---|---|---|
| All IT | Bachelor's | College |
| Managers | Bachelor's | College |
| Engineers | Bachelor's | Post-Graduate |
| Analysts | Bachelor's | College |
| Programmers | Bachelor's | College |
| Technicians | College | Bachelor's |

## 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 12.

Ontario's predominance in the IT sector is further exhibited by the high percentage of Engineers (57 percent) and Analysts (53 percent) located in that province. Note that almost one-half of both the Programmers and the Technicians are also located in Ontario. See Table 6.

**Figure 12: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Location**

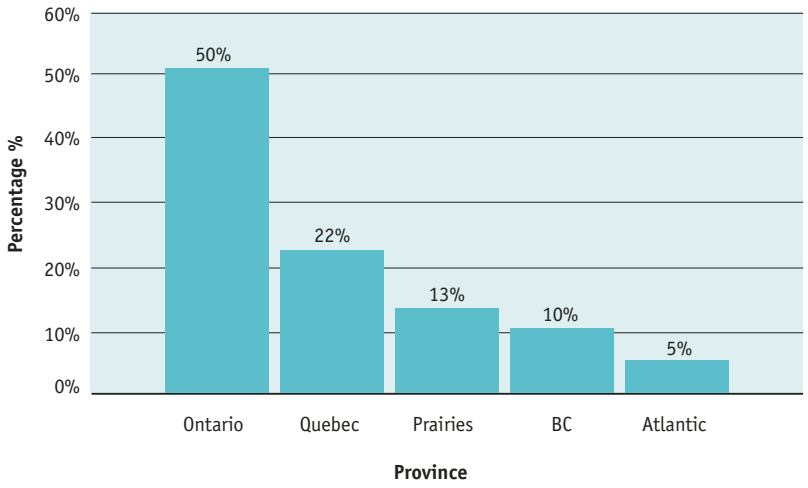



**Table 6: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Location**

| Group | Atlantic | Quebec | Ontario | Prairies | BC |
|---|---|---|---|---|---|
| All IT | 5 % | 22 % | 50 % | 13 % | 10 % |
| | | | | | |
| Managers | 4 % | 24 % | 49 % | 10 % | 12 % |
| Engineers | 3 % | 20 % | 57 % | 10 % | 10 % |
| Analysts | 3 % | 23 % | 53 % | 12 % | 9 % |
| Programmers | 4 % | 22 % | 48 % | 13 % | 11 % |
| Technicians | 7 % | 22 % | 46 % | 15 % | 10 % |

## 2.5 Job Status: The IT Labour Force 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 four percent working less than 30 hours per week. See Figure 13.

As would be expected, Managers are almost exclusively full-time workers, with only two percent stating they work part-time. Engineers are also almost exclusively (99 percent) full-time workers. Only small percentages of the other occupations work part-time. See Table 7.

## 2.6 Job Permanency: Almost All Workers Are In Permanent Jobs

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. Statistics Canada, however, 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 14, six percent of the IT workforce in the LFS survey indicated that they were temporary, term or contract employees (labelled as "contract").

**Figure 13: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Full-Time vs. Part-Time**

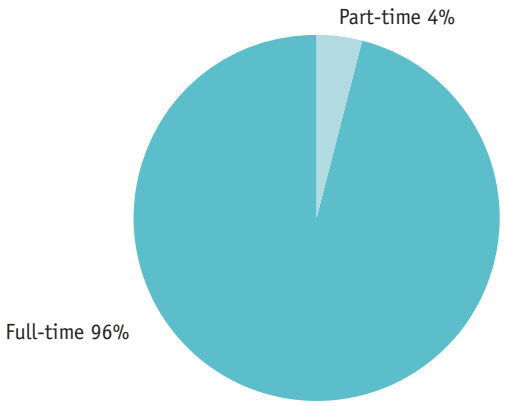
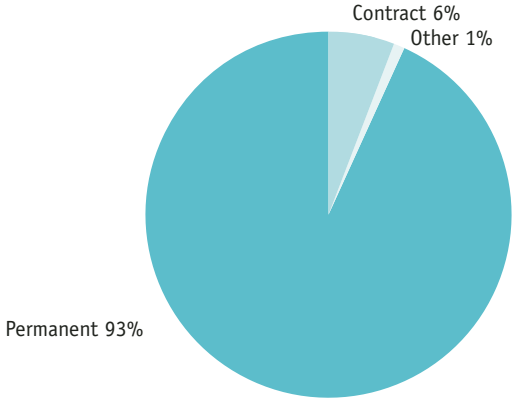



**Table 7: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Full-Time vs. Part-Time**

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

**Figure 14: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Permanent vs. Contract**



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

**Table 8: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Permanent vs. Contract**

| Group | Permanent | Contract | Other |
|---|---|---|---|
| All IT | 93 % | 6 % | 1 % |
| | | | |
| Managers | 97 % | 2 % | 1% |
| Engineers | 97 % | 3 % | |
| Analysts | 94 % | 6 % | |
| Programmers | 91 % | 7 % | 2 % |
| Technicians | 90 % | 8 % | 2 % |

## 2.7 Job Tenure Trend: Fewer Short Tenure and More Long Tenure

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. The percentage with one to two years (up to 24 months) of job tenure appears to be falling, most particularly those with a short tenure of less than 12 months. On the other hand, the percentage with longer tenure — more than four years — is rising, most particularly those with tenure of more than five years (more than 60 months). In the middle, the percentage with tenure of three to four years appears to be stable.

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 achieving tenure of four years. There is, however, considerable variability in the percentage of long tenure (more than five years) among the occupational groups. Managers and Analysts had the highest percentages of long tenure in all four years under review, and Programmers and Technicians had the lowest.

There were also considerable differences in short tenure (less than one year). Managers and Analysts had smaller percentages of short-tenure workers in most years, as a mirror image of having more workers at long tenure. Similarly, Technicians and Programmers had higher percentages of short-tenure workers, with, as noted above, lower percentages of long-tenure workers.

## 2.8 Industry Sectors: Five Industries Account For Most Employment

As shown in Table 10, five industry sectors account for 80 percent of IT jobs:

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

**Table 9: Analysis of the LFS Data for the IT Occupations 2000–2003**
**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% | 10% | 6% | 34% |
| 2002 | 19% | 16% | 12% | 10% | 7% | 37% |
| 2003 | 18% | 12% | 12% | 10% | 8% | 40% |
| Trend | Falling | Falling | Stable | Stable | Rising | Rising |
| | Falling | | Stable | | Rising | |

**Table 10: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Industry Sectors**

| Group | Prof Sci Tech | Manuf | Public Admin | Info & Culture | Fin & Ins | Total |
|---|---|---|---|---|---|---|
| All IT | 43% | 13 % | 9 % | 9 % | 7 % | 80 % |
| | | | | | | |
| Managers | 48 % | 7 % | 10 % | 12 % | 8 % | 86 % |
| Engineers | 35 % | 36 % | 2 % | 10 % | 2 % | 85 % |
| Analysts | 57 % | 6 % | 11% | 7 % | 8 % | 89 % |
| Programmers | 51 % | 11 % | 8 % | 7 % | 8 % | 85 % |
| Technicians | 28 % | 11 % | 11% | 10 % | 7 % | 66 % |

Professional, Scientific and Technical Services is the largest industry sector for all IT occupations. Engineers have a significant percentage (36 percent) of their employment in Manufacturing. Technicians are more broadly distributed across the economy, as these five industry sectors account for only 66 percent of their employment.

## 2.9 Unionization: One In Five Workers Is Covered By A Union CBA

About 20 percent of the IT labour force is covered by a union's Collective Bargaining Agreement (CBA). Only 17 percent, however, are actually union members, with the remainder covered by the CBA even though they, themselves, are not members. See Figure 15.

As indicated in Table 11, Managers and Engineers show low rates of unionization, whereas Analysts and Technicians show relatively higher rates.

**Figure 15: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Union Membership**

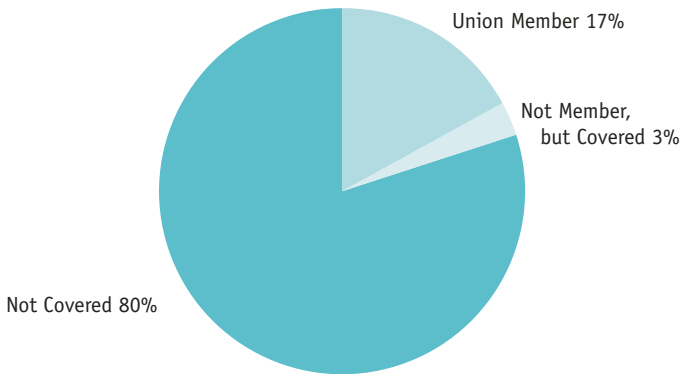



**Table 11: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Union Membership**

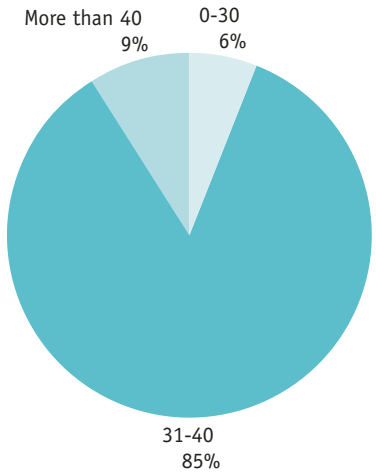
| Group | Union Member | Not, But Covered | Not Covered |
|---|---|---|---|
| All IT | 17 % | 3 % | 80 % |
| | | | |
| Managers | 10 % | 2 % | 88 % |
| Engineers | 12 % | 3 % | 85 % |
| Analysts | 19 % | 2 % | 79 % |
| Programmers | 15 % | 3 % | 82 % |
| Technicians | 22 % | 2 % | 76 % |

## 2.10 Regular Hours Worked Per Week:[2] 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 five percent have a regular workweek of less than 30 hours per week. By far, the majority of workers, a full 85 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 16.

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

**Figure 16: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Hours In Regular Workweek**




Analysts, Programmers and Technicians also show slightly higher percentages who have a regular workweek of 30 hours or less, once again a reflection of the higher proportion of part-time workers in those occupations. On the other hand, Engineers are most likely to have a regular workweek between 31 and 40 hours.

**Table 12: Analysis of the LFS Data for the IT Occupations 2000–2003**
**Profile: Hours In Regular Workweek**

| Group | 0-30 | 31-40 | 41-50 | 51-60 | 60 + |
|---|---|---|---|---|---|
| All IT | 6 % | 85 % | 7 % | 2 % | 1 % |
| | | | | | |
| Managers | 3 % | 77 % | 11 % | 8 % | 2 % |
| Engineers | 2 % | 90 % | 7 % | 1 % | 1 % |
| Analysts | 8 % | 80 % | 9 % | 3 % | 1 % |
| Programmers | 6 % | 86 % | 6 % | 2 % | 1 % |
| Technicians | 7 % | 87 % | 5 % | 1 % | |

[2] The term "regular hours worked per week" or "regular workweek" refers to the number of paid hours worked weekly, **excluding paid overtime**. The November 2002 and June 2003 reports described this data series as "total hours worked per week" and described hours in excess of 40 per week as "overtime". These two reports should have described the total hours as the "regular workweek" and described hours in excess of 40 per week as "unpaid overtime" as this data series does not include paid overtime.

## 2.11 Wages Paid Per Week: The Wage Rate Varies By IT Occupation

There is a clear progression in nominal wages paid, with Managers drawing the highest, followed by Engineers, Analysts, Programmers and Technicians in that order. One way to illustrate the ranking is through the modal salary range, as shown in Table 13.

Table 13: Analysis of the LFS Data for the IT Occupations 2000–2003
**Profile: Weekly Wages**

| Group | Modal Salary Range | Modal Category as a % of Total Group |
|---|---|---|
| All IT | $801-$1000 | 21 % |
| | | |
| Managers | > $1600 | 28 % |
| Engineers | $1201-$1400 | 19 % |
| Analysts | $1001-$1200 | 20 % |
| Programmers | $801-$1000 | 26 % |
| Technicians | $601-$800 | 26 % |

The data on weekly wages, unlike the other profile elements, do exhibit some evidence of trends over time:

- The percentage of Managers in the highest income category (more than $1,600 per week) rose in the 2000-2002 time period encompassing three years. The percentage in this category fell in 2003; at the same time, the percentage in the next lower category ($1,401-$1,600) rose.
- The percentage of Engineers in their modal range of $1,201-$1,400 per week category rose in the first three years, and the percentage in the next higher category (more than $1,600 per week) rose in the fourth year.
- The percentage of Analysts in their modal range of $1,001-$1,200 has been falling, while the percentage in the next (higher) wage category has been rising.
- The percentage of Programmers in their modal range of $801-$1,000 per week has been steady, while proportionately more Programmers enter the next (higher) wage category.
- 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 fourth, as more Technicians moved into the next (higher) wage category.

Put another way, it is estimated that the average annual wage income of each of the IT occupations has been rising over the four-year time period. The only exception might be the Manager group in 2003, when average annual wage income may have stabilized.

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