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PERSPECTIVES

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Katherine Marshall

Early training and skills development can open up opportunities and choices. Apart from schooling, teenagers can also begin to build up their human capital by working at a paid job, participating in volunteer activities, and even doing household chores. But an inordinate amount of time spent on unpaid and paid work activities could lead to unhealthy levels of stress and reduction in well-being, and negatively affect education outcomes. This article examines trends in the number of hours teenagers spend daily on education-related activities, paid work and housework.

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Wendy Pyper

Payday loans are part of the growing alternative consumer credit market in Canada. These loans are for relatively small amounts (\$100 to \$1,000) and are short-term, with repayment usually made on or before the next payday. Although the convenience of payday loans makes them attractive, concerns have been raised about questionable practices within the industry, including high borrowing costs, insufficient disclosure of contract terms, and unfair collection practices. Who uses payday loans and why?

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Cara Williams

One of the hottest commodities today is a barrel of oil. And Canada, with the second largest proven oil reserves in the world (after Saudi Arabia), is well positioned as one of the few countries outside OPEC with significant prospects for production growth. A look at economic activity and employment in the oil and gas industry, from exploration to retail.

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34 GDP and employment growth

Philip Cross

A variety of factors contributed to the slowdown of output growth relative to employment growth during 2006. However, 2006 was not unique—GDP and job growth rates have converged frequently in recent years, including most of 2002 and 2003. After reviewing the sources of last year's productivity slowdown by industry, the negative impact of labour shortages on the quality of labour, especially in western Canada, is examined.

44 Literacy and employability

Ross Finnie and Ronald Meng

The effects of literacy and numeracy skills on the employability and incomes of high school dropouts are compared with those of graduates. Regression analysis based on the demographic characteristics and family backgrounds of early school leavers indicates that increasing proficiency in literacy and numeracy significantly improves the probability of being employed, the number of hours worked, and income.

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Perspectives on Labour and Income

The quarterly for labour market and income information

Highlights

In this issue

■ The busy lives of teens ... p. 5

- In 2005, school-attending teens aged 15 to 19 averaged a 50-hour workweek (school, paid work and housework), virtually the same as adults aged 20 to 64 doing the same activities.
- On any given day, 60% of teens spent 2.3 hours on homework. Teens were significantly more likely to do homework if both parents had a university education or if they lived in an intact two-parent family; they were significantly less likely to do so if they were boys with Canadian-born parent(s) or if they had a paid job with long hours (20 or more).
- Teen involvement in paid work has increased over the past 20 years. In 2005, one in five reported working an average of five hours on the day they were interviewed. Paid work was more common on weekends and among teens aged 18 and 19.
- Four in 10 teenagers did some housework daily, averaging about an hour. Influencing factors included family type, cultural background, and community size.
- Significantly more teens with little or no stress (related to time and unpaid and paid labour) reported being very happy and/or very satisfied with life than teens with high stress (72% versus 45%).

■ Payday loans ... p. 16

- In 2005, less than 3% of families (353,300) reported having taken out a payday loan within the previous three years. Age was a key factor. Young families were three times more likely to have used payday loans than those aged 35 to 44, after controlling for other family characteristics.
- Families with \$500 or less in their bank account were significantly more likely (2.6 times) to have used payday loans than those with between \$2,001

and \$8,000. Families behind in bill or loan payments were more than four times as likely to have used payday loans.

- After controlling for other family characteristics, families without a credit card were more likely to have had a payday loan. Those who had been refused a credit card were over three times as likely.
- Almost half of families who used payday loans had no one to turn to in the face of financial difficulty, significantly higher than non-users (32%). More than one-quarter reported that they could not handle an unforeseen expenditure of \$500, almost four times the rate for non-users (7%). Nearly half of families who used payday loans could not handle an expense of \$5,000 (17% for non-users).

■ Fuelling the economy ... p. 25

- In 2006, the contribution to GDP of all sectors of the oil and gas industry exceeded \$40 billion (1997 dollars), and direct employment totalled almost 300,000.
- In the upstream sector (exploration and extraction), production and investment have become driving forces in the economy. Between 1997 and 2005, investment increased almost 140% to \$45.3 billion, and the value of oil and gas production increased over 245% to \$108 billion.
- Jobs in the oil and gas industry are much less likely to be unionized than other jobs (12% versus 32%). They are also more likely to be full-time (88% versus 82%) and held by men (72% versus 53%).
- Employment in oil and gas extraction increased 43% between 1997 and 2006 (from about 55,000 to 79,000). Average hourly earnings in 2006 were \$30.36.

- Downstream employment varied dramatically. Of the 117,000 workers, 63% worked at gas stations where hourly earnings were about \$8.60. For the 14% in petroleum and coal products manufacturing, earnings were significantly higher at just over \$28 an hour.

GDP and employment growth

... p. 34

- Typically, output growth exceeds employment growth by over 1%, reflecting the generally upward trend of productivity. But what happened in 2006 was a slowdown in output and an increase in employment.
- Several transitory factors (such as weather, unusual events, production disruptions) help explain this convergence of growth in output and employment—a phenomenon that is hardly unique to 2006.
- Most of the downturn in output per employee originated in goods-producing industries, almost all of which posted lower productivity during the first three quarters of 2006.
- Output per hour worked declined by nearly 10% in the resource sector, by itself shaving a full 1% from productivity growth last year. Mining, oil and gas led this drop, as output grew slowly while employment raced ahead by over 10%, the most of any industry in 2006.
- As well, oil production was hampered by a number of disruptions. But given the shortage of labour in the oil patch, firms kept their workers on the payroll during these interruptions.
- With tight labour markets and shortages, employers had to turn to the youngest and oldest workers—who are the least productive—and spend more time training them. In Alberta, people with no more than high school education accounted for over half of all employment growth in 2006.

Literacy and employability

... p. 44

- The functional literacy scores of both men and women who dropped out of high school were significantly below those of graduates. In addition,

dropouts reported a weaker attachment to the labour market and lower average incomes than their more educated counterparts.

- Among both graduates and non-graduates, literacy scores were consistently higher for women than for men in all employment categories.
- Having learning difficulties as a child increased the probability of leaving high school early by 19 percentage points for both sexes. The likelihood of dropping out was also significantly higher for Aboriginal persons—14 points higher for men and 13 for women.
- Having a disability did not directly influence the employability of men who had dropped out of high school, but it had a significantly adverse effect on women in terms of current and full-time employment, as well as the number of weeks worked.
- Among men, increased literacy exerted a strong positive effect on incomes for both graduates and dropouts, while the number of years of education was highly significant for dropouts only. For women, the effect of literacy was significant for graduates but not dropouts, while the return to years of education was highly significant for both.

What's new?

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From Statistics Canada

Income of Canadians
Immigrants to Canada
Labour productivity
Low income and university attendance

From other organizations

International patterns of union membership
Globalization, human resource practices and innovation
Work environments in fixed-term and permanent jobs in Finland and Canada

The busy lives of teens

Katherine Marshall

High school students are future members of the core labour force. Many of them understand that to achieve success they must do well in school and pursue some form of postsecondary education.¹ Apart from schooling, teenagers can increase their human capital in other ways, such as working at a paid job, participating in volunteer activities, and even doing household chores, which can provide many useful basic skills. Early training and skills development, in and out of school, can open up opportunities and choices in terms of attending university or finding employment. It is well accepted that investment in personal human capital increases the chances of finding meaningful, productive and higher-earning employment (Keeley 2007).

Time invested in these various skill-enhancing activities can be beneficial in other ways as well. For example, youth earnings can provide some financial aid toward a postsecondary education, and participation in housework can help alleviate some of the household responsibilities of busy parents. On the other hand, an inordinate amount of time spent on unpaid and paid work activities could lead to unhealthy levels of stress and reduce well-being, negatively affecting education outcomes.

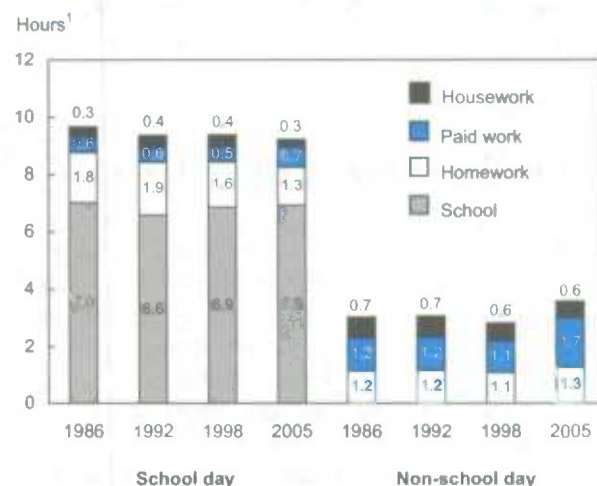
This article examines trends in the average number of daily hours teenagers spend on education-related activities, paid work and housework. It also examines in detail time differences by sex and other socio-economic characteristics of teens in 2005, as well as looking at indicators of stress related to paid and unpaid workloads. The analysis is based on time-use data that allow a detailed examination of one 24-hour day (See *Data sources and definitions*). Some information is also provided on annual volunteer work (see *Volunteering*). Although the intrinsic value of the unpaid and paid work activities surveyed cannot be determined

(for example, the quality of the schooling or part-time work experience), time spent on these activities can be viewed as a positive initiative in skill development.

Most teens put in long days

Over the past 20 years, a typical school day for a teenager aged 15 to 19 has averaged about 7 hours of school attendance, and another 2.5 hours of homework, paid work and housework (Chart A). Students also do about 3 hours of homework, paid work and housework per day on weekends and other non-school days. Mainly because of the increase in paid work since 1998, total productive work increased to 3.5 hours on weekends in 2005. Despite the stereotypical image of lounging, sleeping, nonchalant teenagers, many of them carry a heavy load. In fact, compared with nine other OECD countries with time-use sur-

Chart A Teenagers do much more than go to school



¹ Average hours spent per day for the population aged 15 to 19.
Source: Statistics Canada, General Social Survey

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veys, Canadian teens ranked first in terms of average hours spent on unpaid and paid labour during the school week (Table 1). Furthermore, averaged over the week (school and non-school days), teens did an average of 7.1 hours of unpaid and paid labour per day in 2005—virtually the same as the 7.2 hours adult Canadians aged 20 to 64 spent on the same activities. Only the distribution was different for adults, with an average of 8.3 hours of unpaid and paid work being done on weekdays, and 4.5 hours on weekends.

Generally, girls spend more time than boys on unpaid and paid work, particularly on weekends. For example, in 2005, boys put in an average of 9.1 hours on school days and 3.1 hours on weekends, while girls did 9.3 hours and 4.2 hours respectively. Averaged over the whole week, teenage girls did significantly more unpaid and paid work per day than boys—7.5 versus 6.7 hours.

Homework takes time

The demands of high school curricula and university entrance requirements render homework essential for most students. Doing homework on a daily basis remained relatively stable over the four years examined, with roughly 70% of teenagers doing some each day on school days and 40% doing some on weekends. After school attendance, homework is the second most time-consuming, work-related activity for teens. Time spent on it has edged down on school days (1.3 hours in 2005) and up on non-school days (also to 1.3 hours), totalling about 9.2 hours per week. But as in other years, girls did more—10.3 hours compared with 8.1 hours for boys (Chart B). Interestingly, in almost all other industrialized countries, girls spend more time than boys doing homework (Zuzanek and Mannell 2005, 388).

Paid work increasing among teen girls

The average time spent working at a paid job in 2005 reached 0.7 hours on school days and 1.7 hours on non-school days. This represents about 7.6 hours per week, an increase of two hours from the previous three periods. The daily paid-work participation rate also edged up slightly, mainly because of higher weekend rates—28% reported working on a non-school day in 2005, compared with 20% in 1986. In 2005, girls for the first time had a higher daily employment rate than boys (23% versus 19%). These employment trends are similar to those found with the Labour Force Survey (LFS), which asks all respondents whether they did any

Table 1 Time spent on unpaid and paid work on school days for those aged 15 to 19

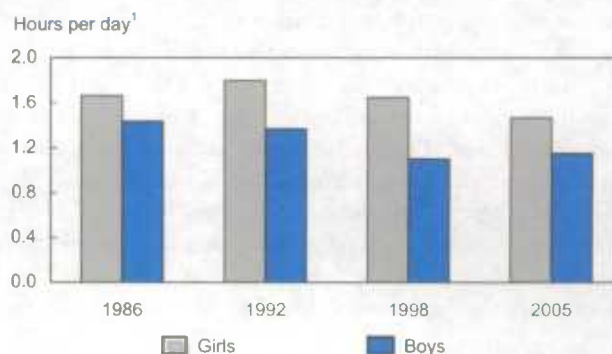
	Total time	School related	Paid work	Domestic work ¹
	Hours:minutes			
Canada (1998)	9:45	8:31	:32	:43
Belgium (1999)	9:43	8:46	:13	:44
United States (2003)	9:10	7:53	:41	:36
Australia (1997)	9:08	8:01	:23	:44
Netherlands (2000)	8:55	7:34	:40	:41
United Kingdom (2000)	8:50	7:46	:22	:42
France (1998)	8:42	8:01	:09	:32
Norway (2000)	8:37	7:19	:17	1:01
Germany (2001/02)	8:29	7:23	:08	:58
Finland (1999/00)	8:16	7:11	:08	:57

¹ Includes family care.

Source: Time use data collected by national statistical agencies (Zuzanek 2005).

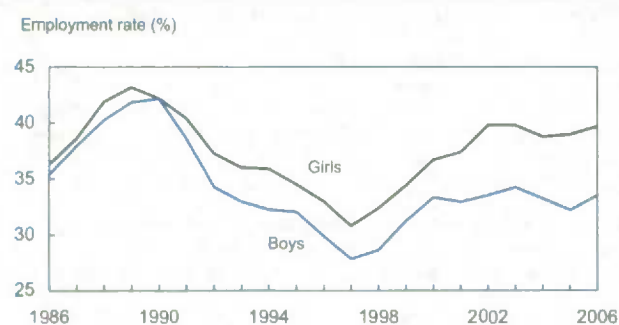
work for pay during the reference week.² In 2006, 40% of girls and 34% of boys aged 15 to 19 who were attending school reported having a job sometime during the LFS reference week, with usual weekly hours of 13.6 and 14.5 respectively (Chart C). Both surveys show teenage girls now surpassing boys in terms of employment rates and a convergence of average hours worked.³ These trends suggest that the difference

Chart B Total homework hours relatively stable, but boys still lag behind girls

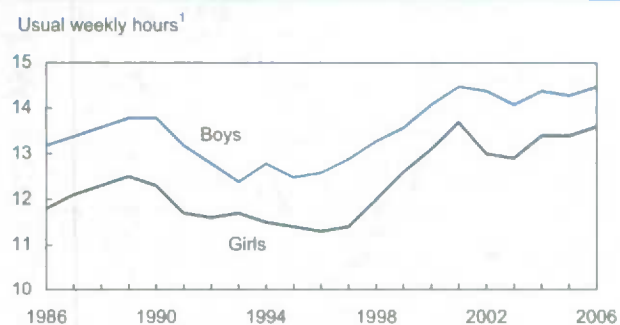


¹ Averaged over seven days for the population aged 15 to 19.
Source: Statistics Canada, General Social Survey

Chart C Since the 1990s, school-attending teen girls have been more likely to be employed than boys...



...but boys with jobs work on average one hour more per week than girls



1 For those employed.

Source: Statistics Canada, Labour Force Survey

between women's and men's labour market activity may also continue to narrow as this younger generation enters the labour force on a permanent basis.

As with their parents, less housework but more equality

Overall, daily housework has trended downward. Daily participation in housework was 39% in 2005 compared with 43% in 1986, while the average time spent doing it dropped from 28 minutes to 23 (Table 2).⁴ Although parents may not think that 23 minutes (averaged over 7 days) is much of a contribution relative to the 118 minutes they put in, it still represents 16% of total housework time.

Overall, adults have increased their daily participation in housework, but reduced the time spent on it. A significant decrease in the daily participation rate and in time spent by women has been more than offset by an increase in both for men (Marshall 2006). Interestingly, this convergence is being mirrored in

Table 2 Participation rate and average time spent on household chores, population aged 15 to 19

	All house- work	Core housework					Non-core house- work ¹
		Total	Meal prepa- ration	Meal clean- up	Indoor cleaning	Laun- dry	
Daily participation rate (%)							
1986							
Both sexes	43	39	23	19	13	F	8 ^E
Girls	53	52	30	27	18 ^E	F	F
Boys	33*	28*	17* ^E	12* ^E	9* ^E	F	11 ^E
2005							
Both sexes	39	35	26	3	9	F	9
Girls	43	39	27	4 ^E	13	F	8 ^E
Boys	36	30	26	F	F	F	11 ^E
Average minutes per day (population) ²							
1986							
Both sexes	28	21	9	5	7 ^E	F	7 ^E
Girls	34	30	13	8	9 ^E	F	F
Boys	24 ^E	13* ^E	5* ^E	2* ^E	F	F	F
2005							
Both sexes	23	17	7	1 ^E	8 ^E	F	7 ^E
Girls	27	22	8 ^E	1 ^E	12 ^E	F	F
Boys	20	11* ^E	6	F	F	F	9 ^E

1 Includes such items as outdoor cleaning, mending or sewing, interior or exterior maintenance or repairs, gardening, pet and plant care, or household paperwork.

2 Time averaged over 7 days; numbers may not add due to rounding.

* Statistically significant difference with girls at the <.05 level.

Source: Statistics Canada, General Social Survey

Data sources and definitions

Since 1985, the **General Social Survey** (GSS) has annually interviewed Canadians aged 15 and over living in the 10 provinces on a wide range of social trends and social policy issues. Using a 24-hour diary instrument, the GSS has collected detailed information on time use in four different years with varying sample sizes—1986 (16,400), 1992 (9,800), 1998 (10,700) and 2005 (19,600). Individual activities are recorded sequentially for a 24-hour **diary day**. All activities are subsequently coded to a standard international classification. Each day of the week is sampled. Therefore, calculations are usually averaged over a 7-day period (see below). While the 1986 survey collected data during the months of November and December only, all remaining cycles covered a 12-month period.

Each month, the **Labour Force Survey** (LFS) collects information on labour market activity, covering a one-week reference period, from all persons 15 and older. The survey includes questions about the usual and actual weekly hours at main and secondary jobs. The **LFS employment rate** for a particular group (for example, girls aged 15 to 19) is the employed labour force in that group expressed as a percentage of their population. For comparison purposes, the annual LFS data used in this paper were customized to align with the target population (see below). (Student status in the LFS is based on school attendance during the survey reference week).

Target population: all teenagers aged 15 to 19 who were interviewed in September through June (the traditional school year). They also had to be single and never married, living at home with at least one parent, and report their main activity as attending school. Around 80% of teenagers living at home reported going to school as their main activity. Some comparisons are made with the adult population aged 20 to 64. Those over 64 are more likely to be retired and have quite different unpaid and paid work activity patterns.

School attendance refers to the total time spent in full-time or part-time classes, special lectures, meals at school, breaks between classes, and travel to and from school. Based on an international standard, a day was designated a **school day** if 60 minutes or more were spent attending school (Zuzanek and Mannell 2005).

Homework includes all study time related to course work.

Paid work includes time spent on all activities related to a job or business. The GSS data also include time spent travelling to and from the workplace, as well as unpaid work in a family, business or farm.

Core housework covers meal preparation, meal clean-up (for example, doing the dishes or clearing the table), indoor cleaning (for example, dusting or vacuuming), and laundry. Core activities are those that are most likely done on a daily basis and demand, on average, the most time. **Non-core housework** includes such items as outdoor cleaning, mending or sewing, interior or exterior maintenance and repair, gardening, pet and plant care, household paperwork, and unpacking groceries. **Total housework** comprises core and non-core activities.

A respondent is deemed to have **immigrant parents** if both their mother and father were born outside Canada. **Canadian-born parent(s)** means that at least one parent was born in Canada.

All the teenagers in this study lived in a **two-parent intact family** (never-divorced parents), a **two-parent blended family** (one parent and one step-parent), or a **one-parent family** (either mother or father).

Parental level of education is based on the highest level achieved. The derived categories are both parents having a university degree, both having a high school diploma or less, and a 'mix' of levels. A mix means that both parents could have a postsecondary certificate or diploma, or a combination of any of the levels noted here.

An **urban** area has a minimum population of 1,000 and a population density of at least 400 persons per square kilometre. **Rural** areas comprise all territory not deemed urban.

Positive well-being is being 'very happy' and/or feeling 'very satisfied' with 'life as a whole right now' (that is, reporting a 9 or 10 on a scale of 1 to 10).

Activity participation rate (time use) indicates the proportion of the population (or sub-population) that reported spending some time on a particular activity on diary day. The participation rate is a daily rate, and unless otherwise specified is an average over a seven-day week (average of the daily rates of Sunday through Saturday diary days).

Average time spent on specific activities (time use) of the population or sub-population refers to the total time all respondents reported spending on a given activity divided by the population and averaged over a seven-day week. The average time spent on activities for participants refers to the average time spent of only those who participated in that activity on diary day, but again over seven days.

the younger generation. Daily participation in housework in 1986 was significantly higher for girls than for boys (53% versus 33%), but by 2005 the rates had converged to 43% and 36% respectively. Although not significant in either year, the gap in time spent also narrowed over the period. And, even though the boundaries between traditional male and female housework

tasks are still evident, some indication of a breakdown can be seen. For example, in 1986, on any given day, 30% of girls were likely to help with meal preparation at home, compared with only 17% of boys. By 2005, about one-quarter of both were doing some work in the kitchen each day.

Volunteering

The incidence of daily participation in volunteer work is too small for a detailed analysis. However, questions were also asked about volunteering in the past year. In 2005, more than half (54%) of all school-attending teenagers aged 15 to 19 did some unpaid volunteer work, significantly higher than the adult (20 to 64) rate (35%). Some 60% of both teen and adult volunteers put in at least five or more hours per month. These findings mirror those in national volunteer surveys (Hall et al. 2006).

Some provinces have begun to legislate mandatory community service as a requirement for high school graduation. Total requirements range from 40 hours in Ontario to 25 hours in the Northwest Territories and Nunavut (Volunteer Canada 2006). This is probably behind Ontario's significantly higher annual volunteer rate for teenagers (66%).

Volunteered¹ sometime in 2005

	Teens	Adults
	%	
Total	54	35
Boys/men (ref)	51	32
Girls/women	58	38*
British Columbia (ref)	48	37
Alberta	54	42*
Manitoba and Saskatchewan	47	43*
Ontario	66*	36
Quebec	40	26*
Nova Scotia	52	41
Other Atlantic	51	37

1 Did unpaid volunteer work for any organization.

* Significant difference with reference (ref) group at the <.05 level.

Source: Statistics Canada, General Social Survey

The next section focuses on 2005 data and examines the key factors associated with teenagers' daily participation in and time spent on the three key productive non-school activities: homework, paid work and housework. Included are results of Tobit regression models for each activity (see *Regression*).

Family characteristics and paid work linked to homework

Skills and knowledge acquisition from schooling is a teen's most important asset for ensuring a positive socio-economic outcome later in life. Strong cognitive skills enable children to do well in school and perform better on standardized tests, thus increasing the likelihood of attaining higher levels of education. Reading abilities and marks are most important and account for 34% of the gap in university attendance between

lower- and higher-income families (Frenette 2007). The second most important influence is parental education (30%), followed by parental expectations (12%) and financial constraints (12%). But what determines the gap in marks? Commitment to homework, as examined here may shed some light on this issue, since logically, good study habits improve academic performance (Bianchi and Robinson 1997). Time spent on homework can also be an indicator not only of school effort, but also of dedication and a desire to do well.

On any given day, roughly 6 in 10 teenagers aged 15 to 19 did an average of 2 hours and 17 minutes of homework (Table 3). Averaged over the population, the time spent on homework was 1 hour and 19 minutes. Mainly because of the difference in participation rate (68% versus 39%), homework effort was significantly higher on school days (26 additional minutes). So in addition to seven hours of classes and related activities, most teens spent just under two hours doing homework on school days.⁵ When controlling for other characteristics, older teens (18 and 19) also spent significantly more time per day on homework than their younger counterparts (15 to 17).

Participation in and time spent on homework was strongly influenced by both sex and cultural background. While over 7 in 10 boys with immigrant parents (both parents born outside Canada) did homework daily, and for an average of 2 hours and 37 minutes, only half of boys with Canadian-born parent(s) did so, and for just under 2 hours. The net

Regression

Tobit regression analysis is well suited to time-use data, which has a large number of non-participants in certain activities on any given day. The technique assesses all participants and non-participants by simultaneously considering both the likelihood of daily participation and the average duration of time spent. The model first treats the data as binary (0 or 1) based on whether the respondent participated in the activity on diary day (for example, homework) and then fits the positive values (minutes spent doing it) linearly. The marginal effect is another way to interpret the model coefficients and represents the impact of time spent at the mean value of each variable. The calculation is based on the probability of participating in an activity multiplied by the mean value of time spent. The analysis was run with Stata 9, which allows for the application of bootstrap weights. For other examples of Tobit analysis and time-use data, see Flood and Grasjo 1998 and Bianchi and Robinson 1997.

Table 3 Homework participation and time spent

	Population	Participation rate	Time per day (participants)	Time per day (population)	Tobit estimates ¹ predicting minutes per day
	'000	%	Hours:minutes		
Total	1,228	57	2:17	1:19	...
Age					
15 to 17	676	57	1:58	1:07	-22**
18 to 19	552	58	2:41	1:33	ref
Boys	593	54	2:09	1:09	...
Girls	635	61	2:24	1:28	...
Immigrant parents					
Boy	132	71	2:37	1:52	20
Girl	128	74	1:56	1:25	4
Canadian-born parent(s)					
Boy	453	50	1:57	:58	-21**
Girl	494	58	2:35	1:30	ref
Two parents (intact family)	862	63	2:22	1:29	ref
Two parents (blended family)	132	49	2:00	:58	-20
One parent	235	43	2:04	:53	-31***
Education level of parents					
Both university	213	69	2:48	1:57	34**
Mixed	358	61	2:10	1:19	10
Both high school or less	384	51	2:15	1:09	ref
School day	773	68	1:57	1:20	26***
Non-school day	456	39	3:16	1:17	ref
Urban	979	59	2:21	1:23	13
Rural	250	51	1:58	1:01	ref
Not employed	770	57	2:21	1:20	ref
Usual weekly job hours					
1-9	106	59	2:50	1:40	19
10-19	173	70	2:17	1:35	12
20+	172	46	1:36	:45	-32 **

1 This is the marginal effect each variable has on the time spent doing daily homework.

* Regression results statistically significant at the <.10 level; ** <.05 level, *** <.01 level from the reference (ref) group.

Source: Statistics Canada, General Social Survey, 2005

result is an overall reduced effort on homework by boys compared with girls. Controlling for other factors shows that among teens with Canadian-born parent(s), boys did significantly less homework (21 minutes per day) than girls. However, no significant difference was found for boys or girls with immigrant parents.

Being in a two-parent intact family significantly increases both the chances of doing homework and of doing more of it. Over 6 in 10 teens from such families did homework on a daily basis, compared with less than half of those in two-parent blended and lone-parent families. Controlling for other factors shows that teens in one-parent families averaged 31 minutes less

per day on homework than those in two-parent intact families. Children's activity patterns are different in one- and two-parent households. With only one adult to manage the household, less time is available to monitor activities and supervise homework (Bianchi and Robinson 1997, 335).

It appears that highly educated parents either encourage or enforce the issue of homework for their children more than parents with lower education levels. Seven in 10 teens whose parents both had university education did homework on a daily basis and spent close to three hours at it—significantly more than those whose parents had less education.⁶

Compared with students currently not employed, only those in jobs with long weekly hours (20 or more) did significantly less homework (32 minutes less per day). An ongoing debate rages about the pros and cons of having a job through high school. Although studies have found moderate employment hours to be linked with positive future earnings, occupational status and academic performance, and most show long hours (20 or more per week) to be detrimental to school performance (Ruhm 1997; Stinebrickner and Stinebrickner 2003; Zuzanek and Mannell 2005; Parent 2006).

Work for pay more common on weekends and among older teens

By the end of high school, most teenagers will have done some work for pay. Many start with informal work such as babysitting or yard work, and then move to more formal organizational settings, which offer more complex work (Mortimer et al. 1994).

Table 4 Paid work participation and time spent

	Population	Participation rate	Time per day (participants)	Time per day (population)	Tobit estimates ¹ predicting minutes per day
	'000	%	Hours:minutes		
Total	1,228	21	5:04	1:05	...
Age					
15 to 17	676	14	4:33	:39	-47***
18 to 19	552	30	5:22	1:36	ref
Boys	593	19	5:03	:59	-16
Girls	635	23	5:04	1:10	ref
Immigrant parents					
Boy	132	F	F	F	...
Girl	128	F	F	F	...
Canadian-born parent(s)					
Boy	453	21	4:59	1:01 ^E	...
Girl	494	25	5:05	1:18	...
Two parents (intact family)	862	22	5:11	1:08	ref
Two parents (blended family)	132	24 ^E	4:08 ^E	:59	7
One parent	235	18 ^E	5:15	:56 ^E	-9
Education level of parents					
Both university	213	16 ^E	3:45	:36 ^E	ref
Mixed	358	27	4:24	1:10	33*
Both high school or less	384	22	6:21	1:23	33
School day	773	17	4:00	:42	-37***
Non-school day	456	28	6:12	1:43	ref
Urban	979	21	5:03	1:05	7
Rural	250	21 ^E	5:06	1:04 ^E	ref

1 This is the marginal effect each variable has on the time spent doing daily paid work.

* Regression results statistically significant at the <.10 level; ** <.05 level, *** <.01 level from the reference (ref) group.

Source: Statistics Canada, General Social Survey, 2005

In 2005, one in five teenagers aged 15 to 19 worked at a paid job for five hours on diary day (Table 4). As expected, younger teens (15 to 17) were significantly less likely to report daily employment activity (14%) than those aged 18 or 19 (30%) and likely to spend less time at it (47 minutes less per day).⁷ Teenagers did significantly more paid work on the days they did not attend school, with 28% working just over six hours. Teens with par-

ents with lower levels of education did 33 more minutes per day of paid work than those with university-educated parents.

Housework is gender-neutral among teens with Canadian-born parents

Housework performed by children has been written about in terms of sex-role socialization—its role in teaching responsibility and life

skills—and more lightly, in terms of the never-ending battle. The introduction of compulsory schooling in the late 1800s significantly reduced the amount of children's domestic labour. The more recent reduction in housework participation by teens may be partly due to our evolving service-oriented economy and changing attitudes toward housework standards and priorities (Marshall 2006). Still, 39% of teens put in about an hour of housework daily (Table 5). Because of reduced opportunity and time, students do significantly less housework on school days than on weekends and other non-school days (9 minutes less per day). While age does not make a difference, teenagers in urban settings participated less in housework than their rural counterparts and for fewer hours. Since housework includes outdoor chores, work on farms may be part of the reason behind this difference.

Cultural background and family formation also play a role. After controlling for other factors, no significant difference was seen between girls and boys of Canadian-born parents in the effort on housework. Both had a daily participation rate of 40% and spent about one hour at it. However, compared with girls of Canadian-born parents, girls of immigrant parents did significantly more housework (17 minutes per day), and boys of immigrant parents did significantly less (11 minutes).

Finally, teenagers in two-parent blended families were much more likely to help with housework than teens in other family types. Both girls and boys with step-parents helped out more—72% of girls did housework daily for 50 minutes, 43% of boys for 66 minutes.

Table 5 Housework participation and time spent

	Population	Participation rate	Time per day (participants)	Time per day (population)	Tobit estimates ¹ predicting minutes per day
	'000	%	Hours:minutes		
Total	1,228	39	:59	:23	...
Age					
15 to 17	676	39	:51	:20	-2
18 to 19	552	40	1:08	:27	ref
Boys	593	36	:55	:20	...
Girls	635	43	1:02	:27	...
Immigrant parents					
Boy	132	24 ^E	F	F	-11*
Girl	128	48	1:32 ^E	:44 ^E	17*
Canadian-born parent(s)					
Boy	453	40	:58	:23 ^E	0
Girl	494	40	:52	:21	ref
Two parents (intact family)	862	38	1:01	:23	ref
Two parents (blended family)	132	56	:57 ^E	:32 ^E	15**
One parent	235	36	:53	:19	-1
Education level of parents					
Both university	213	38	:51 ^E	:19 ^E	ref
Mixed	358	41	:54	:22 ^E	6
Both high school or less	384	40	1:06 ^E	:26 ^E	5
School day	773	37	:44	:16	-9**
Non-school day	456	43	1:21	:35	ref
Urban	979	38	:52	:20	-11*
Rural	250	46	1:21	:37 ^E	ref

1 This is the marginal effect each variable has on the time spent doing daily housework.

* Regression results statistically significant at the <.10 level; ** <.05 level, *** <.01 level from the reference (ref) group.

Source: Statistics Canada, General Social Survey, 2005

Stress higher for girls, older teens and those who spend long hours at homework and paid work

Like adults, teenagers can feel somewhat burdened with their day-to-day unpaid and paid work responsibilities. Approximately 1 in 10 regularly felt very stressed with not having enough time in the day (Table 6). A similar proportion were quite or extremely stressed because of school, while 16%

considered themselves workaholics. Almost 4 in 10 reported being under constant pressure to accomplish more than they could handle, and 6 in 10 tended to cut back on sleep when they needed more time.⁸ One-quarter of teens reported not having any of these five stress indicators related to time and productive work, 36% mentioned one, 23% two, and 16% three or more—an average of 1.4 per teenager.

Stress-level rates have changed very little over time. Another constant has been that for each question, girls tend to report a higher level of stress than boys. In 2005, girls had significantly more stress indicators than boys (Table 6). Interestingly, adult women have also consistently reported higher work-family stress than men (Zukewich 2003; Marshall 2006). For example, in terms of feeling constant pressure to accomplish more than is manageable, women in each age group reported higher rates than men, and teenage girls aged 18 to 19 had the highest rate overall (Chart D).

Older teens also reported significantly more stress indicators than younger teens. This is understandable since the last year of high school (or first year of postsecondary schooling) is often more difficult than the first years of high school, and the need for good marks is crucial. Furthermore, 18 and 19 year-olds are on the cusp on adulthood, which brings increased independence and personal and financial responsibility. Two other factors that significantly increase stress in a teen's life included spending more than 2.5 hours per day on homework, and having 20 hours or more of paid work per week.

Girls report more stress, but self-rating of well-being equal to boys

Although most teens answered yes to at least one indicator, some stress may not necessarily be detrimental.⁹ In fact, moderate levels of stress have been positively linked with performance, energy and health. On the other hand, too much long-term stress can have negative mental and physical health effects (Farmer and Ferraro 1997; Wein 2000).

Table 6 Indicators of personal stress related to time and unpaid and paid work

	Very stressed for lack of time	Very stressed from school	Is a workaholic	Constant pressure to do more than can handle	Cut back on sleep to gain more time	Stress indicators
			%			Number
Total	11	12	16	39	64	1.4
Girls	14	15	17	46	68	1.6*
Boys (ref)	8 ^E	9	15	32	60	1.3
Age						
15 to 17 (ref)	7 ^E	9 ^E	14	36	58	1.2
18 to 19	16	17	18	44	71	1.7*
Homework on diary day¹						
None (ref)	7 ^E	7 ^E	12 ^E	40	63	1.3
Less than 1.5 hours	9 ^E	8 ^E	19 ^E	34	63	1.3
1.5 to 2.5 hours	12 ^E	15 ^E	19 ^E	36	65	1.5
Over 2.5 hours	24 ^E	27 ^E	17 ^E	48	66	1.8*
Diary day a school day (ref)	8 ^E	11	18	38	63	1.4
Non-school day	16 ^E	15 ^E	12 ^E	41	66	1.5
Not employed	10 ^E	11	14	38	60	1.4
Usual weekly hours						
1 to 9 (ref)	F	F	F	40 ^E	58	1.2
10 to 19 hours	F	F	16 ^E	38	77	1.6
20 hours or more	15 ^E	18 ^E	31 ^E	42	71	1.8*

1 The reference day of the interview (see *Data sources and definitions*).

* Statistically significant difference (<.05 level) from reference (ref) group.

Source: Statistics Canada, General Social Survey, 2005

Roughly two-thirds of all girls and boys in 2005 reported being very happy and/or very satisfied with life overall¹⁰ (Table 7). However, the higher the level of personal stress (defined as the total number of indicators), the lower the likelihood of having very high levels of happiness and/or satisfaction. Of those with three or more stress indicators, only 45% were very happy and/or very satisfied with life, compared with a 72% positive rating among teens with no stress indicators.

Higher levels of stress (three or more indicators) reduced the level of happiness and satisfaction for both girls and boys to 40% and 52% respectively (a significant drop for girls). When little or no stress was indicated, about 80% of girls

Table 7 Positive well-being by number of stress indicators related to time and unpaid and paid work

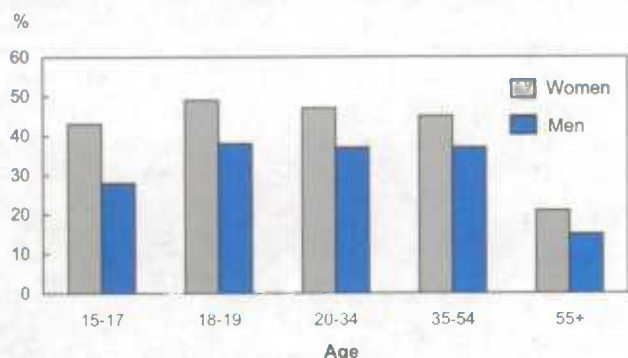
	Total	None	One	Two	Three or more
Currently feels very happy and/or very satisfied with life as a whole			%		
Both sexes	64	72	73	57*	45*
Girls	65	78	80	55*	40 ^E
Boys	63	68	66	60	52 ^E

* Statistically significant difference at the <.05 level from those with no stress indicators.
Source: Statistics Canada, General Social Survey, 2005

reported being very happy and/or very satisfied, compared with only about two-thirds of boys. Therefore, although girls reported more stress, which seems to suppress

feelings of well-being, their relatively high well-being when they had little or no stress equalized their overall rating of well-being to that of boys.¹¹

Chart D Almost half of older teenage girls feel constant pressure to accomplish more than they can handle



Source: Statistics Canada, General Social Survey, 2005

Conclusion

The vast majority of 15 to 19 year-olds living at home with their parents attend school. In 2005, these teenagers did an average of 9.2 hours of school work, homework, paid work and housework on school days and 3.5 hours on weekends. This equates to a 50-hour workweek, the same time adults aged 20 to 64 spend on these activities. The time teens spend is arguably skill-enhancing and a positive investment in their long-term personal and economic well-being.

After school attendance, homework was the most time-consuming unpaid activity for teens, with 60% doing an average of 2 hours and 20 minutes every day. Family environment is a strong predictor of this activity. Teens were significantly more likely to do homework and more of it if both parents had a university education, if they lived in a two-parent intact family, and if their parents were foreign-born. Interestingly, boys with Canadian-born parents did significantly less homework than girls in similar families, and less than either girls or boys with immigrant parents. As well, teens with demanding paid jobs (20 hours or more per week) did significantly less homework than those not employed.

Age and type of day (school versus non-school) were strongly significant predictors of teens being involved in daily paid work. And indeed, paid work was the only productive activity that witnessed an increase over time. Although some studies have shown part-time

student employment to be positively linked with personal responsibility, dependability and future productivity, an excess can interfere with school. Furthermore, this study shows that teenagers with long paid workweeks reported higher levels of personal stress.

Almost 4 in 10 teens did some housework daily, averaging about one hour. Although differences have narrowed over the past 20 years, in 2005, girls with immigrant parents did significantly more housework than boys in such families. Time spent on housework was also higher in rural areas and in two-parent blended families.

In sum, most teens have relatively high workloads, and not surprisingly, this comes with some feelings of stress. For example, 16% considered themselves workaholics, 39% felt under constant pressure to accomplish more than they could handle, and most (64%) cut back on sleep to get things done. Although self-ratings of well-being decreased as stress went up, most teens responded positively to questions about happiness and life satisfaction. Education and skill development are important activities for teenagers, but balance in life is also essential for ensuring a positive sense of well-being.

Perspectives

■ Notes

- 1 The vast majority of students graduate from high school and continue with some form of postsecondary education. According to the 1995 School Leavers Follow-up Survey, 80% of high school graduates did further schooling towards a certificate, diploma or university degree (Frank 1997).
- 2 Since the reference period in the LFS is one week as opposed to the one day in time-use surveys, the LFS employment rate will be higher since the chances of reporting some work hours are greater.
- 3 Averaged over the population (including those not employed), in 2005, girls worked longer weekly hours in both the GSS and the LFS. However, among those employed, the GSS shows both sexes working the same average number of hours per week while the LFS shows boys working one hour more.
- 4 These differences are not statistically significant.
- 5 Homework can be completed any time during a school day—for example, during the lunch hour.
- 6 Family income, although often correlated with level of education, would have been included separately as well; however, the majority of teen respondents were not able to answer the income question.

7 Half of teens aged 18 to 19 and one-quarter of those aged 15 to 17 reported having a job at some time in the past week. Among those with jobs, 45% of the older group and 27% of the younger group usually worked 20 hours or more per week.

8 Among adults aged 20 to 64, 24% reported being very stressed from lack of time and 12% very stressed from work, 28% considered themselves workaholics, 39% felt under constant pressure to do more than was manageable, and 52% cut back on sleep to gain more time. The average number of stress indicators was 1.5 for men and 1.6 for women, a statistically insignificant difference.

9 Among girls, 20% reported no stress indicators, 36% had one, 25% had two, and 19% had three or more. The equivalent distribution for boys was 29%, 36%, 21% and 14%.

10 More broadly, 97% of teenagers were very or somewhat happy, and 95% had a life satisfaction rating of at least 6 or higher out of 10. Although not discussed, 1986 data show similar levels.

11 Although the existence of time and work-related stress appears to affect girls and boys differently in terms of their sense of well-being, it must be kept in mind that stress in an adolescent's life comes from many different sources.

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Payday loans

Wendy Pyper

So-called 'fringe banking' or the 'alternative consumer credit market' is a growing industry in Canada, with outlets providing a variety of services including short-term, 'payday' loans. The business of providing payday loans is quite young, beginning only in the early 1990s. The roughly 200 outlets in the United States at that time have now grown to around 22,000, with an annual loan volume of \$40 billion (Ernst and Young 2004; Kirchhoff 2006). Rapid growth has also occurred in Canada—from a handful to approximately 1,200 in 2004 (Kitching and Starky 2006, 4). The industry consists of short-term lenders that are not deposit-taking institutions. It is therefore currently unregulated for the most part, since most statutes applicable to mainstream financial institutions do not apply (CMC 2004, 2).

While the alternative financial sector is very small compared with major financial institutions, it does handle a large number of transactions (Ramsay 2000, 4). Concerns have been raised about questionable practices within the payday loan industry, including high borrowing costs, insufficient disclosure of contract terms, unfair collection practices, and spiralling debt loads resulting from loans being rolled over¹ (Canada 2006; ACORN Canada 2004). When annualized, interest rates and other fees charged for borrowing \$100 for 14 days can range from 335% to 650%—rates that exceed the criminal interest provisions of the Criminal Code (see *Payday loans primer*).²

Families borrow money for different reasons. They may be unable to meet expenditures with their current income or assets—life-cycle stage, education, and income all affect whether a family has the needed financial resources. Also, families have different financial management skills and experiences, influencing savings and spending patterns.

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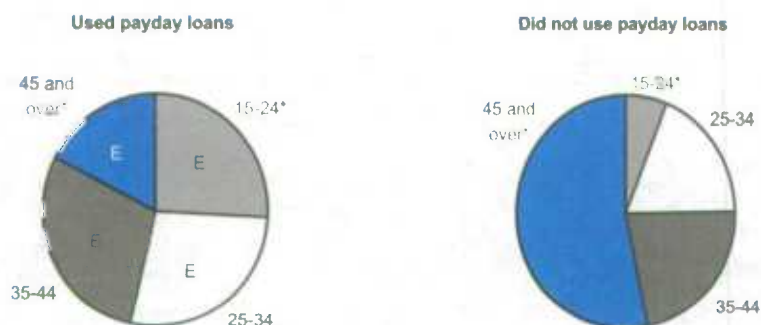
But why do people borrow money using a payday loan rather than through a bank? Some may prefer the convenience, with location, hours of operation, and ease and speed of approval playing a key role (Environics 2005). Some may choose a payday loan because they live in a community that is underserved by mainstream financial institutions (ACORN 2004). Those with a poor credit rating, a previous bankruptcy, or no bank account may not have the option of using less expensive means such as credit cards, lines of credit, or overdraft protection. Without payday loans, some consumers may be led to less desirable credit options such as loansharking and organized crime (CMC 2002).

The 2005 Survey of Financial Security (SFS) provided the first information about the use of payday loans, and this article examines the characteristics, attitudes and behaviours of these families (see *Data source and definitions*). Because many factors are interrelated (age, family type, education, and savings, among others), a logistic regression was used (see *Logistic regression*). This technique allows the relationship between, for example, age and payday-loan borrowing to be examined while holding other specified family characteristics constant.

Youth a factor in payday loans

In 2005, less than 3% of families (353,300) reported having taken out a payday loan within the previous three years. However, this varied with demographic and socio-economic characteristics (Chart A). Fully one-quarter of families who were payday loan borrowers had a major income recipient aged 15 to 24, compared with only 6% who were not.⁴ Similarly, payday-loan families less frequently had a major income recipient 45 or older (17% versus 53%). Various factors may be behind these differences, including the life cycle of savings and income as well as varying experience with financial management.

Chart A Families resorting to payday loans are more often younger



* Significant difference at the 0.05 level or less between those who borrowed through payday loans and those who did not.

Source: Statistics Canada, Survey of Financial Security, 2005

Looked at from another angle, the incidence of payday loan use varied significantly according to the age of the major income recipient (Table 1). Less than 1% of families with a major income recipient 45 or older bor-

rowed money using a payday loan, compared with 10% of young families (15 to 24). Even after controlling for key financial variables such as income and bank balances, young families were more likely to have had a payday loan. Relative to the reference group (major income recipient aged 35 to 44), young families were 3 times more likely to have used payday loans.

Family type could make a difference for several reasons.⁵ Paying bills may be more difficult if income needs to be stretched over more family members. Expenses related to raising children may also cause a family to come up short. On the surface, unattached individuals and married couples with children were significantly more likely than couples without children to have used payday loans (3.6%, 3.5%, and 1.6% respectively).

Payday loans primer

Payday loans are short-term loans for relatively small amounts (\$100 to \$1,000) offered by lenders other than banks or other regulated financial institutions. The average loan is \$280 for a period of 10 days (CPLA 2006). Generally, a borrower is required to have identification, a chequing account, and proof of regular income. Repayment is on or before the next payday. Lenders have different rules as to the amount that can be borrowed and often set a limit based on the borrower's net pay. The borrower provides a postdated cheque for the amount of the loan plus the various fees and interest charges (Kitching and Starky 2006, 1).

In 2004, roughly 1,200 locations offered payday loans in Canada. These 'fringe banking' companies also provide cheque cashing, advances on tax refunds, and money transfers. Most of their revenue is generated from payday loans and cheque cashing services (Kitching and Starky 2006, 4).

The cost to the borrower consists of interest and various fees including administration, processing, and broker's and collection fees. The Financial Consumer Agency of Canada estimates the cost of a \$300 loan taken for 14 days at \$50, equivalent to 435% per year, far higher than other short-term borrowing such as a cash advance on a credit card (\$4.13 or 36%), overdraft protection (\$2.42 or 21%), or a line of credit (\$1.15 or 10%).³

Comparing the cost of a \$300 loan taken for 14 days¹

	Payday loan	Cash advance on credit card	Overdraft protection on bank account	Borrowing from line of credit
Interest	...	2.13	2.42	1.15
Applicable fees	50.00	2.00
Total cost of loan	50.00	4.13	2.42	1.15
Loan cost as a percentage of amount borrowed ³	435	36	21	10

¹ Costs and fees are for illustration only.

² Monthly service packages often include overdraft protection.

³ Estimated annual cost calculated by adding all fees, charges and interest charged after 14 days and projecting this over a one-year period.

Source: Financial Consumer Agency of Canada, *The Cost of Payday Loans*, p.11

The cost of the loan is often set out as a fee rather than interest. One study of the costs of payday loans in the Toronto area found different fee structures: either per \$100 borrowed or a flat fee, irrespective of amount. Nominal interest rates ranged from 335% to 650% for a loan of \$100 paid back in 14 days (see *Payday loan survey*).

Payday loan survey

(Greater Toronto area for 14-day loan)

Lender	Loan		Fee as stated	Roll over	Graduated lending scheme ¹	APR ² to borrow \$100	
	Minimum	Maximum				For 7 days	For 14 days
A	\$100	Up to 30% of customer's next pay	1% face per week + \$12.99 item fee (item fee waived if repaid before next payday)	No	No	727 %	390
B ³	\$115	\$225	2.5% of face + \$1.99 item fee ⁴ + \$9.95 loan fee	No	Yes	670	335
C		30% net up to \$300	Flat fee \$15 per \$100	Yes	No	780	390
D	\$100	\$500	Graduated flat fee \$20 for \$100 \$30 for \$200 \$40 for \$300, etc.	No	Yes, will lend more and decrease charge/\$100	1,040	520
E	Representative would not talk over the phone						
F	\$200	Depends on familiarity with client	Flat fees \$5 + \$20 per \$100 (fee + administration charge)	No	No	1,300	650
G	\$100	\$500	Graduated flat fee \$25 for \$100 \$45 for \$200 \$65 for \$300, etc.	No	No	1,300	650
H	\$100	\$1,000	Flat fee \$20 per \$100	No	Yes	1,040	520

1 The outlet will initially loan a minimum amount, increasing as the customer becomes a regular client.

2 The annualized percentage rate (APR) is the nominal not effective rate. The nominal method is used for calculating consumer loans in North America and Europe, excluding the U.K. The effective method, which is a more complex actuarial calculation, is used in calculating the criminal rate of interest under section 347 of the Criminal Code. The effective rate would be significantly higher for short-term loans.

3 Cost of loan: $(2.5\% \text{ of } \$115) + \$1.99 + \$9.95 = \14.82 ; $\$14.82 + \$115 = x + 100 \rightarrow x = 12.89$; APR then calculated for 7 and 14 days.

4 An item fee is charged on the entire amount, not for each \$100 borrowed. With an item fee, borrowing \$100 has a much higher APR than borrowing a larger amount.

Source: Ramsay, Iain. *Access to Credit in the Alternative Consumer Credit Market*, 2000

However, once other demographic, financial and behavioural characteristics were controlled for, family type itself was not related to the use of payday loans.

Families whose major income recipient had a university degree less frequently reported using payday loans—only 1.3% compared with over 3% for those with high school graduation or a postsecondary certificate or diploma. This may be related to higher income or being more informed about credit options, their costs, and the consequences of carrying excessive debt (Stegman and Faris 2003, 16). However, after other family characteristics were controlled for, education was not related to the use of payday loans.

Payday loans, income and liquid savings

Often, one of the conditions of borrowing money through a payday loan is having a regular income. It is therefore not surprising that families without an earner were less likely than those with at least one earner to have had a payday loan (odds ratio of 0.3).

One might expect income to be related to payday-loan borrowing. Indeed, low-income families⁶ (after tax) were fully twice as likely as those not in low income to have used payday loans—4.6% compared with 2.3% (data not shown). A further breakdown shows that families with higher incomes had significantly lower incidence of using payday loans—1.4% for those above \$66,000 versus 3.0% for those between \$40,001 and \$66,000.

Table 1 Characteristics of families who used payday loans

	Used payday loans	Odds ratio
	%	
Total	2.7	...
Family type¹		
Unattached individual	3.6 ^{E*}	1.2
Married couple without children ² (ref)	1.6 ^E	1.0
Married couple with children	3.5 ^{E*}	1.5
Other	2.0 ^E	1.4
Major income recipient		
Age		
15 to 24	10.3 ^{E*}	3.0*
25 to 34	3.9 ^E	1.1
35 to 44 (ref)	3.5 ^E	1.0
45 and over	0.9 ^{E*}	0.5
Education		
Less than high school	2.5 ^E	0.7
High school graduate	3.5 ^E	0.8
Non-university postsecondary certificate (ref)	3.3 ^E	1.0
University degree or certificate	1.3 ^{E*}	0.6
After-tax income		
\$23,000 or less	3.5 ^E	0.4
\$23,001 to \$40,000	2.8 ^E	0.6
\$40,001 to \$66,000 (ref)	3.0 ^E	1.0
Over \$66,000	1.4 ^{E*}	0.6
Number of earners		
None	F	0.3*
One or more (ref)	3.2	1.0
Bank balance		
\$500 or less	5.6*	2.6*
\$501 to \$2,000	2.1 ^E	1.3
\$2,001 to \$8,000 (ref)	1.2 ^E	1.0
Over \$8,000	F	1.0
Household budget		
Yes	3.4*	1.6
No (ref)	2.0 ^E	1.0
Credit card		
Yes (ref)	1.9	1.0
No, refused	11.4 ^{E*}	3.6*
No, not refused	5.4 ^{E*}	2.1*
Bill or loan status		
Behind	12.2 ^{E*}	4.3*
Up-to-date (ref)	1.5	1.0

1 Elderly families are in the 'other' category

2 With or without other relatives

* Significantly different from the reference group (ref) at the 0.05 level or less.

Source: Statistics Canada, Survey of Financial Security, 2005

Available assets, particularly liquid savings in bank accounts, may also be used in times of need. Almost 6% of families with bank balances of \$500 or less had taken out a payday loan, compared with only 1% of those with balances between \$2,001 and \$8,000.⁷

Income and liquid savings are related, and as indicators of financial capability, both play a role in the use of payday loans. When the model includes family income but not liquid savings, income was significant (data not shown); however, when both were included, savings were significantly related to the use of payday loans, and income dropped out as a predictor. This illustrates that income is not the only factor—other aspects of a family's financial capability are at work when it comes to payday-loan borrowing. After controlling for other family characteristics, those with \$500 or less in their bank account were significantly more likely (2.6 times) than those with between \$2,001 and \$8,000 to have used payday loans. This is not surprising since having funds readily available to pay expenses likely means that families do not need to look elsewhere.

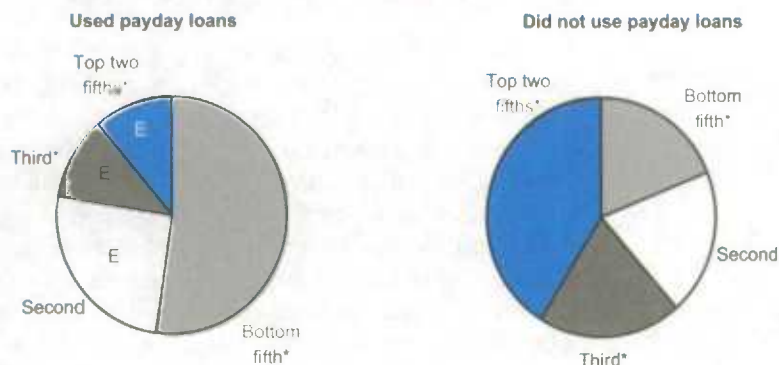
While cash held in bank accounts is one indicator of assets, net worth, the difference between total assets and total indebtedness, is a broader measure of financial health. Not surprisingly, the recourse to payday loans was higher for families at the lower end of the net worth distribution (Chart B). Indeed, 7.1% of families in the lowest fifth of net worth used payday loans, compared with only 1.5% of those in the middle fifth (data not shown). Over half of families who used payday loans were in the lowest 20% of net worth, and nearly 8 in 10 were in the bottom 40%.

Homeownership, a non-liquid asset and an indicator of life-cycle stage, is also tied to the incidence of payday loans. While less than 2% of homeowners with a mortgage had borrowed money through a payday loan, renters were almost three times as likely to have resorted to this method. Looked at another way, 7 in 10 families who used payday loans were renters (37% for those who had not borrowed). Possible reasons for these differences include the influence of age and income (Lefebvre 2002; Luffman 2006).

Financial strategies

Credit cards are a convenient substitute for carrying cash. Over 8 in 10 families who had not used payday loans had credit cards, substantially more than the less than 6 in 10 families who were payday-loan users (Table 2). Not having a credit card may mean having

Chart B Fully half of families who used payday loans were in the bottom fifth of the net worth distribution



* Significant difference at the 0.05 level or less between those who borrowed through payday loans and those who did not.

Source: Statistics Canada, Survey of Financial Security, 2005

to find alternative ways to deal with a short-term lack of funds. Less than 2% of families with a credit card resorted to payday loans (Table 1). Among families without a credit card and who had not been refused one, the incidence stood at 5.4%; for those who had been refused, the incidence reached 11.4%. Even after controlling for other family characteristics, families who did not have a credit card were more likely to have had a payday loan—twice as likely for those not refused a card and more than three times as likely for those who had been refused.

While using a credit card is not necessarily problematic, paying only a portion of the monthly balance by

Data source and definitions

The **Survey of Financial Security (SFS)**, which covered about 5,300 families, collected information on the assets and debts of families and individuals between May and July 2005. Residents of the territories, households on Indian reserves, full-time members of the Armed Forces, and residents of institutions were excluded. Information was collected on the value of all major financial and non-financial assets as well as money owed. The SFS included a 'behaviours and attitudes' section, which asked about the way finances were managed.

While the SFS asked respondents about borrowing money through payday loans in the past three years, other questions were not based on this time frame. Some related to the time of the survey (age, family type, education, assets and debts, presence of a budget, use of credit cards), some were based on 2004 (income, being behind in payments, and several financial strategy questions), and declaring bankruptcy was based on having ever declared bankruptcy. While these differences in time frame may lead to some error, the methodology used in this study follows that used by Stegman and Faris (2003). Additionally, due to recall bias, respondents are less likely to remember events that took place long ago (Horvath 1982; Hassan 2006), so most of the reported use of payday loans is likely to be closely contemporaneous with the control variables.

Borrowed money through payday loans: The relevant SFS question was:

"In the past 3 years, have (any of) you borrowed money through a payday loan?"

Family: An economic family or an unattached individual. An **economic family** is a group of two or more persons living in the same dwelling and related to each other by blood, marriage, common law or adoption. An **unattached individual** is a non-elderly person living alone or with unrelated persons such as roommates or lodgers. **Married couples with children** are non-elderly couples (legally married or common-law) living with children (birth, adopted, step or foster) under 18. **Married couples without children** are non-elderly couples without children under 18. **Other families** include elderly families (65 or older) and lone-parent families.

The **major income recipient** is the person in the family with the highest income before tax.

A family's **net worth** is the difference between total assets and total indebtedness. Families are ranked by net worth and divided into five equal groups.

Balance in savings and chequing accounts excludes registered savings plans.

The **low-income cutoff** represents the income level at which a family may be in strained circumstances because it has to spend a greater proportion of its income on necessities than an average family of similar size. Separate cutoffs are calculated for seven family and five community sizes. See Statistics Canada (2006) for more details.

Table 2 Family behaviours and attitudes

	Used payday loan	
	Yes	No
Indicators of previous financial difficulties		%
Behind two months or more in a rent or mortgage payment (2004)	15 ^E	2*
Ever declared bankruptcy or made a formal or informal arrangement with a creditor	15 ^E	6*
Financial management and spending		
Spending in 2004 ¹		
Exceeded income	40	18*
Equalled income	39	40
Was less than income	21 ^E	42*
Credit card		
Yes	57	83*
Balance usually paid off each month	55	72*
No	43	17*
Had been refused	33 ^E	18
Other financial strategies (2004)		
Used an asset to pay a debt	16 ^E	5*
Pawned or sold possessions	19 ^E	2*
Strategies in difficult financial times		
Someone to turn to for assistance		
No	48	32*
Yes	49	56
Not necessary	F	12

1 Excluding any money spent on investments or the purchase of a home or automobile.

* Significant difference at the 0.05 level or less between families who used payday loans and those who did not.

Source: Statistics Canada, Survey of Financial Security, 2005

the due date incurs interest charges.⁸ Among credit card holders, almost three-quarters of those who had not had a payday loan usually paid off their balance each month, compared with just over half of payday-loan users (Table 2).

Falling behind in bill payments may also indicate difficulty coping with expenses or general financial management. Families who had fallen behind in bills or loans were significantly more likely than those who had not fallen behind to use payday loans (4.3 times), even after controlling for other characteristics of the family.

Several other indicators of financial history confirm that families who borrowed money through a payday loan often faced financial difficulties. For example, not only were payday loan users more likely to fall behind

in bill or loan payments, but also 1 in 7 fell behind in rent or mortgage payments, far more than those who had not used payday loans (1 in 40).

For many payday loan users, spending often exceeded income...

Spending patterns may be different in families with payday loans. For them, spending often exceeds income, suggesting a difficulty in making ends meet from month to month. Four in 10 said that their spending exceeded their income, substantially more than families who had not used payday loans (less than 2 in 10). Spending versus income may be influenced by one's stage in the life cycle.⁹ For example, young families may be faced with larger material needs as they build their household and invest in themselves through education and training. Older families, on the other hand, have had more time to build savings, which can be used in times of financial need.

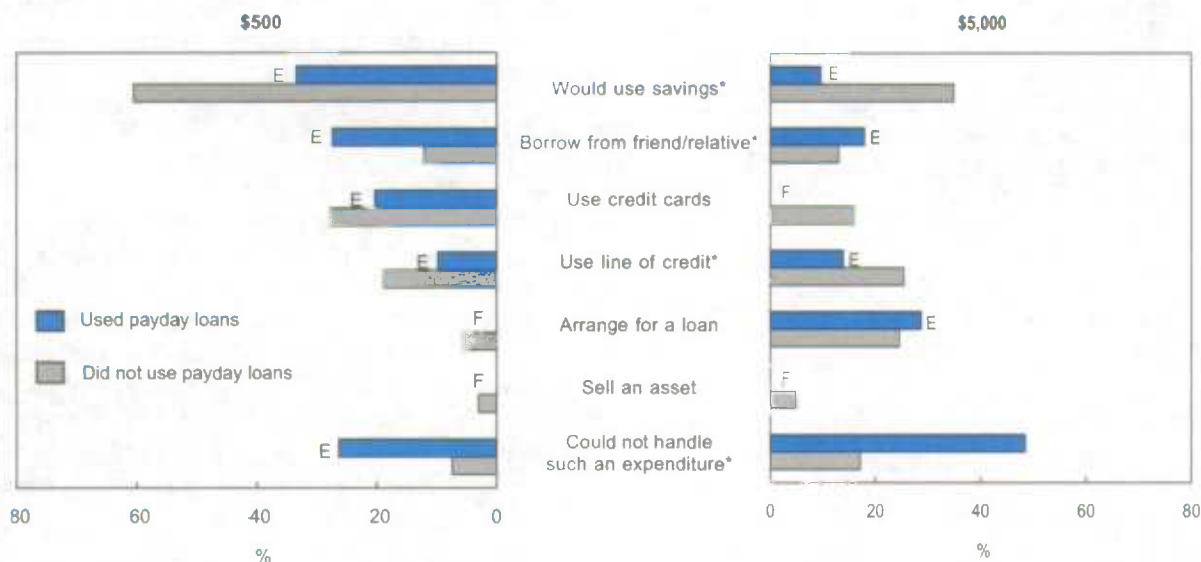
...and they more often sold assets or possessions

Strategies other than credit cards can be used to deal with debt. These include selling an asset or selling possessions to a pawnbroker. Among payday-loan families, one-sixth had sold an asset to pay a debt and one-fifth had dealt with a pawnbroker. This was significantly higher than families who had not had a payday loan (1 in 20 and 1 in 50 respectively). These extreme measures indicate a level of dire need. Also, payday loan users were more than twice as likely to have previously declared bankruptcy, an even stronger indicator of financial trouble (15% versus 6%).¹⁰

Payday loan users often had no recourse

Almost half of families who used payday loans reported that they had no one to turn to for financial assistance in the face of financial difficulty, significantly more than other families (32%) (Table 2). It seems these families have few options for help. For a closer look at the options, the survey asked other 'what if' questions regarding possible ways of coping in difficult times.

Methods of dealing with an unforeseen expenditure also differed substantially between payday loan users and non-users (Chart C). For an expenditure of \$500, 6 in 10 non-user families said they would use savings, almost double the proportion of the user families (33%). Also, the non-users more often stated that they would use a line of credit (19% versus 10%).¹¹

Chart C Methods to deal with unforeseen expenditures differ

* Significant difference at the 0.05 level or less between families who used payday loans and those who did not.
Source: Statistics Canada, Survey of Financial Security, 2005

Borrowing from a friend or relative was mentioned more often by payday loan users—27% compared with only 12%. More than one-quarter of these families could not handle an unforeseen expenditure of \$500, almost four times the rate for non-users (7%).

An unexpected expense of \$5,000 is a much greater hurdle. For something of this magnitude, 35% of families with no payday loans would use savings and 25% would use a line of credit; the comparable figures for

families with payday loans were 10% and 14%. These more mainstream financial approaches were mentioned more frequently by non-users of payday loans. Only 17% of non-users could not handle such an expense at all, compared with almost half of user families. Clearly, options differ, likely because of a combination of financial circumstances and differing ties to other credit vehicles.

Summary

Payday loans are a small but growing part of the alternative consumer credit market providing financial services in Canada. Reports of exorbitant interest rates abound and the need to add controls and regulation to the industry has been discussed.¹²

The Survey of Financial Security sheds light on who borrows through payday loans and what family characteristics are related to using them. Age is key. Young families were three times more likely to have used payday loans than those aged 35 to 44, after controlling for other family characteristics.

Financial attributes are also related to the use of payday loans, even after controlling for other characteristics. Families with little savings or no credit cards,

Logistic regression

Logistic regression estimates the probability of an event occurring (for example, borrowing money through a payday loan) based on a set of explanatory variables. This technique allows the relationship between each explanatory variable and the event to be examined, while holding all other specified variables constant. Odds ratios are reported based on the regression. They indicate whether certain variables increase or decrease the odds of using payday loans compared with a reference group, controlling for all other explanatory variables in the model. This article uses bootstrap weights to estimate the standard errors to account for the complex sample design used in the SFS.

particularly those who had been refused, were significantly more likely to have used payday loans. Without these options and faced with financial shortfall, these families may have turned to payday loans in an effort to bridge the gap between paycheques.

Families behind in bill or loan payments were more than four times as likely to have used payday loans, even after controlling for other key characteristics such as income and savings. Four in 10 families who borrowed money through payday loans had spending that exceeded income, substantially more than families who had not used payday loans. These factors indicate a relationship between financial difficulty and the use of payday loans.

Almost half of families who used payday loans had no one to turn to if they faced financial difficulty. More than one-quarter reported that they could not handle an unforeseen expenditure of \$500, and nearly half could not handle one of \$5,000. Mainstream methods such as using savings or lines of credit were mentioned less frequently by these families.

While the Survey of Financial Security does not directly tell us why families borrow through payday loans, important indicators of past and current financial difficulties suggest that families who do have few other options.

Perspectives

■ Notes

1 A rollover is the extension of a loan for a fee—typically a penalty fee plus an administrative fee and charges for the new loan (CMC 2004).

2 The Canadian Payday Loan Association argued that the annualized percentage rate is not an appropriate way of representing the cost of payday loans since they are meant to be short-term (Canada 2005, 31).

3 See Note 2.

4 Only a minuscule number of families had a major income recipient between 15 and 17.

5 The SFS is done at the family level. (“Has anyone in the family borrowed money through a payday loan?”) Since an unattached individual is a one-person family, only they could potentially use this service, compared with more than one member of a couple.

6 For details on how low-income cutoffs are calculated, see Statistics Canada (2006).

7 In relation to questions regarding net worth, the SFS asked about assets and debts at the time of the survey in May or June 2005. Here respondents were asked details of savings and chequing account balances.

8 See table in *Payday loans primer* for a comparison of the cost of borrowing using payday loans, cash advances on credit cards, overdraft protection, and lines of credit.

9 The life-cycle approach to household spending is summarized in Chawla and Wannell (2005). The life of a household is divided into three stages: *borrowing*, where newly formed households invest in themselves in expectation of rising income; *accumulation*, where households save surplus income in anticipation of retirement; and *dis-saving*, as households draw down their savings to finance retirement. These stages can be approximately allocated based on the age of the reference person: under 45, 45 to 64, and 65 or older.

10 Bankruptcy was not included in the logistic regression model because the bankruptcy could have taken place at any time in the past. Also, adding too many related variables to the model can lead to multicollinearity.

11 While the SFS asked respondents about outstanding balances on lines of credit, it did not ask specifically if they had a line of credit available.

12 Three provinces—Manitoba, Nova Scotia and Saskatchewan—have introduced legislation specifically applicable to payday lending. In Manitoba and Nova Scotia, the legislation has passed into law. Details of the legislation are available as follows:

Manitoba (Bill 25, 5th session, 38th Legislature):
<http://web2.gov.mb.ca/laws/statutes/2006/c03106c.php>

Nova Scotia (Bill 87, 1st session, 70th General Assembly):
www.gov.ns.ca/legislature/legc/bills/60th_1st/3rd_read/b087.htm

Saskatchewan (Bill 43, 3rd session, 25th Legislature):
www.legassembly.sk.ca/bills/PDFs/Bill-43.pdf.

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Fuelling the economy

Cara Williams

One of the hottest commodities today is a barrel of oil. While the price has fluctuated dramatically over the last several years, it has remained substantially higher than the December 2001 price of \$15.95.¹ The reasons for the increase are multi-faceted. First, world demand is increasing, particularly in newly developed countries such as China and India. Indeed, demand rose more in 2004 than in any other year since 1976, mainly because of China, which is now the second biggest user of oil after the United States. On the supply side, geopolitical conflicts have destabilized oil supplies, leading to increased prices. Also, much of the oil is now more difficult to extract—wells are deeper, drilling occurs offshore, special technology is needed for the oil sands. This translates to higher production costs and higher prices for consumers (see *The downside*). Canada is currently the eighth-largest producer of crude oil at about 2.5 million barrels per day. Current world demand is approximately 84 million barrels per day (CAPP n.d. a), while production stands at about 86 million barrels (Government of Alberta, DOE n.d. a).

With the second largest proven oil reserves in the world (after Saudi Arabia), Canada is well positioned as one of the few countries outside OPEC with significant prospects for production growth (National Energy Board 2005). Indeed, increased demand coupled with price hikes have led to consistent growth in the energy sector. In particular, the oil sands, which hold an estimated 175 billion barrels of oil, have seen further development (CAPP n.d. b).

Natural gas is also important, both for export and domestic consumption. Currently, Canada is the second largest exporter of natural gas after Russia (Government of Alberta n.d.). As oil prices have increased, so too have natural gas prices (although not for all the

same reasons). In general, the oil and gas industry in Canada is likely to continue to grow in terms of capital investment, revenue, jobs and wages.

The downside

Any economic boom has positive and negative implications. On the positive side, increased economic activity usually translates into increased capital investment, as well as employment and wage growth. However, negative implications also arise—particularly if economic growth occurs rapidly. For example, infrastructure may not be able to keep up with growth in the affected region, leading to housing shortages and overcrowding in schools and hospitals. Because of the housing shortage in Fort McMurray, Alberta, hundreds of temporary housing units have had to be established for workers drawn to the region. Additionally, a boom such as the current one in Alberta can result in labour shortages in all industries, driving up wages and subsequently prices across the board. However, wage increases in Alberta have not been able to attract the needed labour, and many businesses have had to reduce their hours as a result of staffing shortages (Bennett 2006).

The oil and gas sector also has significant environmental impact on water, air and land. Environment Canada estimated that the energy sector as a whole (production and processing of oil, natural gas and coal; petroleum refining; and transportation by pipeline) accounted for about 20% of Canada's total greenhouse gas emissions in 2004 (Environment Canada et al. 2006). While all oil and gas sectors are working towards decreasing their energy use and developing or adopting pollution abatement technologies, it is clear that as production increases it will become increasingly more important to find and develop methods of reducing emissions.

The oil and gas industry also uses a significant amount of water. It is used for conventional drilling, for oil sands surface mining, and for *in situ* oil sands production where the sands are too deep to mine. Water is also used in oil sands upgraders, and in refineries and petrochemical companies (for more specific usages, see www.waterforlife.gov.ab.ca). The upstream component of oil and gas accounts for about 7% of total water allocation in Alberta (about 37% of groundwater and about 6% of surface water). In response to concern over water usage, oil sands producers are now recycling up to 90% of the water they use (Centre for Energy n.d. b).

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Three component sectors define oil and gas: upstream, midstream, and downstream (see *Component industries in oil and gas*). The article first looks at economic activity in each component sector and then analyzes employment (see *Data sources and definitions*). Only effects directly related to the oil and gas industry are examined. The substantial spin-off effects into other industries such as construction and services are not included.

Economic activity

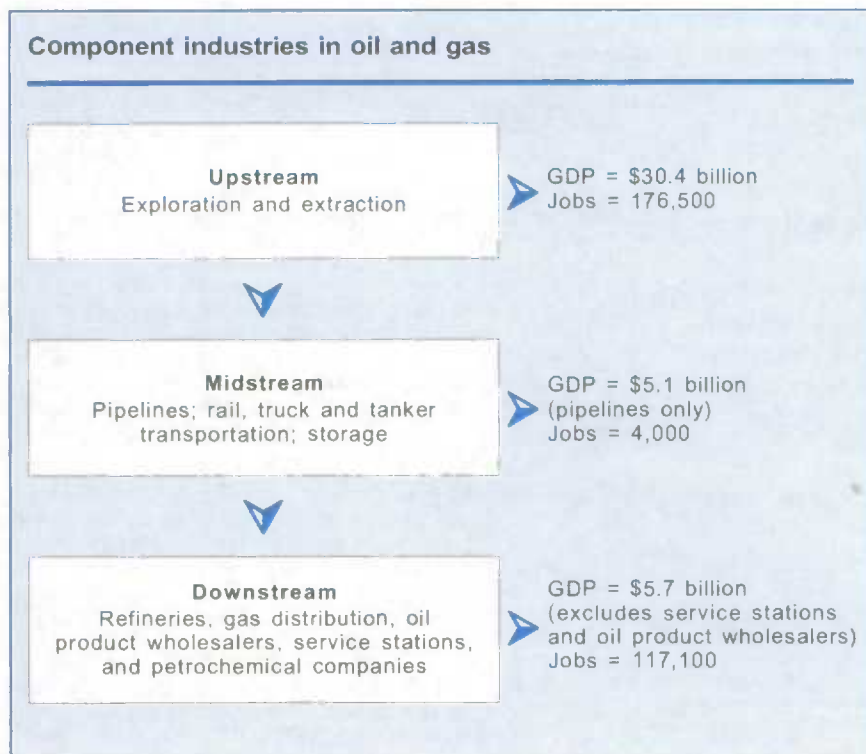
Upstream

As the price of oil and gas increases, so too does exploration and extraction of both conventional and non-conventional sources (see *The basics of oil and gas*). In 2004, the number of oil and gas wells drilled stood at 24,874, up from 18,480 in 2000. Production from Canada's enormous supply of non-conventional energy has also grown rapidly. Indeed, 42% of all domestic oil output in 2004 came from oil sands, and most of the increase in natural gas production since 2004 has come from coal-based methane (Cross 2006).

Table 1 Production of crude oil

	Total	Conventional		Non-conventional	
		Cubic metres ('000)	%	Cubic metres ('000)	%
1997	112,670	82,066	73	30,604	27
1998	117,082	82,847	71	34,235	29
1999	111,028	78,090	70	32,938	30
2000	116,360	80,971	70	35,389	30
2001	118,165	79,822	68	38,343	32
2002	126,877	83,901	66	42,976	34
2003	134,748	84,690	63	50,058	37
2004	139,286	81,769	59	57,517	41
2005	136,177	78,918	58	57,258	42

Source: Statistics Canada, Manufacturing, Construction and Energy Division

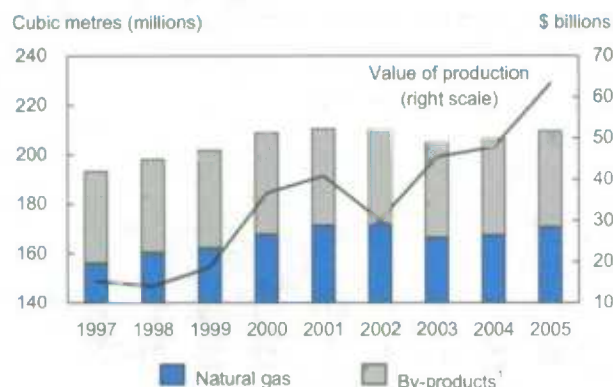


Sources: Statistics Canada, Income and Expenditure Accounts; Labour Force Survey, 2006

In terms of volume, crude oil production increased by 21% between 1997 and 2005. Over the same period, the value of production increased by 184% (Table 1). Total crude production in 2005 was 136,177,000 cubic metres with a value at \$45.2 billion, up from 112,670,000 cubic metres and a value of \$15.9 billion in 1997. Natural gas production (including by-products) increased by about 8% between 1997 and 2005 (from 193,320,000 to 209,534,000 cubic metres), but because of higher prices, the value of production increased by more than 312% (Chart A).

Since Canada's production of oil and natural gas surpasses domestic needs, much of it is sold on the world market. Not surprisingly then, crude oil and natural gas exports play an important role in international trade. In 2006 they

Chart A While natural gas production volume increased 8%, its value quadrupled



1 Includes pentane plus, propane, butane and ethane.
Source: Statistics Canada, Manufacturing, Construction and Energy Division

totalled \$64.9 billion, up from \$20 billion in 1997, with virtually all exports headed to the United States (Rowat 2006). Nevertheless, in central Canada, oil is imported for refining and consumption or re-export (950 Mb/d in 2004) (National Energy Board n.d.).

The extraction of oil and gas is complex and capital-intensive, particularly for non-conventional sources. When oil and gas prices are high, exploration and extraction of these reserves increase. Recent record prices have meant that capital expenditures for oil and gas extraction have grown substantially, far exceeding those in other industries. In 2005, capital investment in the oil and gas extraction industry (both conventional and non-conventional) was about \$45.3 billion, more than double the \$18.9 billion in 1997 (Chart B).

Because much of Canada's oil reserves are in non-conventional sources (for example, oil sands), much of the increase in capital expenditures went to this area. Indeed, capital expenditures for non-conventional crude oil increased a staggering 450% between 1997 and 2005, from \$1.9 to \$10.4 billion, illustrating the growing importance of this source. Given this enormous clout in the economy, it is not surprising that the upstream oil and gas sector contributed more than \$30 billion (1997 dollars) to GDP in 2006, up from \$25 billion in 1997, and is by far the largest of the three component sectors.

Data sources and definitions

This paper draws on several Statistics Canada sources.

Data for crude oil and natural gas production and capital investment in the oil and gas extraction industry are from the Manufacturing, Construction and Energy Division.

Pipeline data originate from the **Survey of Monthly Oil Transport** and **Monthly Oil Pipeline Statement**, which cover the activities of all pipelines in Canada receiving and delivering crude oils, liquefied petroleum gases (propane, butane and ethane), and refined petroleum products.

Information on the number of gas stations and sales is from the **Retail Store Survey** and **Retail Chain Survey**.

All employment figures (including average hourly earnings) are from the **Labour Force Survey** and based on the North American Industry Classification System (NAICS).

Upstream employment

Oil and gas extraction: NAICS 2111

Support activities for mining and oil and gas extraction: NAICS 2131

Midstream employment

Pipeline employment, which includes pipeline transportation of crude oil: NAICS 4861; pipeline transportation of natural gas: NAICS 4862; and other pipeline transportation: NAICS 4869.

Because it is impossible to separate out employment related to the oil and gas industry for rail, truck and tanker transportation or for storage of oil and gas products, these have not been included. Thus the figures may somewhat underestimate total midstream employment.

Downstream employment

Petroleum and coal products manufacturing (includes refineries and petroleum and coal products manufacturing): NAICS 3241

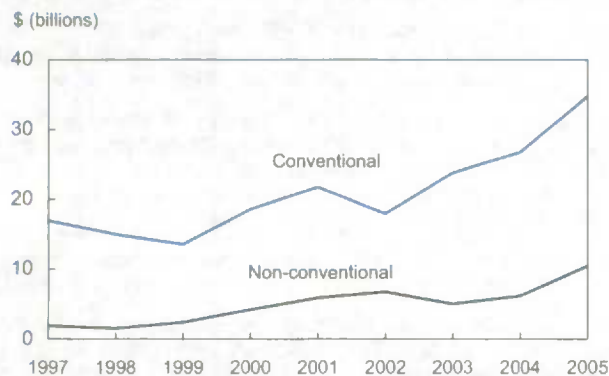
Natural gas distribution (utilities): NAICS 2212

Petroleum product wholesaler distributors: NAICS 4121

Gasoline stations: NAICS 4471

Midstream

The midstream sector comprises pipelines; rail, truck and tanker transportation; and storage. Pipelines alone contributed about \$5 billion to GDP in 2006³ with approximately 95% of Canada's crude oil and natural gas transported by this method (Centre for Energy n.d. a). Given the size of the country, it is not surprising that Canada has the longest pipeline network in the world for crude oil. Originally constructed in 1950 to run from Edmonton to Superior, Wisconsin, the Enbridge system (originally called the Interprovincial Pipeline) has been expanded over the years, and now

Chart B Capital investment in extraction has increased sharply in recent years

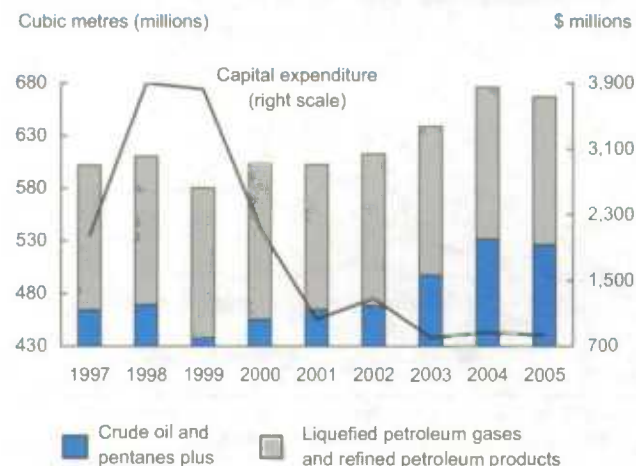
Source: Statistics Canada, Manufacturing, Construction and Energy Division

runs from Norman Wells in the Northwest Territories, through Alberta, south to Oklahoma, and east to refineries in Chicago and central Canada. Today 700,000 km of different-sized oil and gas pipelines criss-cross Canada (Government of Alberta, DOE n.d. b). The Canadian-operated ones transported 667 million cubic metres of crude oil and other petroleum products across the country in 2005, up from 602 in 1997, with capital expenditures in 2005 of about \$835 million (Chart C).

While pipeline movements of oil and gas are extensive, rail is another important distribution channel, with many shipments originating in Alberta and eastern Canada destined for customers in Canada, the U.S. and overseas. Of all petroleum products and hydrocarbon gases transported in 2004, 16.4 million tonnes were at some point carried by rail. Although Statistics Canada does not produce figures on freight revenues by type of commodity shipped, the 2005 annual report from CN rail noted that 16% (or \$1,096 million) of total freight revenue was associated with petroleum and chemical shipments, illustrating the economic importance of the midstream sector.

Downstream

The downstream component is made up of refining and marketing, which includes refineries, gas distribution utilities, oil product wholesalers, service stations, and petrochemical companies. The GDP contribution

Chart C After major expenditures in the late 1990s, Canadian-owned pipelines have recently been spending much less

Sources: Statistics Canada, Monthly Oil Pipeline Transport; Monthly Oil Pipeline Statement

of the downstream sector (not including the wholesale or retail petroleum industries) was about \$5.7 billion in 2006 (1997 dollars).

Refineries process crude oil by sorting, splitting, reassembling and blending hydrocarbons. In 2006, 19 refineries were operating in Canada with a total refining capacity of about 330,000 cubic metres (about two million barrels) per day. Of the 19 refineries, 2 produced either asphalt or petrochemicals, while the others produced a range of petroleum products. Refinery utilization has been high over the last five years and is expected to remain at about 90% capacity (National Energy Board n.d.). Refineries in western Canada process only Canadian crude oil, while those in the rest of the country process both imported and domestic.

Petroleum product wholesalers (establishments primarily engaged in wholesaling crude oil, liquefied petroleum gases, heating oil, and other refined petroleum products) have seen pronounced sales growth over the past few years. Estimates of wholesale sales have increased from approximately \$60 billion in 2001 to \$87.5 billion in 2004.

The basics of oil and gas

Crude oil

Crude oil is a naturally occurring mixture of hydrocarbon compounds trapped in underground formations. Oil was produced as ancient vegetation and marine life died and settled on the bottom of streams, lakes, seas and oceans. Sediment covered this organic material, and subsequent heat and pressure changed it into oil. The vast majority of Canada's oil comes from the Western Canada Sedimentary Basin (WCSB) and offshore eastern Canada. The WCSB produces 88% of all oil in the country, the majority within Alberta. In eastern Canada, oil is found in and offshore Newfoundland and Labrador and off Nova Scotia.

Conventional crude oil comprises light, medium and heavy hydrocarbons. Light crude flows easily and when refined produces large amounts of transportation fuel such as gasoline, diesel and jet fuel. Heavy crude requires extra pumping or dilution to flow easily, producing primarily heating oil and a smaller amount of transportation fuel. Conventional crude oil is extracted by well drilling. It is called 'sweet' if it contains only small amounts of sulphur and 'sour' if the sulphur content is high. The average recovery rate for oil is about 30%—meaning that more than two-thirds of it stays in the ground and is not recovered because of cost or current technology (CAPP n.d. c).

Non-conventional crude oil differs from conventional in where it is found and how it is extracted. In Canada, the largest non-conventional source is the oil sands of Alberta (formerly called tar sands). The oil here is known as bitumen, and the sand and water in which it is found needs to be removed. Because bitumen is too thick to flow, it must be heated or diluted with lighter hydrocarbons. It takes about two tonnes of oil sand to produce one barrel of oil (Government of Alberta, DOE n.d. c).²

Currently, about 3,000 products are derived from crude oil. These include gasoline, ink, crayons, bubble gum, deodorant, dishwashing liquid, tires, ammonia, heart valves, eyeglasses, waxes, plastics, synthetic rubber, and asphalt.

Natural gas

This part of the country seems to have all hell for a basement and the only trapdoor appears to be in Medicine Hat.
—Rudyard Kipling on a visit to Alberta in 1907

In some parts of Canada, natural gas has been a source of energy since the 1800s, but it wasn't until the late 1950s and the completion of the TransCanada Pipeline that use of natural gas became widespread. Since then, demand has grown steadily, and today Canada is the third largest producer of natural gas in the world. Domestically, natural gas heats almost 50% of homes and is the main source of energy for 51% of the manufacturing sector (Canadian Gas Association n.d.).

Like crude oil, natural gas is a hydrocarbon-compound fossil fuel. Its main component is methane, but it also contains ethane, propane and butane. It is conventionally found in reservoirs several metres or kilometres below the earth's surface. Non-conventional sources include coal-bed methane, tight gas sands, gas shales, and gas hydrates, all of which are more difficult to extract (for more information see the Centre for Energy at www.centreforenergy.com).

Natural gas is largely found in Alberta, but British Columbia and Saskatchewan also have resources. Known resources of recoverable conventional natural gas are estimated to be about 58 trillion cubic feet. Another 500 trillion cubic feet are thought to be available from coal-bed methane. However, it is not known how much of this can be recovered (Energy Information Administration 2007).

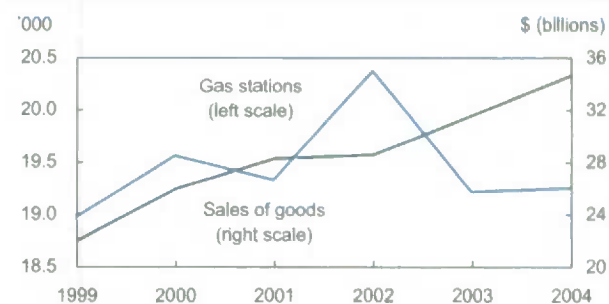
Natural gas is an energy source in several areas, providing fuel for furnaces, appliances, vehicles, electricity generation, steam-heat production, and co-generation of heat and electricity.

Another feature of the downstream oil and gas sector is the 19,200 gas stations found across the country. In 2004, their sales (gas and other products) totalled almost \$35 billion (Chart D). When consumers pull into a gas station, the upstream and midstream sectors of oil and gas remain in the background.

Employment

Between 1997 and 2006, employment in Canada increased by about 20%. In the three oil and gas sector components, roughly 298,000 people were employed in 2006, an increase of about 22% over 1997 (Table 2).⁴ Compared with other industries, jobs in all three components are much more likely to be held by men. In 2006, only 28% of jobs in the oil and gas industry were held by women, compared with 47% of jobs in

Chart D The number of gas stations has plateaued but sales have continued to increase



Sources: Statistics Canada, Retail Store Survey; Retail Chain Survey

other industries. Other differences include unionization status and hourly earnings. Although employees in oil and gas industries were less likely to be unionized (12% versus 32%), their hourly earnings were about 24% higher. These differences are even more pronounced for the individual components.

Upstream—full-time, male and well-paid

Between 1997 and 2006, employment in oil and gas extraction grew by about 43%—from 55,000 to about 79,000.⁵ In support industries, the growth over this period was about 88%, reaching 98,000 in 2006 (Table 3). Relative to other industries, employment in oil and gas extraction held constant, ranking 18th in both 1997 and 2006. Not surprisingly, most employment was in Alberta with its vast

Table 2 Labour force characteristics

	All industries		Oil and gas related		Non oil and gas	
	1997	2006	1997	2006	1997	2006
Employed	13,706.0	16,484.3	244.7	297.6	13,461.3	16,186.8
Self-employed	2,349.4	2,498.0	28.6	34.9	2,321.4	2,463.1
	'000					
Sex	%					
Men	54.5	52.9	74.6	71.8	54.1	52.6
Women	45.5	47.1	25.4	28.2	45.9	47.4
Age	%					
15 to 34	40.1	36.8	48.8	44.8	40.0	36.6
35 to 54	50.1	49.1	45.4	46.0	50.2	49.1
55 and over	9.7	14.1	5.8	9.3	9.8	14.2
Union coverage¹	%					
Yes	33.7	31.7	13.8	12.3	34.1	32.0
No	66.3	68.3	86.2	87.7	65.9	68.0
Work schedule	%					
Full-time	80.9	82.0	85.5	88.3	80.8	81.8
Part-time	19.1	18.0	14.4	11.7	19.2	18.2
Average hourly earnings	\$					
	12.92	16.73	14.80	20.64	12.88	16.66

1 Excludes self-employed

Source: Statistics Canada, Labour Force Survey

Table 3 Upstream employment

	Total		Extraction		Support industries	
	1997	2006	1997	2006	1997	2006
Employed	107.1	176.5	55.2	78.7	51.9	97.8
Self-employed	14.6	21.6	3.6	F	11.0	20.2
	'000					
Sex	%					
Men	81.0	76.7	75.4	67.5	87.1	84.0
Women	19.0	23.3	24.6	32.7	12.9	15.8
Age	%					
15 to 34	40.1	43.9	34.2	38.2	46.4	48.5
35 to 54	53.7	47.0	60.9	52.1	46.1	42.9
55 and over	6.2	9.1	4.9	9.7	7.5	8.6
Union coverage¹	%					
Yes	7.9	9.7	7.9	9.2	8.1	10.2
No	92.1	90.3	92.1	90.8	91.9	89.8
Work schedule	%					
Full-time	94.9	95.8	96.0	97.2	93.6	94.6
Part-time	5.1	4.2	4.0	2.8	6.4	5.3
Average hourly earnings	\$					
	17.24	24.21	20.47	30.36	13.79	19.26

1 Excludes self-employed

Source: Statistics Canada, Labour Force Survey

oil and gas reserves. Indeed, approximately 75% of jobs in the industry were in this province.

Workers in the oil and gas industry are much more likely to work full time. In 2006, about 97% of those in oil and gas extraction worked full time (95% in support industries) compared with about 82% in other industries. They were also much less likely to be unionized (9% versus 32%).

Their hourly earnings in 2006 were also substantially higher. While the average was \$16.73 for the labour market as a whole, earnings were about 80% higher in oil and gas extraction (\$30.36). The gap has not always been so large. In 1997, employees in oil and gas extraction earned only 58% more per hour than the average worker (\$20.47 versus \$12.92).

It is impossible to determine the exact employment figure for activities supporting oil and gas extraction since the mining industry is also included here. That said, in 2006, employment in the support activities for oil, gas and mining industries was almost 98,000, an increase of 88% since 1997. And while it is not possible to determine what percentage of the increase was a result of the oil and gas boom, it has clearly played an important role in employment growth.

Midstream—Pipeline workers: above average wages and predominately male

Because it is not possible to separate petroleum products from the transportation and storage of other commodities, this section deals only with the pipeline industries. In 2006, employment in pipeline industries was about 4,000, about 44% lower than the 1997 figure of just over 7,000 (Table 4). Just as for oil and gas extraction, workers in these industries are primarily male and have substantially higher average hourly earnings (\$34.36 versus \$16.73).

Downstream—young, low-paid and non-unionized

While upstream and midstream employment in the oil and gas sector consists of full-time well-paid jobs, downstream employment varies widely. This is not surprising given the wide array of industrial components. Overall, the downstream sector in 2006 employed approximately 117,000 individuals in a variety of industries (Table 5).⁶ Because employment is quite different in each one, they are examined individually.

Petroleum and coal products manufacturing includes refineries as well as asphalt paving, shingles, and other petroleum and coal manufacturing. Employment in this indus-

Table 4 Midstream employment

	1997	2006
	'000	
Employed	7.1	4.0
Self-employed	F	F
	%	
Sex		
Men	81.7	80.0
Women	F	F
Age		
15 to 34	40.9	F
35 to 54	52.1	65.0
55 and over	F	F
Union coverage¹		
Yes	21.1	F
No	78.9	100.0
Work schedule		
Full-time	100.0	100.0
Part-time	F	F
	\$	
Average hourly earnings	21.83	34.36

1 Excludes self-employed

Source: Statistics Canada, Labour Force Survey

try totalled about 16,400 in 2006, down from almost 21,000 in 1997. Much like oil and gas extraction, this field was predominately male, non-unionized, and full-time. Average hourly earnings, at \$28.19, were much higher than the general working population, and higher than any other component in the downstream sector.

Employment in petroleum product wholesaling was virtually the same in 2006 and 1997, about 11,500. This industry was also predominately male (61%), and virtually all worked full time. Not surprisingly, hourly earnings were above average at \$18.85. Employment in this industry was primarily in Alberta, Ontario and Quebec.

Employment in the distribution of natural gas rebounded somewhat in 2006 after declining steadily between 1997 and 2005. In 2005, it employed approximately 14,800 people, down from 20,600 in

1997, but the level rose to 15,300 in 2006. This industry is indicative of most oil and gas industries in that hourly earnings were substantially higher than the average (\$27.12 versus \$16.73), and almost all workers were full-time. Interestingly, it had the highest unionization rates of all oil and gas industries at about 45%.

Gasoline stations illustrate the varied employment in the downstream sector. Employment at gas stations was far higher than in any other industry in the midstream or downstream sectors. Not surprisingly, workers here had the lowest average earnings and were much younger. In 2006, some 74,000 individuals worked at gas stations across the country, down from almost 78,000 in 1997. Nearly 60% were under 35, compared with about 30% in the other downstream industries. Hourly earnings, at \$8.61, were strikingly lower than in any other oil and gas industry, and 50% lower than the overall average. Because employment does not depend on where oil and gas are extracted, jobs are spread throughout the country in line with population distribution—26% in Ontario, 21% in Quebec, 16% in British Columbia, and 13% in Alberta.

Summary

With the discovery of oil at Leduc well no. 1 in Alberta in February 1947, Canada was transformed almost instantly from an oil-poor to an oil-rich nation. Recent development of non-conventional sources of oil and gas has further augmented the importance of this industry to the Canadian economy. By 2006, the contribution to GDP of all sectors of the oil and gas industry had exceeded \$40 billion (1997 dollars), and direct employment totalled almost 300,000.

Table 5 Downstream employment

	Total		Manufacturing		Wholesale		Natural gas distribution		Gas stations	
	1997	2006	1997	2006	1997	2006	1997	2006	1997	2006
	'000									
Employed	130.5	117.1	20.9	16.4	11.3	11.6	20.6	15.3	77.7	73.9
Self-employed	13.9	13.4	F	F	1.8	F	F	F	11.8	11.9
	%									
Sex										
Men	69.0	64.1	82.3	87.2	70.8	61.2	59.2	71.2	67.6	57.9
Women	31.0	35.9	17.7	12.8	29.2	38.8	40.8	28.1	32.4	42.1
Age										
15 to 34	56.3	46.7	32.1	20.7	37.2	30.2	32.5	26.1	71.9	59.3
35 to 54	38.3	43.6	61.2	72.0	53.1	56.0	59.7	60.8	24.3	31.9
55 and over	5.4	9.6	F	F	F	13.8	7.8	13.1	3.7	8.8
Union coverage¹										
Yes	18.0	15.8	31.4	31.7	F	F	50.5	45.4	5.2	4.8
No	82.0	84.2	68.6	68.3	91.6	87.8	49.5	54.6	94.8	95.2
Work schedule										
Full-time	77.2	76.8	94.7	99.4	94.7	92.2	94.7	95.4	65.3	65.4
Part-time	22.9	23.2	F	F	F	F	F	F	34.7	34.6
	\$									
Average hourly earnings	12.42	14.78	22.03	28.19	14.18	18.85	20.78	27.12	7.38	8.61

1 Excludes self-employed

Source: Statistics Canada, Labour Force Survey

In the upstream sector, which comprises oil and gas extraction, investment and production have become driving forces in the economy. Indeed, between 1997 and 2005, investment in oil and gas extraction more than doubled from \$18.9 billion to \$45.3 billion, far exceeding any other industry. While production of natural gas levelled off in 2005, production of crude oil increased by 21% over the same period. Employment in this sector reached approximately 177,000 in 2006, and average hourly earnings were about 45% higher than in the labour market in general.

The midstream component of oil and gas is made up of transportation and storage. In Canada, 700,000 kilometres of pipelines carried approximately 700 million cubic metres of petroleum products in 2005 and contributed about \$5.1 billion to GDP. Employment related to pipelines was relatively small in 2006 with only 4,000 people.

The downstream sector of oil and gas includes refineries, petroleum manufacturing and wholesale distribution, utilities, and gas stations and employs about 117,000. Currently the 19 refineries in Canada have

the capacity to process 330,000 cubic metres of petroleum per day. For many consumers, the closest they get to the oil and gas industries is when they pull into one of over 19,000 gas stations in Canada.

Today Canada is recognized as an important player in terms of oil and natural gas. As global supplies dwindle, it becomes profitable to develop resources that are more difficult to extract—such as the oil sands. If geopolitical tensions remain high in other oil-producing areas of the world, Canada's role will become even more important.

Perspectives

■ Notes

1 This figure represents the per barrel refinery acquisition cost of imported crude oil.

2 A standard barrel of oil contains 159 litres. A barrel of oil when refined yields 72 litres of gasoline. Barrels are referred to as 'bbl' because in the past the only barrels guaranteed to contain 42 US gallons were blue barrels manufactured for Standard Oil. This has become the standard.

3 Unfortunately, it is possible to get GDP numbers only for pipelines. Information on transportation of crude oil products by rail, truck or tanker and on storage of petroleum products is not available.

4 This article looks at direct not indirect employment. For example, construction has increased substantially in Alberta, partly as a result of the boom in the oil and gas industry. This indirect employment is not included.

5 Employment figures are available only for oil and gas extraction as a whole; employment for the natural gas sector and the crude oil sector cannot be separated.

6 Unfortunately, it is not possible to separate out employment for petrochemical companies, so these are not included in employment counts for the downstream sector.

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GDP and employment growth

Philip Cross

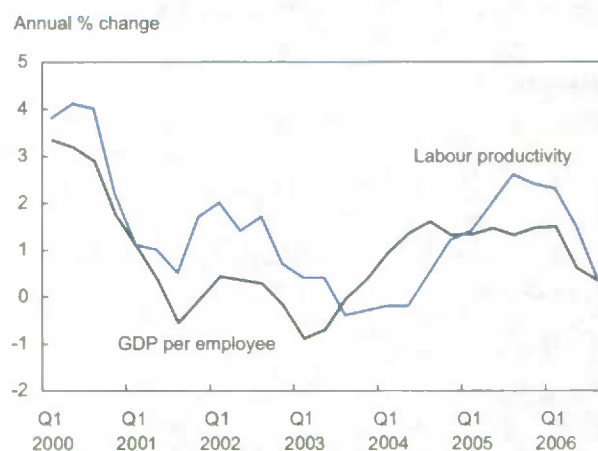
A major economic development in 2006 was a slowdown in output growth but continued steady gains in employment. Over the long term, output growth typically exceeds employment growth by over 1% a year, reflecting the upward trend of productivity. The convergence of output and employment gains late in 2006 implies a diminution of productivity growth.

Output per employee and labour productivity are often treated as interchangeable concepts. However, the two have differences that can cause these series to diverge at times (Chart A). Most importantly, official labour productivity covers only the business sector, which excludes the 15% of gross domestic product (GDP) in the non-business sector (bypassing the conceptual problems of measuring productivity growth in this sector). As well, productivity is calculated as output per hour worked, not per employee. Hours worked are affected by changes in multiple jobholding, the mix of full- and part-time positions, and the length of the workweek. When this paper refers to productivity rather than output per employee, it is the data on business sector GDP per hour worked that are being used. Unless otherwise noted, the employment data come from the Labour Force Survey (LFS), while total output is aggregate real GDP, including both the business and non-business sectors.

The paper focuses on factors that contributed to the slowdown of both output per employee and productivity in 2006. Over the long run, productivity growth depends on population structure and skills, capital investment, research and innovation as well as institu-

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Chart A Output per employee and productivity can diverge at times



Sources: Statistics Canada, Labour Force Survey; Income and Expenditure Accounts

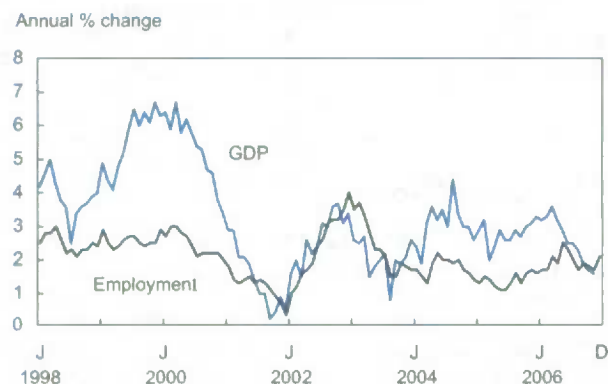
tional factors such as taxes and trade regulations. However, since most of these variables were little changed last year (except for some shifts in population and investment), they do not figure prominently in this paper.

The cyclical setting

Output growth often slows relative to employment growth for short intervals during recessionary periods as firms hoard some labour while cutting output. As recently as 2002 and 2003, output growth fell further below job growth and for a longer period than in 2006.

In fact, a narrowing of the gap has been the rule, not the exception, ever since the economy began to recover from a stall late in 2001 (Chart B). Year-over-year growth in output per employee was below 1% in

Chart B The gap between employment and GDP changes often narrows



Sources: Statistics Canada, Income and Expenditure Accounts

44 of the last 69 months, and negative for 16 of the 26 months between July 2001 and August 2003. Output growth struggled to keep up with employment growth most of the time—falling behind late in 2001, barely keeping ahead in 2002, and slipping below again in much of 2003. Only in 2004 and 2005 did output growth clearly exceed job gains, implying positive labour productivity growth. Even then, the productivity gains were far short of those in 1999 and 2000. So the convergence of output and employment late in 2006 is hardly new.

In retrospect, the slowdown of output per employee in 2002 and 2003 (confirmed by the official estimates of labour productivity) is more surprising than in 2006. The economy then was recovering from the near recession in 2001 caused by the bursting of the high-tech bubble and the shock of the September 11 attacks. Normally, the initial recovery from a cyclical slump in the economy generates large productivity gains as previously underutilized resources are put back to work. The situation in 2006 was the opposite. An economy operating at almost full employment, especially in Western Canada where growth was concentrated, would be more likely to show weak productivity growth.

Many transitory factors helped depress GDP growth in 2003, including the SARS epidemic, the discovery of mad cow disease, the power blackout in Ontario,

fires in B.C., Hurricane Juan in Nova Scotia, and the start of the Iraq war. Altogether, these events resulted in almost no growth in GDP in the middle two quarters, when output growth trailed employment growth.

Comprehensive labour productivity data by industry are available for 2003. Interestingly, many of the same goods-producing industries whose productivity sagged in 2006 also struggled in 2003. Oil and gas saw productivity fall 7%, even as prices began to climb sharply. Manufacturing productivity was flat as firms faced the beginning of a sharp appreciation in the exchange rate. The sluggishness of productivity was widespread in manufacturing in 2003, just as it was in 2006.

Services contributed more to the productivity slowdown in 2003 than in 2006. Travel-related services such as accommodation and food obviously were severely affected by the SARS crisis in the first half of 2003, but they did not cut their staff to the degree warranted by demand (called labour hoarding).

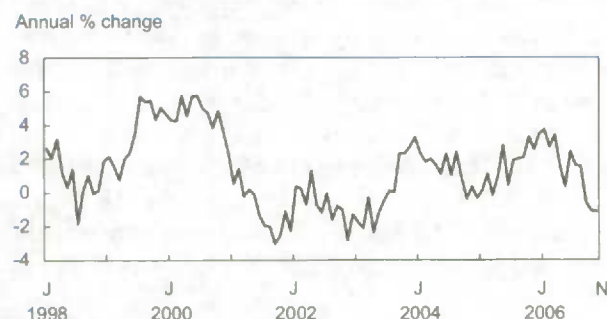
Nor is it unusual for Organisation for Economic Co-operation and Development (OECD) countries to experience two (or more) years of little productivity growth. Just since 2000, 10 of the 29 OECD countries with data available experienced such an episode. Interestingly, Norway and Australia are both currently experiencing little or no growth in output per employee. Like Canada, both have large natural resource bases—a source of much of the productivity slowdown in Canada.¹

Some of the attention paid to the slowdown of output per employee late in 2006 may be due to concerns about a repeat of the 2002–2003 episode, which lasted two years. But the 2006 episode could also be transitory, with productivity growth quickly resuming as in 1998. Analyzing the 2006 trend in productivity by industry is the first step in understanding the reasons behind the slowdown.

Industry trends

Most of the 2006 downturn in output per employee originated in goods-producing industries (Chart C), down 1.9% between December 2005 and November 2006. The drop largely reflected output in these industries switching from 3.3% growth late in 2005 to a decline of 1.9% during 2006.

Chart C The 2006 downturn in output per employee was driven by goods production



Sources: Statistics Canada, Labour Force Survey; Income and Expenditure Accounts

Within the goods-producing sector, almost all industries posted lower productivity during the first three quarters of 2006 (Table). Output per hour worked declined by nearly 10% in the resource sector, shaving a full 1% from overall productivity growth (Chart D). Mining and oil and gas extraction led this drop, as output grew slowly and employment raced ahead by over 10%, the most of any industry.

In recent years, the productivity of new discoveries of conventional oil and gas has fallen as the industry moved from easy-to-exploit fields in the west to less-productive sources.² Output in non-conventional oil projects, for example, now accounts for nearly half of the oil produced in Canada. And, as output from non-conventional sources has risen, output per employee in oil and gas has fallen sharply.

Last year's drop in productivity in mining, oil and gas was part of a long-term downward trend. The declining productivity of conventional wells and the shift to lower-productivity output from the oil sands is reflected in a 28% drop in labour productivity in the industry since its peak in 1999 (Chart E). Most of this reflects a 60% hike in employment in the oil and gas sector, almost all in Alberta. The employment increase was led by the oil sands, which hired thousands of workers on megaprojects that will not begin producing oil for years. These employees are involved in logistics, management and recruiting; those actually building the plant are classified in construction.

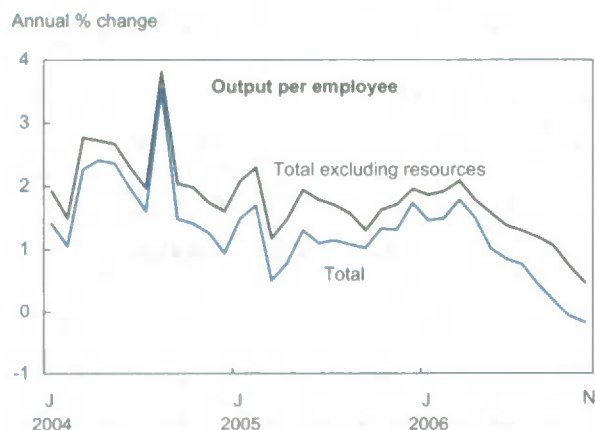
Events specific to the last two years aggravated this long-term downward trend. Oil sands output was depressed in 2005 by a major fire, which halted production at the largest producer for nearly nine months. The resumption of production at this plant helped

Table Labour productivity by industry

	2005				2006		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	Year over year growth						
Goods	0.1	0.7	1.9	2.6	1.7	0.3	-1.7
Agriculture, forestry, fishing and hunting	8.7	5.4	2.2	-0.4	0.8	-2.3	-7.8
Mining and oil and gas extraction	-8.9	-8.1	-5.4	-4.9	-5.4	-10.6	-9.6
Utilities	2.2	2.5	3.5	0.0	-2.4	-1.0	-2.6
Construction	-2.2	-2.0	0.2	1.3	0.8	3.3	1.5
Manufacturing	1.8	3.2	4.1	5.4	3.8	0.8	-1.2
Services	1.8	2.7	3.3	2.7	3.3	2.8	1.8
Wholesale trade	4.6	8.0	8.2	8.7	10.0	7.8	6.9
Retail trade	3.8	2.4	2.0	1.2	3.2	4.7	4.3
Transportation and warehousing	1.9	2.7	5.7	5.6	3.5	2.9	0.2
Information and culture	0.6	0.9	8.6	8.2	7.0	4.8	-0.3
Finance, insurance and real estate	-0.7	-1.1	-2.3	-3.6	-2.4	-1.9	0.0
Professional, scientific and technical	1.8	2.1	1.5	1.0	0.8	0.7	-0.3
Business, building and other support services	-0.9	0.5	2.1	2.0	1.4	1.6	0.5
Arts, entertainment and recreation	-0.6	4.3	5.1	5.9	4.3	4.7	-0.1
Accommodation and food	-1.1	2.5	3.4	3.8	4.6	0.3	-0.1
Other services	1.6	2.8	3.0	2.0	4.1	3.3	2.3
Business sector	1.4	2.0	2.6	2.3	2.3	1.6	0.4

Sources: Statistics Canada, Income and Expenditure Accounts; Labour Productivity Measures

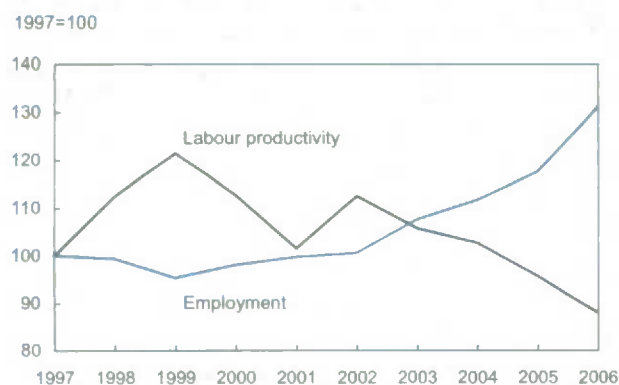
Chart D The resource sector cut overall productivity growth



Sources: Statistics Canada, Labour Force Survey; Industry Measures and Analysis

boost oil sands output in 2006. Because productivity in the oil sands is less than for other oil sources, this see-saw movement in production in 2005 and 2006 contributed to lower productivity growth last year (because of the increased share of low-productivity oil output in 2006 after a decline in 2005). As the oil sands gears up production, output per employee will

Chart E The drop in mining productivity reflects sharp employment growth



Sources: Statistics Canada, Survey of Employment, Payrolls and Hours; Income and Expenditure Accounts

increase, even if the level is not as high as from conventional fields. More generally, the extraction of oil from the oil sands will likely become more efficient over time.

This situation highlights one of the pitfalls in looking at short-run movements in productivity. Conceivably, productivity could be rising within every component industry, but these gains could be masked by a shift from industries with high productivity to those with lower productivity, leading to a drop in overall productivity.

As well, oil production last year was hampered by a number of disruptions. These included accidents at the Hibernia and Terra Nova platforms offshore from Newfoundland where productivity is relatively high, costing months of production. Understandably, given the shortage of labour in the oil patch, firms kept their staff during these interruptions.

Mining outside of oil and gas is increasingly located in remote parts of the country or requires digging deeper into the earth's crust. The best example is diamond mining, which currently is located almost exclusively in the Northwest Territories. Some of the drop in productivity in metal mines reflects the exhaustion of the most productive sources, just as with conventional oil and gas. The most obvious example is gold mining, where annual output has fallen steadily since 2001.

Several of the largest mining industries experienced production difficulties in 2006 as strikes reduced output of nickel and copper in the fall. Since the LFS counts strikers as still employed, output per employee is lowered. (Hours worked reflects the strike absences, so labour input in the productivity measures is not affected.) Potash output was curtailed during protracted contract negotiations with buyers in China.³ Work stopped on the world's largest uranium project at Cigar Lake in October because of flooding, delaying sales for years (Hoffman 2007). As with oil and gas, shortages of labour induced employers to keep workers on the payroll when production was temporarily disrupted.

None of these problems have recurred so far in 2007, so some recovery in productivity can be expected. Potash producers signed deals with Chinese buyers early in the year, new labour agreements averted a strike in the nickel industry, and the ice road to mines in the north posted its second-earliest opening date.

Productivity fell in utilities last year. Mild winter weather depressed demand for electricity and gas at both the start and the end of the year. Not surprisingly, utilities did not lay off staff since they had no way of knowing when demand would jump (as the recent bout of cold weather illustrated).

Productivity in agriculture, forestry and fishing fell steadily throughout 2006. A poor grain crop helped dampen farm output. Nevertheless, agricultural employment rose slightly during the year. Interestingly, all of the increase originated in central Canada, led by southwestern Ontario. There, many people who had farms but worked in factories lost their primary job. As a result, they then reported farming as their primary job, raising employment in agriculture. This is a good example of how events can produce unusual movements in industry output per worker in the short term.

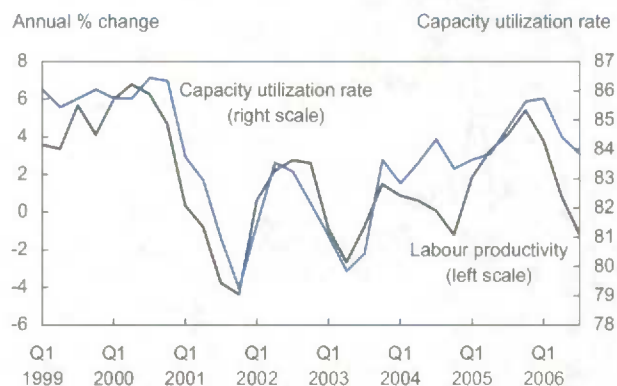
Forestry experienced one of the largest swings in the growth of output per worker between 2005 and 2006, from double-digit increases to double-digit declines. The rapid increase in 2005 reflected the consolidation of output in large, more efficient mills in B.C. and the ramping-up of output as the U.S. housing market peaked. The severe slump in U.S. housing demand last year depressed output. This was compounded by the closing of many small mills in eastern Canada late in the year when Quebec lowered its harvesting quota for timber by 20% and the softwood lumber agreement with the U.S. took effect.

Manufacturing

Output per employee declined in manufacturing in 2006 following two years of growth. Factories so far this decade have not come close to matching their stellar productivity gains during the high-tech boom in the late 1990s.

The downturn in manufacturing productivity reflects a slump in output, which lowered capacity utilization (the main determinant of productivity in the short term). Manufacturing output fell 4.8% in the first 10 months of the year, recovering slightly at year-end, and productivity typically falters during contractions (Chart F). While the rising dollar has given manufacturers a strong incentive to boost productivity every year since 2003, this was easier to achieve in 2004 and 2005 when output rose 1.9% and 0.7% respectively. When factory output fell in 2001 and 2002, manufacturers saw productivity also retreat.

Chart F The downturn in manufacturing productivity reflects a slump in output



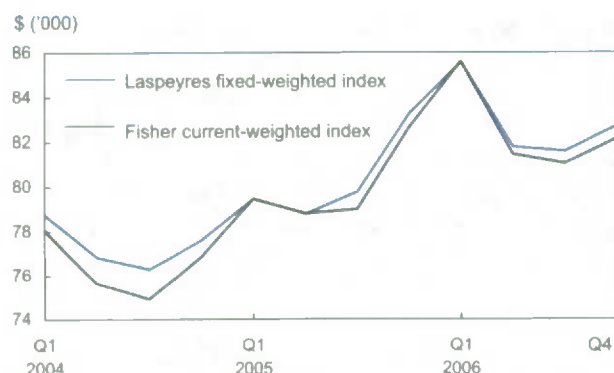
Sources: Statistics Canada, Income and Expenditure Accounts; Labour Productivity Measures

What of the argument that the re-structuring of industries, especially in manufacturing, should transfer resources from low- to high-productivity plants? The economy in 2006 saw many factories close in low-productivity industries such as textiles, clothing, furniture and even autos. Meanwhile, growth continued in high-productivity and capital-intensive industries such as petroleum refining. Surely this should have boosted overall productivity?

A statistical test of the theory that employment, on balance, was being transferred to more productive industries was conducted by constructing a Laspeyres (fixed-weighted) index of output in manufacturing. In layman's terms, this holds the weight of each industry constant at its 2003 share of employment. Almost no difference from the Fisher current-weighted index currently used was seen (Chart G). This surprising result arises because, while labour productivity was higher in some industries whose share of output was higher, their productivity was nevertheless falling throughout 2006. As well, output fell in some industries with high productivity, notably primary metals and computers and electronics.

These results are consistent with past research showing that inter-industry shifts do not have a large impact on overall productivity growth in the short term. Productivity ultimately depends on actual gains within specific industries, not shifts between industries with

Chart G Shifts in manufacturing employment had little impact on overall productivity



Sources: Statistics Canada, Income and Expenditure Accounts; Labour Productivity Measures

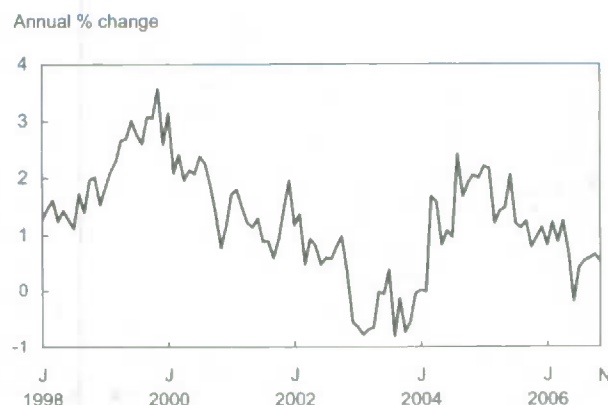
different productivity levels. Productivity in manufacturing last year was sluggish across almost all industries, swamping the effect of inter-industry shifts. Falling productivity in industries such as aerospace, primary metals, paper and petroleum may reflect specific industry events such as supply disruptions or strikes. It may also reflect a natural inclination to temporarily relax close scrutiny of costs when presented with sudden great wealth, such as occurred in metals and petroleum.⁴

Services

Overall, output per employee in services escaped the large deceleration recorded for goods, continuing to grow at about its long-term average, and well above the SARS-induced slump in 2003 (Chart H). Several industries posted solid gains, notably consumer-related industries, which benefited from strong demand. Still, growth was restrained by a shift to public and business services where, by definition, productivity growth is limited.

Nearly 40% of monthly GDP growth in services is estimated using employment. For most, largely in the public sector, this is due to the conceptual difficulty in measuring output. Since no market price exists for the output of these services, Canada follows the same accounting practice as the U.S. of using labour input growth (adjusted in some industries for changes in the

Chart H Output per employee in services continued to grow at its long-term average



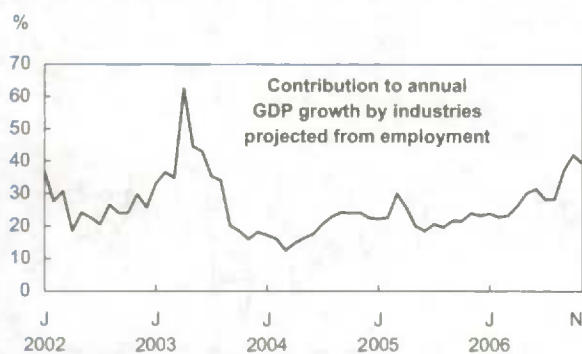
Sources: Statistics Canada, Labour Force Survey; Income and Expenditure Accounts

quality of the labour force) as the proxy for real output growth. As a result, productivity growth in these industries, by definition, is limited. While the non-business sector is excluded from the official measure of labour productivity, it does affect GDP per employee, and hence has influenced the current debate.

Output growth in 2006 was heavily concentrated in industries where employment is used as the proxy for output growth. As of November, year-over-year growth in these industries was 2.1%, compared with 1.3% in the rest of the economy. This is a reversal from both 2004 and 2005 when they grew at only half the rate of other services. Such industries accounted for about 40% of the year-over-year growth of total GDP by the end of 2006, doubling their contribution at the start of the year (Chart I). This reflects both increased activity in these industries and slower GDP growth in other industries.

The increase of nearly 20 points in the share of GDP growth occurring in these industries reduced overall output per employee by 0.1 points during 2006. The expansion was led by more spending on health care services outside hospitals. As well, demand picked up for religious and charitable organizations. These gains outweighed a sharp slowdown for education and recreation services.

Chart 1 Output growth in 2006 heavily concentrated where GDP projected from employment



Source: Statistics Canada, Income and Expenditure Accounts

Output in some business services is also projected using employment growth. This is most common for industries with no other source of monthly data, such as professional, scientific and technical services.⁵ These industries grew faster than the rest of the economy. However, because they are a fraction the size of the public sector, they had little impact on overall productivity growth.

Excluding the non-business sector, the year-over-year growth of labour productivity in services hit 1.8% in the third quarter, down from 2.7% at the end of 2005. Growth was led by wholesale and retail trade, continuing a trend of large productivity gains in these industries since 2002. Wholesalers and retailers have benefited from lower import prices since the dollar began to rise in 2003, while the shift to big-box stores also boosted productivity.

Some services saw productivity growth slow during 2006. Not all these decreases are necessarily a negative development. For example, the accommodation and food industry saw productivity decline slightly as it started to resolve the labour shortages that hampered its growth (but boosted measured productivity) in 2005. The biggest turnaround was in Alberta, where a 12% year-over-year drop in jobs in December 2005 was followed by a 9% gain during 2006. Similarly, the transportation industry was able to find more labour in 2006 after employment fell in 2005. Transportation

output has grown steadily in recent years, reflecting the turnaround in the airline industry (after severe losses due to September 11th and SARS) and the boom in shipping commodities and containers by rail and water (especially to and from Asia).

The calculation of industry output per employee is sometimes impossible for definitional reasons. The best example is owner-occupied housing. The National Accounts follows standard international practice and treats homeowners as renting from themselves. This estimate, totalling \$90 billion last year, is driven by changes in the stock of housing. Since no employment is involved, productivity is undefined (one reason that output per employee in the non-business sector can grow or shrink over time). After several years of double-digit growth, the stock of housing growth is starting to moderate, reflecting the slowdown in the housing market. This will trim real GDP growth in the future, while having no impact on employment.

Employment

Income growth has been driven by labour income, up 5.3% in 2006, boosted by the strong gains in employment. This strength was captured by both measures of labour input: the Labour Force Survey (LFS) and the hours worked used for labour inputs in the productivity estimates.

There are important conceptual differences between LFS employment and the hours worked used in the productivity estimates. The LFS treats multiple jobholders as just one employed person, while labour input captures them through hours worked. Productivity excludes important sectors of the economy such as the non-business sector.

If the slowdown in labour productivity in 2006 is a real and pervasive phenomenon, what broad economic factors could explain it? The most obvious place to look first is the cyclical state of the economy. The 16-year-long expansion of employment accelerated in 2006, with most of the growth in full-time positions. This sent the unemployment rate to its lowest level in the 30-year history of the current Labour Force Survey. Many industries struggled with labour shortages, notably in Alberta and B.C., but even the Atlantic provinces were affected by year-end as manufacturers there reported more shortages of skilled and unskilled labour than in central Canada.

Labour shortages and quality

Tight labour markets and shortages can often lead to slower productivity growth. Employers increasingly search out and hire less productive workers. When the U.S. labour market tightened at the peak of the high-tech boom in 1999 and 2000, for example, productivity growth slowed over a full point.

Several measures show declining labour quality, especially in western Canada. Employment rose faster last year for the youngest and oldest segments of the population—the least productive. For the young, below-average productivity reflects less experience and training; for older workers, the issues are eroding skills, a new career and less attachment to the labour force.⁶ While neither trend was new last year, their growth accelerated sharply.

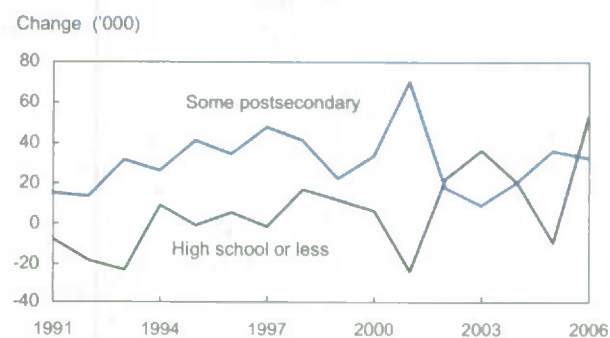
Nationwide, employment rose faster for people 55 and older (6.7%) and youths (1.5%) than for prime-aged workers (1.4%). As a result of increased demand, the unemployment rate for youths hit a record low of 9.7% by last December, and both the employment and labour force participation rates of people 55 and over hit record highs.

Shortages induced employers in Alberta and B.C. to turn most to the youngest and oldest. In Alberta, the increase was most pronounced for youths, where jobs rose 5.6%, boosting their employment rate from 64.1% to 65.3% between December 2005 and December 2006. B.C. was more reliant on older workers. While employment growth for prime-aged workers slowed to 0.9% during 2006, it rose 12.6% for older workers (including those 65 and over, up 1.7 points to 8.3%), twice the increase for 2005.

In Alberta, people with high school education or less accounted for over half of all employment growth in 2006. This was by far the most ever, and a distinct change from the 1990s when employers showed a marked preference for people with more than high school education (Chart J). B.C. saw a similar but less pronounced shift. Still, the Business Council of British Columbia felt that the shortages were severe enough to lower its forecast for GDP growth in 2007 (Finlayson 2007).

The decline in the education level of workers was symptomatic of the tightness of the labour market, not a deterioration in the quality of jobs available. In other words, the lower quality at the margin was driven

Chart J In Alberta, persons with no more than high school education led employment growth in 2006



Source: Statistics Canada, Labour Force Survey

by the supply of workers, not the demand of employers (who clearly would have preferred hiring people with better skills).

Not all measures of labour quality deteriorated last year. Employment of youths aged 15 to 24 slowed during the year except for Alberta. And the ranks of the self-employed fell during 2006, despite a brief rally at year-end. (The self-employed have lower productivity than employees).

However, employers reacted to the lower skill level of employees by stepping up training. Detailed employment estimates show employment in business schools and computer and management training institutes rose sharply last year, a marked departure from the previous five years.

Besides hiring less productive workers, employers may change their behaviour in ways that lower productivity. They could be more reluctant to lay off workers temporarily for fear that they would get jobs elsewhere and not return. Similarly, firms may hoard labour in anticipation of large projects coming onstream later. Reports say this is already occurring in the oil sands.⁷

Business investment points to higher productivity growth. Fuelled by record high profits, firms have stepped up investment outlays by a steady 10% in each of the last three years. The increased competitive pressure caused by the sharp rise in the exchange rate since

2003 would be a major incentive for firms to spend more. Similar pressures in the U.S. early this decade led to a sharp improvement in productivity.

Productivity rarely slumps for an extended period when investment is expanding (Chart K). This is encouraging for a rebound in productivity growth in the short run, holding out some prospect that the current slump will not be as prolonged as in 2002–2003. One factor that may explain the divergence of investment and productivity in 2006 was that so much of investment was driven by the energy sector, where the payoff in higher output will not materialize until later. Manufacturing, the sector with the largest incentive to invest in productivity-enhancing machinery and equipment, reined in such spending (presumably reflecting the intense pressure on profit margins) after a 10% gain in 2005 helped boost productivity that year.

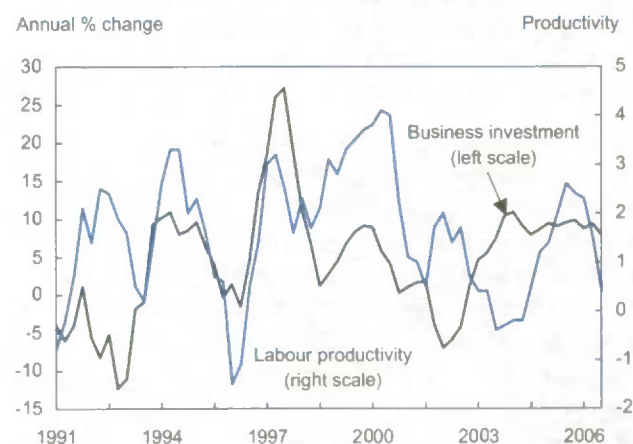
Conclusion

Several economic and statistical reasons explain why productivity slowed in 2006. Nationally, growth shifted to industries where productivity declined, notably mining. Many industries, especially in western Canada, are struggling with labour shortages. Employers hired less-skilled labour and spent more time training employees. More generally, the shift of resources between industries, and increasingly regions, implies resources will not be productive during the transition. Finally, more industries were affected by one-time events last year, such as disruptions in the mining sector and a record warm winter that curtailed production.

The major question at the moment is not whether a slowdown in output relative to employment is occurring, but whether this slowdown is related to temporary factors (such as weather or other production disruptions, or a sudden shift of resources to new industries and regions) or signals the beginning of a longer-term slump in productivity caused by labour shortages, an aging labour force, or structural changes in the economy. Most of the variables studied in this paper point to transitory factors dominating in the short term. One exception was labour shortages in western Canada, partly caused by development of the oil sands.

One lesson to retain from 2006 is that large irregular movements are more likely to occur in an economy where natural resources are a growing part of output.

Chart K Productivity rarely slumps for long when investment is growing



Sources: Statistics Canada, Labour Productivity Measures; Income and Expenditure Accounts

Monthly output in mining has the most variability of any sector of the economy. Since this sector employs relatively few workers, contradictory short-term movements in output and employment could easily recur in the future. The best practice in such situations is not to place too much emphasis on short-term movements in productivity and instead look at them in the context of previous periods of growth when productivity temporarily sagged.

Perspectives

Notes

1 Even in the U.S., where productivity rose 2% in 2006, the slowdown earlier this decade led the Federal Reserve Board to observe that “the recent slowdown in labor productivity may be at least in part a temporary cyclical response ... rather than a meaningful downshift in the longer-run trend.” (BGFRS 2007, 18).

2 According to the National Energy Board (NEB), the initial productivity of gas wells in western Canada has fallen by almost two-thirds since 1996 (NEB 2006, 23). For oil, the NEB characterized western Canada “as a maturely explored basin, with diminishing finding rates and relatively high finding and development costs. Most of the larger pools have been discovered and smaller fields are increasingly difficult and costly to find.” (NEB 2005, 17).

3 "In 2006, potash production was idled at a number of Saskatchewan mines while producers waited for the Chinese government to settle on a pricing regime. As a result, large-scale shipments of Saskatchewan potash didn't begin until August." (Financial Post 2007).

4 Similar results were found for economy-wide Laspeyres versus Fisher indices of productivity at the 2-digit level, using detailed employment data from the Survey of Employment, Payrolls and Hours.

5 Also, these industries are ultimately benchmarked to data not based on labour input (such as tax data that capture all costs and revenues) and then deflated with a market price index. Based on the historical relationship between labour inputs and these final measures of output, the monthly estimates of growth are modified to minimize the possible revision. Interestingly, the last time that the contribution to growth from such industries was as large as last year was in 2003. At that time, their contribution to growth also peaked at over 40%, partly because of stepped-up demand for health services during the SARS crisis. Not surprisingly, this helped pull down output per worker that year. It is also noteworthy that this did not signal a new trend, as productivity growth quickly rebounded in 2004 and 2005.

6 An aging labour force can significantly lower productivity. One recent study estimated that the impact on Canada peaked in the 2001-to-2006 period, with annual losses in productivity of 0.2 percentage points (Tang and MacLeod 2006, 598).

7 For example, the Long Lake consortium said Phase 1 of the project was delayed by a 20% shortfall of labour productivity due to worker inexperience. It also said it was moving up work on Phase 2 for fear of losing employees as well as their position in the growing queues for supplies and equipment (Ebner 2006).

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Literacy and employability

Ross Finnie and Ronald Meng

Since the early 1990s, the technology-driven 'knowledge-based' economy has captured the attention and affected the lives of virtually all Canadians. This phenomenon has been of particular interest to researchers and policy makers, not to mention business owners, long-time workers, and students permanently entering the job market following graduation or, more troubling, after dropping out of high school. One concern is how those lacking the technical skills, experience and necessary education—beginning with the three Rs—may be left behind in dead-end jobs as their peers pursue more dependable and lucrative career paths.

While the economic effects of educational attainment have been examined in many studies,¹ the role of literacy and numeracy skills in determining the economic well-being of individuals also provides valuable insights. Previously, most investigations of the relationship between education and labour market outcomes ignored these basic skills, or simply assumed that they were captured in conventional education measures.

But more recent studies² have demonstrated that literacy and numeracy skills influence labour market performance and income in specific ways other than educational attainment, which is at best an imperfect proxy for these abilities.³ In this paper, Statistics Canada's Survey of Literacy Skills Used in Daily

Activities (LSUDA) was used, including actual test scores measuring literacy and numeracy as opposed to commonly used self-reported competency levels.⁴ The goal is to shed light on the relationship between these skills and various employment outcomes of high school dropouts (see *Data source and methodology*).

Identifying the effects of literacy and numeracy test scores on the employment outcomes of dropouts allows important questions relating to their economic future to be addressed. If early school leavers are confined to 'bad' jobs (low earnings, few or no benefits, reduced working hours) where language and numeracy skills have little or no effect on economic well-being (Doeringer and Piore 1971), then these skills should play only a minor role in explaining employment patterns or incomes. If, alternatively, literacy and numeracy skills have significant effects on these outcomes, the finding would have implications for public policy relating to high school curricula as well as adult education and re-training programs, not to mention researchers in this field.

This article investigates the effects of literacy and numeracy skills—or the lack thereof—on the employability and incomes of high school dropouts, in conjunction with traditional educational attainment measures. Descriptive information is presented on both dropouts and high school graduates,¹¹ followed by an examination of socio-economic background characteristics deemed to be associated with premature school departure (such as parental education). The dropout population is then analyzed in terms of broad employment characteristics based on a number of binary outcomes, such as whether a person who dropped out had a disability or whether they lived in a particular province. Finally, income functions are estimated for both dropouts and graduates. In all cases, the focus is on cognitive skills measured in terms of literacy and numeracy test scores.

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Data source and methodology

This article is based on the October 1989 **Survey of Literacy Skills Used in Daily Activities** (LSUDA). The survey had two components. The first asked about socio-demographic and employment characteristics, family background, and experience related to literacy and numeracy skills (reading, writing and arithmetic). The second asked respondents to perform a series of tasks to directly measure their literacy and numeracy skills (Statistics Canada 1991).

The LSUDA sample was selected from dwellings that had recently participated in the Labour Force Survey, which excludes persons living on Indian reserves, residents of the territories, full-time members of the Armed Forces, and people living in institutions (for example, nursing homes or prisons).

The full LSUDA file consists of a weighted sample of 9,455 respondents aged 16 to 69 in 1989. The analysis was restricted to Canadian-born men and women aged 21 to 54 who were not attending school at the time of the interview—2,318 men and 2,806 women of whom 851 and 872 respectively had left high school before graduating.⁵

The LSUDA measures of literacy and numeracy are based on item response theory.⁶ The resulting measures are continuous variables ranging from 0 to 500. Individuals with a literacy score below 160 have difficulty dealing with any printed material, that is, they are fundamentally illiterate. Those with a numeracy score below 200 "have very limited numeracy abilities which enable them to, at most, locate and recognize numbers in isolation or in a short text" (Statistics Canada 1991, 19); in other words, they are effectively innumerate. Unfortunately, reading and numeracy are so closely related⁷ that it is often difficult to separate the independent effects of each on employment, income, and other labour market indicators.⁸

To deal with this problem, some researchers have used only literacy in their analyses (Rivera-Batiz, 1990a, 1990b), others have used only numeracy (Rivera-Batiz, 1992), while still others have used both. However, taking the simple average of the two variables yields the best results and is easier to interpret in a context where it is difficult to identify their separate effects (Charette and Meng 1998; Pryor and Schaffer 1999; Green and Riddell 2001). In this article, the literacy and numeracy scores have been averaged to form one composite variable called **functional literacy**, a term initiated by Pryor and Schaffer.

The variables used in the analysis can be grouped into three categories. The first deals with employment and income—whether the respondent was employed at the time of the survey or at any time within the past 12 months, whether the employment was mostly full-time (30 hours or more per week), number of weeks worked in the last year, and the logarithm of income.

The second group of variables provides measures of socio-economic background—mother's and father's years of education, whether the parents were immigrants, province of birth, Aboriginal status, first spoken language,⁹ presence of a disability,¹⁰ and any learning difficulty as a child.

The third group captures demographic characteristics and circumstances at the time of the survey—age, years of education, province of residence, city size, the first (or preferred) language used in adulthood, marital status, and presence of at least one child.

A probit model was used to calculate the probabilities of dropping out of school, depending on the binary outcomes of some of the explanatory variables above. Estimates based on a two-stage probit-OLS (ordinary least squares) procedure were also calculated to establish the positive or negative impacts of selected variables on employment outcomes.

Graduates have higher functional literacy

As expected, the functional literacy scores of both men and women who dropped out of high school were significantly below those of graduates (Table 1).¹² In addition, dropouts reported a weaker attachment to the labour market and lower average incomes than their more educated counterparts.

The parents of high school graduates tended to be more educated than those whose offspring had dropped out, the differences varying from 2.4 to 2.9 additional years of schooling. The children of immigrants stayed in school longer than those of native-born Canadians. Higher-than-expected proportions of dropouts were born in the Atlantic provinces and Quebec (particularly women in this province), were

Aboriginal persons, spoke French in childhood, reported a disability, and had experienced learning difficulties in childhood.

In terms of demographic characteristics and circumstances, male dropouts were 4.5 years older, on average, than those who had graduated; female dropouts were almost five years older. Male and female dropouts tended to have five years less education, and a disproportionately high number lived in the Atlantic provinces. Disproportionately high numbers of female dropouts were also found in Quebec and Ontario. Dropouts were much more likely to be living in small cities and towns with a population under 30,000 and in rural areas. They were also more likely to speak French as adults, be married, and have children.

In the works

Some of the topics in upcoming issues

■ Labour inputs to non-profit institutions

In an era when non-profit institutions are finding it more difficult to finance their operations, it is important that they be well informed about the mix of labour they use, whether employees, contractors or volunteers. The Labour Inputs to Non-profit Organizations Project aims to develop a comprehensive estimation procedure.

■ Investment allocation

In 2005, the Survey of Financial Security for the first time collected details on types of investments held in registered and non-registered accounts. The article looks at asset allocation in and outside RRSPs by demographic, financial and employment characteristics.

■ Public pensions and labour market attachment

Since public pensions are a significant retirement resource for most Canadians, their eligibility requirements and benefit provisions affect the retirement decision.

■ Shift workers

With the continuing expansion of the 24/7 economy, about one-third of the workforce no longer have a regular daytime schedule. Some shift workers with families may have a particularly hard time juggling work, housework, child care, leisure and sleep.

■ Workplace stress

Work-related stress is a major challenge to the mental and physical health of workers and the well-being of their organizations. The causes and consequences of work stress as well as factors that protect against it are analyzed.

■ Work absences

Previous studies of work absences have not distinguished between full- and part-week absences. The two appear to have diverging trends. Also, they seem to show some seasonal patterns.

■ Telework

After phenomenal growth in the 1990s, the incidence of telework seems to have stabilized. And this despite the increased ease and decreased costs of working from home. The factors behind the change are probed.

■ Immigrants in the hinterlands

The concentration of immigrants in the major urban centres is well known. This study looks at the not insignificant number of immigrants living outside the major centres.

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The quarterly for labour market and income information

Varia

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General Social Survey

Education, work and retirement
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Pension Plans in Canada Survey
Michel Palardy
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Quarterly Survey of Trusteed Pension Funds
Gregory Sannes
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Special surveys

Survey of Work Arrangements
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Adult Education and Training Survey
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National Graduates Survey
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Work absence rates

There are many kinds of absence. Some, such as annual vacation, are generally considered beneficial for both the organization and the employee. Since they are usually scheduled, their effect on the organization can be fairly easily absorbed; the same can be said of statutory holidays. Other absences, such as those caused by illness and family-related demands, are generally unavoidable, as are those due to inclement weather.

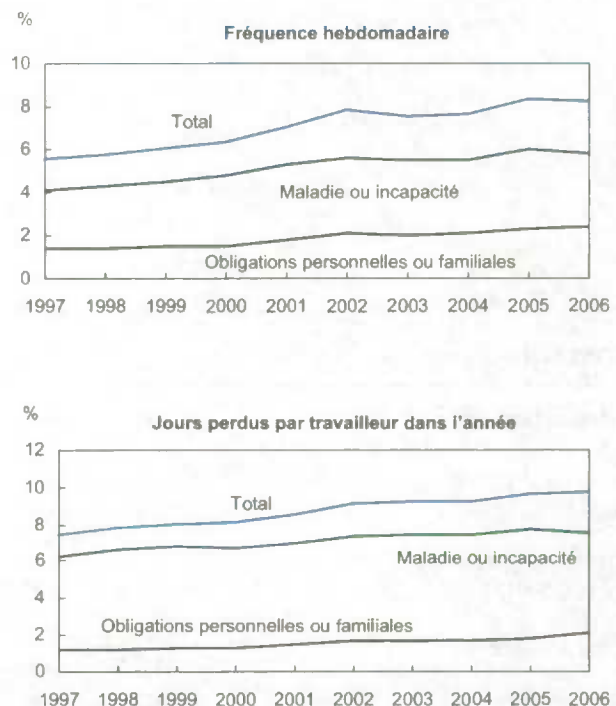
Absenteeism, a term used to refer to absences that are avoidable, habitual and unscheduled, is a source of irritation to employers and co-workers. Such absences are disruptive to proper work scheduling and output, and costly to an organization and the economy as a whole. Although absenteeism is widely acknowledged to be a problem, it is not easy to quantify. The dividing line between avoidable and unavoidable is difficult to draw, and absenteeism generally masquerades as legitimate absence. The Labour Force Survey (LFS) can provide measures of time lost because of personal reasons—that is, illness or disability, and personal or family responsibilities. However, within these categories, it is impossible to determine if an absence is avoidable or unscheduled. LFS data on absences for personal reasons can, however, be analyzed to identify patterns or trends that indicate the effect of absenteeism (see *Data source and definitions*).

Recent trends—1997 to 2006

Since 1997,¹ both the incidence and the number of days lost for personal reasons (illness or disability, and personal or family responsibilities) have shown a rising trend (Chart). Several factors have contributed: notably, an aging workforce; the growing share of women in the workforce, especially those with young children; high worker stress;² and more generous sick- and family-related leave benefits.

In an average week in 1997, excluding women on maternity leave, about 5.5% (484,000) of all full-time employees holding one job were absent from work for all or part of the week for personal reasons. By 2006, the figure had risen to 8.2% (896,000) (Table 1). Total work time missed also rose steadily, from 3.0%

Chart: Work absence rates, 1997 to 2006



Source: Statistics Canada, Labour Force Survey

of the scheduled week in 1997 to 3.9% in 2006. Extrapolated over the full year, work time lost for personal reasons increased from the equivalent of 7.4 days per worker in 1997 to 9.7 days in 2006.

Variations in absence rates in 2006

Absence for personal reasons differs among various worker groups. Several factors are responsible, principally working conditions (physical environment, degree of job stress, employer-employee relations, collective agreement provisions, work schedules);

adequacy and affordability of community facilities such as child-care centres and public transportation; family circumstances, especially the presence of preschool children and other dependent family members; and physical health of the worker, a factor closely related to age. Measuring the effects of these and other contributing factors is not easy since many are not captured by the LFS. However, some insight is gained by examining personal absences in 2006 by selected demographic characteristics, occupation and industry, and other attributes such as union and job status.

Demographic differences

In 2006, excluding women on maternity leave, an estimated 8.2% (896,000) of full-time employees missed some work each week for personal reasons: 5.8% for own illness or disability, and 2.4% for personal or family responsibilities (Table 2). As a result, full-time employees lost about 3.9% of their work time each week.

On average, each full-time employee lost 9.7 days in 2006 for personal reasons (7.6 for own illness or disability plus 2.1 for personal or family demands). This amounted to an estimated 102 million workdays for all full-time employees. Men lost fewer days than women—8.7 (6.7 for illness or disability plus 1.9 for personal or family demands) versus 11.2 (8.8 plus 2.4).

The presence of preschool-aged children exerts a strong influence on work absences for personal or family responsibilities. In 2006, full-time employees in families with at least one preschool-aged child lost an average of 5.7 days, compared with only 1.5 for those in families without children.

The growing prevalence of family-leave entitlements in the workplace, the extension of Employment Insurance parental benefits,³ and the greater involvement of fathers in child care appear to have eliminated the difference between the sexes with respect to personal and family-related absences. In 1997, women with preschool-aged children and working full time lost 4.1 days for such reasons, compared with 1.8 days for men in similar circumstances. By 2006, the gap had narrowed considerably (6.2 days for women versus 5.4 for men).

Workdays missed because of illness or disability tended to rise with age, from an average of 6.2 days for youth (15 to 19) to 10.8 for full-time employees aged 55 to 64.

Industry and sector

Work absence rates differ by sector (public or private) and industry, with almost all of the difference arising from illness and disability absences (Table 3). Contributing factors include the nature and demands of the job, the male–female composition of the workforce, and the union density—the last being a strong determinant of the presence or lack of paid sick or family leave.

Full-time employees in the public sector (more likely unionized or female) lost more work time in 2006 for personal reasons (about 13 days on average) than their private-sector counterparts (8.8 days).

At the major (2-digit) industry level, the most workdays were missed by employees in health care and social assistance (14.4 days), utilities (12.4), and public administration (12.0).

The lowest averages were recorded by full-time workers in professional, scientific and technical services (5.6 days); and finance, insurance, real estate and leasing (7.5). Those in accommodation and food services (8.2), primary industry (8.3), and trade (8.5) also missed fewer workdays.

Occupation

Contributing factors by occupational absence rates are similar to those for industry (Table 4). Again, as by major industry, differences arise mainly from time lost due to illness or disability.

The most days lost in 2006 were recorded for full-time employees in health occupations (14.6), and occupations unique to production (12.0). Workers in management (5.9), and in natural and applied sciences (6.8) recorded the fewest days lost.

Union coverage, job status, workplace size and job tenure

Full-time workers who belonged to unions or were covered by collective agreements missed almost twice as many workdays on average in 2006 for personal reasons than their non-unionized counterparts (13.6 versus 7.9) (Table 5).

Workers with permanent jobs (more likely to be unionized) lost more workdays (9.9) than those whose jobs were not permanent (8.0).

Days lost tended to rise with workplace size, increasing from a low of 8.2 in workplaces with fewer than 20 employees (firms more likely to have low union rates) to 12.0 in workplaces with 500 employees or more (firms likely to have high union rates).

Days lost tended to rise with job tenure, with almost all the differences arising from illness and disability. Employees with tenure of up to one year lost 7.4 days, while those with over 14 years lost 11.6 days (the latter group were also likely older).

Province and CMA

Work absence levels differed by geographic area (Table 6), with most of the variation again arising from illness or disability.

Full-time employees in Quebec (11.5), New Brunswick (11.5) and Saskatchewan (11.0) lost the most work time in 2006. Those in Prince Edward Island (8.5), Ontario (8.8) and Alberta (9.0) lost the least.

Among the census metropolitan areas, Gatineau (14.5) and Thunder Bay (12.4) lost the most days per full-time worker. Montréal, Québec, Saguenay, Regina and Trois-Rivières followed at about 11 days each. Toronto (7.5) and Calgary (7.9) had the least.

■ Notes

1. 1997 marks the introduction of the revised Labour Force Survey questionnaire.
2. For more information on this subject, see Margot Shields, "Stress, health and the benefit of social support," *Health Reports* (Statistics Canada Catalogue 82-003-XIE) vol. 15, no. 1, January 2004. Also see Cara Williams, "Sources of workplace stress," *Perspectives on Labour and Income* (Statistics Canada Catalogue 75-001-XIE) vol. 4, no. 6, June 2003 online edition.
3. In December 2000, changes in Employment Insurance regulations extended the duration of parental leave benefits from 10 to 35 weeks. The 35 weeks can be taken by one (qualifying) parent, or they can be split between both (qualifying) parents.

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Table 1 Absence rates for full-time employees by sex, 1997 to 2006, excluding maternity leave

	Incidence ¹			Inactivity rate ²			Days lost per worker in year ³		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
	%			%			days		
Both sexes									
1997	5.5	4.1	1.4	3.0	2.5	0.5	7.4	6.2	1.2
1998	5.7	4.3	1.4	3.1	2.6	0.5	7.8	6.6	1.2
1999	6.0	4.5	1.5	3.2	2.7	0.5	8.1	6.8	1.3
2000	6.3	4.8	1.5	3.2	2.7	0.5	8.0	6.7	1.3
2001	7.0	5.3	1.8	3.4	2.8	0.6	8.5	7.0	1.5
2002	7.8	5.6	2.1	3.6	3.0	0.7	9.1	7.4	1.7
2003	7.5	5.5	2.0	3.7	3.0	0.7	9.2	7.5	1.7
2004	7.6	5.5	2.1	3.7	3.0	0.7	9.2	7.5	1.7
2005	8.3	6.0	2.3	3.9	3.1	0.7	9.6	7.8	1.8
2006	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Men									
1997	4.6	3.4	1.2	2.5	2.1	0.4	6.3	5.3	0.9
1998	4.9	3.7	1.2	2.7	2.3	0.4	6.9	5.8	1.0
1999	5.2	3.9	1.3	2.8	2.4	0.4	7.0	5.9	1.1
2000	5.5	4.1	1.4	2.8	2.4	0.4	7.0	5.9	1.1
2001	6.1	4.6	1.6	3.1	2.5	0.5	7.6	6.3	1.3
2002	6.7	4.8	1.9	3.2	2.6	0.6	8.0	6.5	1.6
2003	6.5	4.7	1.8	3.3	2.6	0.6	8.2	6.6	1.5
2004	6.6	4.6	2.0	3.2	2.6	0.7	8.0	6.4	1.6
2005	7.2	5.2	2.1	3.4	2.7	0.7	8.6	6.9	1.7
2006	7.2	5.1	2.1	3.5	2.7	0.8	8.7	6.7	1.9
Women									
1997	6.7	5.1	1.7	3.6	3.0	0.6	9.1	7.6	1.5
1998	6.7	5.1	1.6	3.7	3.1	0.6	9.2	7.8	1.5
1999	7.1	5.4	1.8	3.8	3.2	0.6	9.6	8.0	1.6
2000	7.5	5.7	1.8	3.8	3.2	0.6	9.4	7.9	1.5
2001	8.2	6.2	2.0	3.9	3.2	0.7	9.8	8.0	1.8
2002	9.2	6.7	2.4	4.3	3.5	0.8	10.7	8.7	1.9
2003	8.9	6.6	2.3	4.3	3.5	0.8	10.7	8.8	1.9
2004	8.9	6.6	2.3	4.3	3.6	0.7	10.8	9.0	1.9
2005	9.6	7.0	2.6	4.5	3.7	0.8	11.2	9.1	2.0
2006	9.5	6.8	2.7	4.5	3.5	1.0	11.2	8.8	2.4

1 Absent workers divided by total.

2 Hours absent divided by hours usually worked.

3 Inactivity rate multiplied by working days in year (250).

Source: Labour Force Survey

Table 2 Absence rates for full-time employees by sex, age, education and presence of children, 2006, excluding maternity leave

	Incidence ¹			Inactivity rate ²			Days lost per worker in year ³		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
	%			%			days		
Age									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
15 to 19	7.5	5.7	1.8	3.1	2.5	0.6	7.7	6.2	1.5
20 to 24	7.6	5.5	2.0	3.0	2.3	0.7	7.6	5.8	1.8
25 to 34	8.6	5.8	2.8	3.6	2.5	1.1	9.1	6.4	2.7
35 to 44	8.5	5.7	2.8	3.9	2.9	1.0	9.8	7.3	2.5
45 to 54	7.8	5.8	2.0	4.1	3.4	0.7	10.2	8.5	1.6
55 to 64	8.5	6.7	1.8	5.0	4.3	0.7	12.4	10.8	1.7
65 and over	5.7	4.3	F	3.6	3.0	F	9.0	7.6	F
Men									
15 to 19	7.3	5.4	1.9	3.1	2.5	0.6	7.7	6.3	1.4
20 to 24	7.1	5.3	1.8	2.9	2.3	0.6	7.3	5.7	1.6
25 to 34	7.5	5.0	2.5	3.2	2.2	1.0	8.0	5.5	2.5
35 to 44	7.2	4.8	2.4	3.4	2.5	0.9	8.4	6.2	2.2
45 to 54	6.6	4.8	1.8	3.5	2.9	0.6	8.7	7.3	1.4
55 to 64	7.8	6.1	1.7	4.8	4.2	0.6	11.9	10.4	1.5
65 and over	5.6	4.3	F	3.5	3.0	F	8.7	7.4	F
Women									
15 to 19	7.8	6.1	1.7	3.1	2.4	0.7	7.7	6.0	1.7
20 to 24	8.2	5.8	2.3	3.2	2.3	0.9	8.0	5.9	2.1
25 to 34	10.2	6.9	3.2	4.2	3.1	1.2	10.6	7.6	2.9
35 to 44	10.1	6.9	3.2	4.6	3.5	1.1	11.6	8.8	2.9
45 to 54	9.1	6.9	2.2	4.8	4.0	0.8	12.0	10.1	1.9
55 to 64	9.5	7.4	2.1	5.3	4.5	0.8	13.2	11.3	1.9
65 and over	6.0	F	F	3.9	F	F	9.7	F	F
Educational attainment									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Less than grade 9	7.4	5.8	1.5	4.3	3.7	0.6	10.7	9.2	1.5
Some secondary	9.5	7.1	2.3	5.1	4.2	0.9	12.7	10.5	2.2
High school graduation	8.0	5.8	2.2	3.9	3.1	0.8	9.7	7.7	2.0
Some postsecondary	8.8	6.4	2.4	4.1	3.3	0.8	10.2	8.2	2.0
Postsecondary certificate or diploma	8.5	6.1	2.4	4.1	3.3	0.9	10.3	8.2	2.1
University degree	7.3	4.8	2.5	3.0	2.1	0.9	7.6	5.3	2.3
Presence of children									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
With children	8.7	5.6	3.2	4.1	2.9	1.2	10.3	7.3	3.0
Preschoolers -									
under 5 years	10.7	5.7	5.0	4.9	2.7	2.3	12.3	6.6	5.7
5 to 12 years	8.5	5.5	2.9	3.7	2.8	0.9	9.3	7.1	2.2
13 years and over	7.6	5.5	2.1	3.9	3.2	0.7	9.6	7.9	1.7
Without children	7.8	6.0	1.8	3.8	3.1	0.6	9.4	7.8	1.5

1 Absent workers divided by total.

2 Hours absent divided by hours usually worked.

3 Inactivity rate multiplied by working days in year (250).

Source: Labour Force Survey

Table 3 Absence rates for full-time employees by industry and sector, 2006, excluding maternity leave

	Incidence ¹			Inactivity rate ²			Days lost per worker in year ³		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
		%			%		days		
All industries	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Public employees	10.3	7.7	2.6	5.2	4.1	1.1	13.0	10.3	2.7
Private employees	7.6	5.3	2.3	3.5	2.7	0.8	8.8	6.9	2.0
Goods-producing	7.8	5.5	2.3	3.8	3.1	0.8	9.6	7.7	1.9
Primary	5.9	4.0	2.0	3.3	2.6	0.7	8.3	6.4	1.8
Agriculture	6.3	4.1	2.2	3.1	2.5	0.7	7.8	6.2	1.7
Other	5.8	3.9	1.9	3.4	2.6	0.8	8.4	6.5	1.9
Utilities	9.5	7.1	2.4	5.0	4.3	0.7	12.4	10.7	1.7
Construction	7.4	5.2	2.2	3.8	3.0	0.8	9.5	7.5	2.0
Manufacturing	8.3	5.9	2.4	3.9	3.1	0.8	9.7	7.8	1.9
Durable	8.3	5.7	2.6	3.8	3.0	0.9	9.6	7.4	2.1
Non-durable	8.1	6.1	2.0	4.0	3.3	0.7	10.0	8.4	1.6
Service-producing	8.3	6.0	2.4	3.9	3.0	0.9	9.8	7.6	2.2
Trade	7.3	5.1	2.2	3.4	2.6	0.8	8.5	6.5	2.0
Wholesale	7.0	4.4	2.7	3.0	2.1	0.9	7.4	5.1	2.2
Retail	7.4	5.4	2.0	3.6	2.8	0.7	9.0	7.1	1.9
Transportation and warehousing	7.9	5.8	2.1	4.6	3.8	0.8	11.6	9.5	2.1
Finance, insurance, real estate and leasing	7.3	4.9	2.4	3.0	2.3	0.8	7.5	5.6	1.9
Finance and insurance	7.6	5.0	2.5	3.1	2.3	0.8	7.8	5.8	2.0
Real estate and leasing	6.4	4.5	2.0	2.7	2.0	0.7	6.7	5.1	1.7
Professional, scientific and technical	6.6	4.4	2.3	2.2	1.6	0.6	5.6	4.0	1.6
Business, building and support services	9.9	7.4	2.6	4.6	3.6	0.9	11.5	9.1	2.4
Educational services	9.2	6.6	2.6	4.3	3.2	1.0	10.7	8.0	2.6
Health care and social assistance	10.5	8.1	2.5	5.7	4.7	1.1	14.4	11.7	2.7
Information, culture and recreation	7.3	5.2	2.1	3.5	2.7	0.8	8.7	6.8	2.0
Accommodation and food services	6.7	4.8	1.9	3.3	2.5	0.8	8.2	6.2	2.0
Other services	6.9	4.5	2.4	2.9	2.2	0.8	7.3	5.4	1.9
Public administration	10.9	7.8	3.1	4.8	3.6	1.2	12.0	9.0	3.0
Federal	13.7	9.5	4.1	5.7	4.1	1.6	14.1	10.2	3.9
Provincial	10.4	7.8	2.7	4.7	3.7	1.0	11.7	9.2	2.5
Local, other	8.0	5.6	2.4	3.9	2.9	0.9	9.7	7.3	2.3

1 Absent workers divided by total.

2 Hours absent divided by hours usually worked.

3 Inactivity rate multiplied by working days in year (250).

Source: Labour Force Survey

Table 4 Absence rates for full-time employees by occupation, 2006, excluding maternity leave

	Incidence ¹			Inactivity rate ²			Days lost per worker in year ³		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
		%			%			days	
All occupations	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Management	5.7	3.6	2.0	2.4	1.7	0.6	5.9	4.3	1.6
Business, finance and administrative	9.1	6.3	2.8	3.9	3.0	0.9	9.7	7.5	2.2
Professional	7.0	4.6	2.4	2.6	1.9	0.7	6.6	4.8	1.7
Financial and administrative	8.5	5.8	2.8	3.6	2.8	0.8	9.1	7.0	2.1
Clerical	9.8	7.0	2.8	4.3	3.4	1.0	10.8	8.4	2.4
Natural and applied sciences	7.3	4.6	2.6	2.7	1.9	0.9	6.8	4.6	2.1
Health	10.2	8.0	2.2	5.8	4.8	1.1	14.6	12.0	2.7
Professional	7.1	4.5	2.6	3.4	2.0	1.3	8.4	5.0	3.3
Nursing	11.4	9.4	2.0	7.0	5.9	1.1	17.6	14.9	2.7
Technical	9.5	7.7	1.9	5.4	4.7	0.7	13.5	11.7	1.8
Support staff	10.7	8.1	2.6	6.1	4.9	1.2	15.3	12.2	3.0
Social and public service	9.0	6.4	2.6	4.0	2.9	1.1	9.9	7.2	2.8
Legal, social and religious	9.1	6.6	2.5	3.9	2.9	1.0	9.8	7.3	2.5
Teachers and professors	8.9	6.2	2.7	4.0	2.8	1.2	10.0	7.1	3.0
Secondary and elementary	10.0	7.1	2.9	4.6	3.2	1.4	11.4	8.0	3.4
Other	6.4	4.2	2.2	2.8	2.0	0.8	7.1	5.0	2.1
Culture and recreation	7.5	5.0	2.5	2.8	1.9	0.9	7.0	4.8	2.1
Sales and service	7.6	5.6	2.0	3.9	3.1	0.8	9.7	7.7	2.0
Wholesale	5.7	3.7	2.0	2.3	1.6	0.7	5.8	4.1	1.8
Retail	7.3	5.4	2.0	3.7	2.9	0.8	9.3	7.3	2.0
Food and beverage	7.0	5.4	1.7	3.9	3.2	0.7	9.7	7.9	1.8
Protective services	7.6	5.6	2.0	4.3	3.3	1.1	10.9	8.2	2.7
Childcare and home support	10.4	7.5	2.9	4.9	3.9	1.0	12.3	9.6	2.6
Travel and accommodation	8.7	6.6	2.1	4.7	3.8	0.9	11.7	9.5	2.1
Trades, transport and equipment operators	8.3	6.0	2.3	4.4	3.6	0.8	10.9	8.9	2.1
Contractors and supervisors	5.9	3.7	2.2	2.7	2.2	0.6	6.8	5.4	1.4
Construction trades	8.6	6.3	2.2	4.6	3.6	1.0	11.4	9.0	2.4
Other trades	8.5	5.9	2.6	4.2	3.4	0.9	10.6	8.4	2.2
Transport equipment operators	7.5	5.6	2.0	4.5	3.8	0.7	11.4	9.5	1.9
Helpers and labourers	9.5	7.3	2.2	4.9	4.1	0.8	12.2	10.3	1.9
Occupations unique to primary industry	6.0	4.1	1.9	3.4	2.7	0.7	8.4	6.7	1.7
Occupations unique to production	9.5	7.1	2.4	4.8	4.0	0.8	12.0	9.9	2.1
Machine operators and assemblers	9.5	7.0	2.5	4.7	3.9	0.9	11.8	9.7	2.1
Labourers	9.4	7.4	2.0	5.0	4.2	0.8	12.5	10.6	1.9

1 Absent workers divided by total.

2 Hours absent divided by hours usually worked.

3 Inactivity rate multiplied by working days in year (250).

Source: Labour Force Survey

Table 5 Absence rates for full-time employees by workplace size, job tenure, job status and union coverage, 2006, excluding maternity leave

	Incidence ¹			Inactivity rate ²			Days lost per worker in year ³		
	Total	Own illness or disability	Personal or family responsibilities	Total	Own illness or disability	Personal or family responsibilities	Total	Own illness or disability	Personal or family responsibilities
	%			%			days		
Workplace size									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Under 20 employees	7.1	4.8	2.3	3.3	2.5	0.8	8.2	6.2	1.9
20 to 99 employees	8.1	5.7	2.4	3.7	2.9	0.9	9.3	7.2	2.2
100 to 500 employees	9.0	6.6	2.4	4.4	3.5	0.9	11.0	8.7	2.3
Over 500 employees	9.4	7.0	2.4	4.8	3.9	0.9	12.0	9.7	2.3
Job tenure									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
1 to 12 months	7.3	5.1	2.2	3.0	2.2	0.7	7.4	5.6	1.8
Over 1 to 5 years	8.1	5.7	2.4	3.7	2.8	0.9	9.2	6.9	2.2
Over 5 to 9 years	8.7	6.0	2.7	4.2	3.2	1.0	10.5	7.9	2.6
Over 9 to 14 years	8.5	6.0	2.5	4.2	3.3	0.9	10.6	8.3	2.3
Over 14 years	8.6	6.4	2.2	4.7	3.9	0.7	11.6	9.8	1.9
Job status									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Permanent	8.3	5.9	2.4	4.0	3.1	0.9	9.9	7.8	2.2
Non-permanent	7.2	5.2	2.0	3.2	2.5	0.7	8.0	6.3	1.7
Union coverage									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Union member or covered by collective agreement	10.3	7.8	2.5	5.4	4.5	1.0	13.6	11.2	2.5
Non-unionized	7.2	4.9	2.3	3.2	2.4	0.8	7.9	5.9	2.0

1 Absent workers divided by total.

2 Hours absent divided by hours usually worked.

3 Inactivity rate multiplied by working days in year (250).

Source: Labour Force Survey

Table 6 Absence rates for full-time employees by province, region and census metropolitan area (CMA), 2006, excluding maternity leave

	Incidence ¹			Inactivity rate ²			Days lost per worker in year ³		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
Province and region		%			%		days		
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
Atlantic	8.4	6.3	2.0	4.2	3.6	0.7	10.6	8.9	1.7
Newfoundland and Labrador	7.1	5.5	1.6	3.9	3.3	0.6	9.7	8.2	1.5
Prince Edward Island	7.3	5.2	2.1	3.4	2.8	0.6	8.5	6.9	1.6
Nova Scotia	8.5	6.4	2.2	4.3	3.6	0.7	10.7	8.9	1.8
New Brunswick	9.1	7.0	2.2	4.6	3.9	0.7	11.5	9.7	1.7
Quebec	8.9	6.6	2.4	4.6	3.7	0.9	11.5	9.3	2.2
Ontario	7.9	5.4	2.5	3.5	2.6	0.9	8.8	6.6	2.2
Prairies	8.4	5.9	2.5	3.8	2.9	0.9	9.5	7.2	2.3
Manitoba	8.8	6.3	2.5	4.0	3.3	0.8	10.1	8.1	1.9
Saskatchewan	9.2	6.6	2.7	4.4	3.5	0.9	11.0	8.7	2.3
Alberta	8.1	5.5	2.5	3.6	2.6	1.0	9.0	6.6	2.4
British Columbia	7.3	5.5	1.8	3.8	3.0	0.7	9.4	7.6	1.8
CMA									
Both sexes	8.2	5.8	2.4	3.9	3.0	0.9	9.7	7.6	2.1
All CMAs	8.2	5.8	2.4	3.8	2.9	0.9	9.4	7.3	2.1
St. John's	8.1	6.2	1.9	3.9	3.3	0.6	9.8	8.3	1.5
Halifax	8.8	6.4	2.4	4.0	3.3	0.8	10.1	8.1	1.9
Saint John	8.7	6.6	2.1	4.1	3.5	0.6	10.2	8.7	1.5
Saguenay	8.6	6.4	F	4.5	3.7	F	11.2	9.3	F
Québec	8.7	6.1	2.6	4.5	3.6	0.9	11.2	9.0	2.2
Montréal	9.2	6.8	2.5	4.5	3.5	1.0	11.3	8.8	2.5
Trois-Rivières	8.5	6.1	F	4.4	3.6	F	11.0	9.0	F
Sherbrooke	7.9	5.7	F	3.9	3.2	F	9.8	8.0	F
Gatineau	12.2	8.9	3.3	5.8	4.8	1.0	14.5	12.1	2.4
Ottawa	9.6	6.8	2.8	3.9	2.9	1.0	9.7	7.3	2.4
Kingston	9.5	6.8	F	4.8	3.7	F	11.9	9.3	F
Greater Sudbury/									
Grand Sudbury	8.4	5.9	F	4.2	3.3	F	10.6	8.3	F
Toronto	7.1	4.8	2.3	3.0	2.2	0.8	7.5	5.4	2.1
Hamilton	8.2	5.8	2.4	4.0	3.2	0.8	10.0	8.1	2.0
St. Catharines-Niagara	8.6	6.0	2.6	4.3	3.4	0.9	10.8	8.5	2.3
London	8.2	5.7	2.5	4.0	3.0	1.0	9.9	7.4	2.5
Windsor	8.4	5.3	3.1	4.1	2.8	1.3	10.2	7.0	3.3
Kitchener-Waterloo	7.9	5.4	2.5	3.3	2.7	0.6	8.2	6.6	1.6
Oshawa	8.7	6.1	2.6	4.1	3.3	0.8	10.3	8.3	2.0
Thunder Bay	9.6	7.2	F	4.9	4.1	F	12.4	10.3	F
Winnipeg	9.0	6.5	2.5	4.0	3.2	0.8	10.0	8.1	1.9
Regina	9.8	7.3	2.5	4.4	3.5	0.9	11.1	8.8	2.4
Saskatoon	8.6	6.1	2.5	3.9	3.0	0.9	9.7	7.4	2.3
Calgary	7.3	5.2	2.1	3.2	2.4	0.8	7.9	5.9	2.0
Edmonton	8.8	6.2	2.6	4.0	3.0	1.0	9.9	7.4	2.5
Abbotsford	8.1	6.0	F	4.1	3.2	F	10.3	8.1	F
Vancouver	6.9	5.2	1.7	3.5	2.9	0.6	8.8	7.1	1.6
Victoria	8.5	6.4	2.2	4.2	3.3	0.9	10.5	8.4	2.2
Non-CMAs	8.3	6.0	2.3	4.3	3.5	0.8	10.7	8.6	2.1
Urban Centres	8.3	5.8	2.5	3.9	3.0	0.9	9.8	7.6	2.2

1 Absent workers divided by total.

2 Hours absent divided by hours usually worked.

3 Inactivity rate multiplied by working days in year (250).

Source: Labour Force Survey

Data source and definitions

The data in this article are annual averages from the **Labour Force Survey** (LFS). They refer to full-time employees holding only one job. Part-time, self-employed and unpaid family workers are excluded because they generally have more opportunity to arrange their work schedules around personal or family responsibilities. Multiple jobholders, too, are excluded because it is not possible using LFS data to allocate time lost, or the reason for it, to specific jobs. Women on maternity leave are also excluded. Some human resource practitioners exclude persons on long-term illness or disability leave (exceeding one year) from their attendance management statistics. Such persons are, however, included in Statistics Canada's work absence estimates if they count themselves as employed (that is, they continue to receive partial or full pay from their employer). In 2006, the number of employed persons on such long-term illness or disability leave averaged only 23,000 in a typical week. Their exclusion would have reduced the weekly work absence incidence for illness or disability from 5.8% to 5.6%, the inactivity rate from 3.0% to 2.8%, and days lost per worker that year from 7.6 to 7.1.

Personal reasons for absence are split into two categories: 'own illness or disability' and 'personal or family responsibilities' (caring for own children, caring for elder relative, and other personal or family responsibilities). Absences for these two reasons represented about 29% of all time lost by full-time paid workers each week in 2006. Vacations, which accounted for about 40% of total time away from work, are not counted in this study, nor are statutory holidays, which represented 15%. Maternity leave represented 10% and other reasons, 6%.

The **incidence of absence** is the percentage of full-time paid workers reporting some absence in the reference week. In calculating incidence, the length of work absence—whether an hour, a day, or a full week—is irrelevant.

The **inactivity rate** shows hours lost as a proportion of the usual weekly hours of full-time paid workers. It takes into account both the incidence and length of absence in the reference week.

Days lost per worker are calculated by multiplying the inactivity rate by the estimated number of working days in the year (250).

Reasons for work absences in the LFS

The LFS sets out the following reasons for being away from work:

- own illness or disability
- caring for own children
- caring for elder relative (60 years or older)
- maternity leave (women only)
- other personal or family responsibilities
- vacation
- labour dispute (strike or lockout)
- temporary layoff due to business conditions
- holiday (legal or religious)
- weather
- job started or ended during week
- working short time (because of material shortages, plant maintenance or repair, for instance)
- other

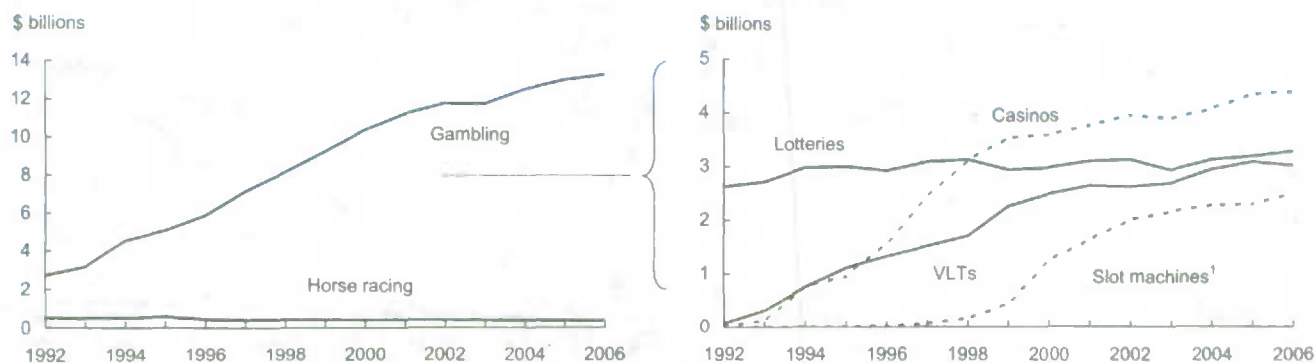
As normally published, personal or family responsibilities consist of caring for own children, caring for elder relative, and other personal or family responsibilities.

Gambling

- Net revenue from government-run lotteries, video lottery terminals (VLTs), and casinos rose from \$2.7 billion in 1992 to 13.3 billion in 2006.¹
- Net revenue from pari-mutuel betting (horse racing) dropped from \$532 million to \$387 million over the same period (1992 to 2006).
- In 2006, lotteries accounted for 25% of all net non-charity gambling revenue, casinos 33%, VLTs 23%, and slot machines not in casinos 19%.
- Average gambling revenue per person 18 and over in 2005 ranged from \$111 in the three territories to \$750 in Alberta, with a national average of \$513.²
- Compared with workers in non-gambling industries, those in gambling were more likely to be women (54% versus 47%), paid by the hour (79% versus 65%), and paid less (\$18 hourly versus \$20) and receiving tips at their job (30% versus 7%).
- Employment in the gambling industry rose from 11,000 in 1992 to 40,000 in 2006.
- One in seven women and men living alone reported spending money on casinos, slot machines or VLTs; however, the men spent more than three times as much as the women—\$1,396 compared with \$434.³
- Gambling participation and expenditure rates increased with household income. For example, 57% of households with incomes of less than \$20,000 gambled in 2005 and spent an average of \$491, while equivalent figures for those with incomes of \$80,000 or more were 75% and \$618.

For further information on any of these data, contact Katherine Marshall, Labour and Household Surveys Analysis Division. She can be reached at 613-951-6890 or katherine.marshall@statcan.ca.

Net revenue from government-run gambling has increased steadily



1 Refers to ones found outside government-run casinos.

Source: National Accounts

Gambling revenues and profits

	Gambling revenue ¹		Gambling profit ²		Share of total revenue ³		Revenue per capita (18+) ⁴	
	1992	2005	1992	2005	1992	2005	1992	2005
	\$ millions (current)				%		\$	
Canada	2,734	12,984	1,680	7,101	1.9	5.5	128	513
Newfoundland and Labrador	80	205	42	109	2.3	5.2	189	496
Prince Edward Island	20	37	7	15	2.7	3.4	209	344
Nova Scotia	125	362	72	169	2.8	5.4	180	485
New Brunswick	117	211	49	117	2.7	3.5	209	351
Quebec	693	2,961	472	1,618	1.8	4.9	128	489
Ontario	853	4,745	529	2,016	1.9	6.0	106	485
Manitoba	153	556	105	318	2.5	5.9	186	623
Saskatchewan	62	490	39	311	1.1	5.6	86	653
Alberta	225	1,882	125	1,513	1.6	6.3	118	750
British Columbia	403	1,528	239	909	2.2	5.1	153	450
Yukon, Northwest Territories and Nunavut	5	8	1	6	0.3	0.3	82	111

1 Total revenue from wagers on government-controlled lotteries, casinos and VLTs, minus prizes and winnings.

2 Net income of provincial governments from total gambling revenue, less operating and other expenses (see *Data sources and definitions*).

3 The 2005 share of total revenue calculation is based on 2005 gambling revenue and 2004 total provincial revenue. The 2005 provincial revenue will be available autumn 2007.

4 Persons 18 and over were selected as this is the legal age of gambling in most provinces.

Sources: National Accounts, Public Institutions (Financial management statistics) and post-censal population estimates.

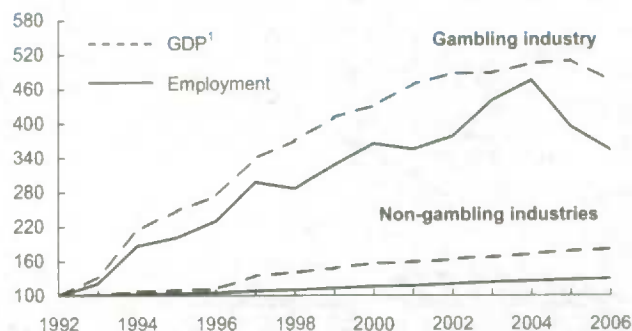
Characteristics of workers

	Gambling		Non-gambling	
	1992	2006	1992	2006
Total employed	11	40	12,720	16,444
			'000	
Sex				%
Men	35	46	55	53
Women	65	54	45	47
Age				
15 to 34	57	40	45	37
35 and over	43	60	55	63
Education				
High school or less	66	50	57	42
Postsecondary certificate or diploma	21	36	27	35
University degree	13	14	16	23
Work status				
Full-time	60	84	81	82
Part-time	40	16	19	18
Provinces				
Atlantic provinces	8	4	7	7
Quebec	F	13	24	23
Ontario	28	46	39	39
Prairie provinces	30	19	17	18
British Columbia	25	19	13	13
Class of worker				
Employee	99	99	85	85
Self-employed	F	F	15	15

Source: Labour Force Survey

Gambling outpaced other industries

1992=100



1 The price, at basic prices, of the goods and services produced. The GDP figures for the gambling industry refer strictly to wagering activities, such as lottery ticket sales, VLT receipt sales, and bets at casinos. Other economic spinoffs, such as hotel and restaurant business, security services, or building and equipment maintenance are not included.

Sources: Labour Force Survey; National Accounts

Characteristics of jobs

	Gambling		Non-gambling	
	1997	2006	1997	2006
Employees¹	33	40	11,323	13,947
			'000	
Unionized²	29	26	34	32
Non-unionized	71	74	66	68
			%	
Permanent job	91	92	89	87
Temporary job	9	8	11	13
Usually receive tips	27	30	7	7
No tips	73	70	93	93
Paid by the hour	80	79	61	65
Not paid hourly	20	21	39	35
Average hourly earnings³				
			\$	
Men: full-time	13.51	20.37	17.83	22.44
Women: full-time	13.04	17.40	14.79	19.20

1 More detailed questions on employees were introduced with the 1997 revision of the Labour Force Survey.

2 Includes persons who are not union members, but whose jobs are covered by collective agreements.

3 Includes tips and commissions.

Source: Labour Force Survey

Household expenditures on gambling activities

	At least one gambling activity		Government lotteries		Other lotteries/raffles, etc.		Casinos, slot machines and VLTs		Bingos	
	\$	%	\$	%	\$	%	\$	%	\$	%
All households										
2000	492	74	245	64	84	31	546	21	743	9
2001	513	72	257	62	98	30	554	20	815	9
2002	570	73	263	63	129	30	679	21	905	8
2003	506	74	243	66	96	29	670	19	799	8
2004	514	71	265	61	101	28	664	19	805	6
2005	549	69	254	61	142	27	720	18	963	6
One-person households¹	534	61	218	51	256	19	842	14	829	6
Men	763	61	297	54	573	17	1,396	14	487	3
18 to 44	771	59	208	51	147	15	1,848	17	733	1
45 to 64	881	66	317	61	1,155	20	1,154	13	238	2
65 and over	512	58	446	48	124	15	275	10	563	7
Women	369	61	155	49	64	20	434	14	906	8
18 to 44	322	61	109	50	53	27	259	14	2,263	4
45 to 64	316	65	151	54	62	20	562	12	599	8
65 and over	435	58	187	45	76	16	466	15	769	11
All households										
Newfoundland and Labrador	487	68	268	59	87	35	544	8	751	13
Prince Edward Island	513	71	266	53	93	45	415	13	1,223	10
Nova Scotia	620	74	278	62	85	41	1,164	16	691	10
New Brunswick	451	70	256	62	70	37	327	11	1,001	10
Quebec	428	73	243	68	253	15	559	13	553	6
Ontario	603	68	266	59	128	27	654	21	1,298	6
Manitoba	676	69	266	54	71	34	990	22	833	10
Saskatchewan	517	73	230	58	100	48	693	24	457	6
Alberta	576	66	225	53	150	38	817	18	1,114	6
British Columbia	608	68	258	60	146	26	964	19	968	4
Income after tax										
Less than \$20,000	491	57	190	47	77	12	840	11	899	10
\$20,000 to \$39,999	539	66	244	58	228	20	673	15	1,044	7
\$40,000 to \$59,999	527	73	262	65	111	29	576	19	1,314	6
\$60,000 to \$79,999	555	74	285	65	104	34	738	20	783	6
\$80,000 and over	618	75	270	65	148	39	836	24	578	5

1 Using one-person households allows examination of individual characteristics. Persons 18 and over were selected as this is the legal age for gambling in most provinces.

Note: Expenditures are per spending household. Unless otherwise indicated, figures are for 2005.

Source: Survey of Household Spending

Data sources and definitions

Labour Force Survey: a monthly household survey that collects information on labour market activity, including detailed occupational and industrial classifications, from all persons 15 years and over.

National Accounts: The quarterly Income and Expenditure Accounts (IEA) is one of several programs constituting the System of National Accounts. The IEA produces detailed annual and quarterly income and expenditure accounts for all sectors of the Canadian economy, namely households, businesses, governments and non-residents.

Survey of Household Spending (SHS): an annual survey that began in 1997 and replaced the Family Expenditure Survey and the Household Facilities and Equipment Survey. The SHS collects data on expenditures, income, household facilities and equipment, and other characteristics of families and individuals living in private households.

Gambling industries: This industry group covers establishments primarily engaged in operating gambling facilities, such as casinos, bingo halls and video gaming terminals; or providing gambling services, such as lotteries and off-track betting. It excludes horse race tracks and hotels, bars and restaurants that have casinos or gambling machines on the premises.

Gambling profit: net income from provincial and territorial government-run lotteries, casinos and VLTs, after prizes and winnings, operating expenses (including wages and salaries), payments to the federal government and other overhead costs are deducted.

Gambling revenue: all money wagered on provincial and territorial government-run lotteries, casinos and VLTs, less prizes and winnings. Gambling revenue generated by and for charities and on Indian reserves is excluded.

Government casino: a government-regulated commercial casino. Permits, licences and regulations for casinos, both charity and government, vary by province. Government casinos, now permitted in several provinces, also vary by the degree of public and private involvement in their operations and management. Some government casinos are run entirely as Crown corporations, while others contract some operations—for example, maintenance, management or services—to the private sector.

Video lottery terminal (VLT): a coin-operated, free-standing, electronic game of chance. Winnings are paid out through receipts that are turned in for cash, as opposed to cash payments from slot machines. Such terminals are regulated by provincial lottery corporations.

Household expenditure on all gambling activities by income groups, 2005

	Average expenditure		Percentage reporting	Gaming as % of total income	
	All households	Reporting households		All households	Reporting households
Income after tax	\$ 380	\$ 549	69	0.6	0.8
Less than \$20,000	277	491	57	2.0	3.6
\$20,000 to \$39,999	358	539	66	1.2	1.8
\$40,000 to \$59,999	383	527	73	0.8	1.1
\$60,000 to \$79,999	412	555	74	0.6	0.8
\$80,000 and over	465	618	75	0.4	0.5

Source: Survey of Household Spending

Notes

1 Refers to total money wagered on non-charity lotteries, casinos and VLTs, minus prizes and winnings.

2 Survey of Household Spending (SHS) and National Accounts rankings of provincial expenditures differ, in part because the SHS includes both charity and non-charity gambling activity.

3 The expenditure figures are not adjusted for any winnings. As well, households consistently under-report the amount of money they spend on gambling. Comparisons with Lottery Corporation figures, for example, have shown that households under-report their government lottery purchases by more than 50%.

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