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MAJOR RELEASES

Earnings and employment of postsecondary graduates

Dismal labour market conditions, ushered in by the recession, dampened the 1992 employment outcomes of 1990 postsecondary graduates. Compared with graduates from the class of 1986, the 1990 graduates were more likely to be working part time. Even so, some 72% of 1990 graduates were working full time in June 1992.

Because of the recession of the early 1990s, the 1992 unemployment rates of 1990 postsecondary graduates were higher at all education levels than the unemployment rates experienced by the class of 1986 in 1988.

However, higher education continued to significantly reduce the likelihood that an individual would be unemployed. In June 1992, the unemployment rate for less-educated young people (20- to 29-year-olds without a postsecondary degree, diploma or certificate) was nearly 17%. Among 1990 postsecondary graduates, only trade/vocational graduates experienced a higher rate (20%). All other categories of 1990 graduates had lower unemployment rates in June 1992. Graduates who fared better were those who earned career/technical (10%), bachelor's (11%), master's (8%) or doctorate (6%) degrees.

Unemployment rates for 1990 graduates were higher in the east than in the west. Unemployment rates among graduates in Quebec and the Atlantic provinces tended to exceed the Canadian average, regardless of education level. In most provinces, unemployment rates two years after graduation were higher for 1990 graduates than they were for the class of 1986. Unemployment rates for Ontario graduates rose the most, whereas the largest drops were in Alberta.

Most 1990 graduates found full-time work

In June 1992, nearly three out of four 1990 graduates were working full time. Graduates from doctoral programs were most successful, with 87% working full time two years after graduation. By contrast, 64% of the 1990 trade/vocational graduates were employed full time in 1992.

For all education levels, the 1990 graduates were less likely to be employed full time two years after graduating than 1986 graduates. Again, this was due to the recession of the early 1990s. However, except for those who earned master's degrees, the 1990 graduates fared no worse than the 1982 graduates, who had also graduated into a relatively weak economy. Indeed, 1990 trade/vocational graduates were more likely to be working full time in 1992 than their 1982 counterparts were in 1984.

> ***Note to readers***
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> *This article examines the employment prospects and earnings of 1990 postsecondary graduates two years after graduation. The data are from the National Graduates Survey, which was conducted by Statistics Canada on behalf of Human Resources Development Canada. Because similar two-year follow-up surveys were conducted for the classes of 1982 and 1986, this article also compares the experiences of the graduates from the three classes.*

Among the 1990 graduates employed full time in June 1992, median earnings rose by education level. Doctoral graduates led the way, earning $46,000, followed by graduates with master's ($44,000) and bachelor's ($32,000) degrees. Graduates from career/technical programs earned $26,000, while trade/vocational graduates made $23,000. Median earnings for graduates of every postsecondary level exceeded the $22,600 median income of less-educated 20- to 29-year-olds who worked full time.

Part-time work has become more prevalent

Graduates in 1990 from all levels were more likely to be working part time two years after graduation than were the graduates from the class of 1986. Just over 1 in 10 graduates in 1990 was working part time in June 1992.

Furthermore, graduates increasingly took part-time jobs involuntarily. More than half the part-timers worked part time because they could not find a full-time job. This was likely because the recession induced restructuring of Canada's overall labour market toward part-time employment at the expense of full-time jobs.

The Vol. 2, no. 3 *Education quarterly review* (81-003, $20/$66) is now available. See "How to order publications".

For further information on this release, contact Jim Seidle, (613-951-1500, fax: 613-951-9040, the Internet education@statcan.ca), Education, Culture and Tourism Division. ■

Impact of technology on manufacturing wages and productivity

Canadian manufacturing establishments using computer-based technologies extensively in their quest for new and/or better products have a distinct competitive edge over those not using advanced technology.

In terms of performance, plants using advanced technology in their manufacturing processes gain market share at the expense of non-users. They also enjoy a significant labour productivity advantage and are able to pay higher wages than non-users. The productivity and wage-rate advantage of technology users has increased over the 1980s. Moreover, the wage-rate differential is growing fastest in those technology groups where relative wages were initially highest.

In other words, the use of advanced manufacturing technologies is increasingly associated with higher skilled, higher paid, and more productive workers, as compared with non-technology users.

Technology use is widespread, especially in large plants. In 1989, while only 48% of establishments reported using at least one computer-based technology, this group accounted for 88% of the goods manufactured that year. Establishments adopting technology generally use more than one type. This use of multiple technologies has become increasingly important. In 1989, some 23% of shipments originated in plants using 10 or more advanced technologies. By 1993, this had increased to 38%.

To date the computer-based revolution has been felt most in the area of knowledge acquisition. Computers have been put to work acquiring, digesting and disseminating information. The adoption of computers for making, cutting and assembling on the factory floor has been less rapid.

New technology means a new kind of workplace

Introduction of the computer into the manufacturing process is ushering in a new industrial revolution. Computers are transforming technology and changing the way in which manufacturers do business.

Technology is altering the way products are designed and engineered, the cutting and shaping of parts, the assembly process, the planning and control of materials requirements, and the integration of these processes. With computers, manufacturers are able to produce goods faster without sacrificing quality, and they can respond more quickly to changes in consumer attitudes and preferences.

Benefits of technology use are being realized in the form of increased market share and labour productivity (relative to non-users). To achieve these benefits requires a workplace where information is shared rapidly and training is paramount.

Adopting technology has meant the elimination of some managers, and a change in the functions of the remaining ones. Responsibilities are shifting from basic filtering and monitoring toward searching for new ways to put machines to use.

This is leading to a new way of organizing work. Not just managers, but all employees—from the factory floor, to the research and development shop, to management—are encouraged to participate in improving the company's position. The emergence of computers that ease the flow of information among all parts of an organization, as well as with customers and suppliers, have made this transformation possible.

The additional information provided by computers means that monitoring programs are far more detailed than in the past. This in turn is leading to a substantial improvement in quality control.

More importantly, quality control is being extended to encompass the concept of total quality management, through certification of stages in the production process.

The introduction of information technologies has helped the development of soft manufacturing—where software and computer networks now rival the importance of production hardware. Soft manufacturing technologies enhance rather than replace the abilities of workers. The introduction of labour-enhancing technologies has been stimulated by a recognition on the part of managers that humans possess the invaluable kind of dexterity that can never be programmed into a robot.

Note to readers

This study examines advanced technology use in Canada's manufacturing sector, and how a set of technology-using establishments performed relative to non-users. Results are based on the linkage of a Statistics Canada technology survey to panel data from the Census of Manufacturers. This linkage allows evaluation of the effect of technology use in the manufacturing sector by comparing the market share, productivity, employment share and wage rates of establishments using, and not using, advanced manufacturing technologies.

An earlier study, released in The Daily on March 2, 1995, examined the extent to which Canadian manufacturers have adopted advanced technologies. It showed that by 1993 the use of advanced manufacturing technology was widespread, especially in large establishments, and that the trend toward multiple technology use in the manufacturing sector was expected to gain strength.

Success in computer-based revolution is related to use of communications technology

Computer-based technologies have had the biggest impact on the inspection and communication functions within manufacturing plants. In short, computers provide knowledge. However, the application of that knowledge to the actual fabrication and assembly process on the factory floor has been somewhat slower.

For instance, some 73% of manufactured goods in 1993 originated in establishments using inspection and communications technologies, while less than half (46%) of goods were produced by establishments using fabrication and assembly technologies.

The productivity advantage of technology users over non-users is highest among establishments using communications and inspection technologies. This is also the case for wages paid. Moreover, this advantage has been increasing the most for communications users. Additionally, those establishments are more likely to have grown most rapidly if they effectively integrated communications technologies with those in other functional areas (such as fabrication and assembly, as well as design and engineering).

Research paper no. 75: Technology use and industrial transformation: Empirical perspectives is now available. Copies can be obtained by contacting Tara Gray (613-951-5314, the Internet: www.statcan.ca).

For further information on this release, contact John Baldwin (613-951-8588), Micro-economics Analysis Division. ■

OTHER RELEASES

Sales of natural gas

July 1995 (preliminary)

Natural gas sales totalled 3 290 891 000 cubic metres in July, up 4.8% from July 1994. All three sectors recorded higher sales. Sales to the industrial sector (including direct sales) rose 5.1% from July 1994, due to higher demand for natural gas by electric utilities and the chemical industry.

Year-to-date sales to the end of July 1995 were up 2.7% from the same period in 1994. Sales decreased to the residential (-5.1%) and commercial (-5.7%) sectors because of mild weather in January and February 1995. Sales to the industrial sector (including direct sales) continued to maintain strong growth, posting a 10.1% increase from the same period of last year.

Available on CANSIM: matrices 1052-1055.

The July 1995 issue of *Gas utilities* (55-002, $14/$140) will be available the third week of October. See "How to order publications".

For further information on this release, contact Gary Smalldridge (613-951-3567), Energy Section, Industry Division.

Natural gas sales

	July 1995[p]	July 1994	July 1994 to July 1995
	'000 cubic metres		% change
Natural gas sales	**3 290 891**	**3 141 593**	**4.8**
Residential	390 702	378 593	3.2
Commercial	309 085	296 804	4.1
Industrial	1 757 473	1 866 771	5.1
Direct	833 631	599 425	
	Jan.-July 1995[p]	Jan.-July 1994	Jan.-July 1994 to Jan.-July 1995
	'000 cubic metres		% change
Natural gas sales	**38 295 205**	**37 301 506**	**2.7**
Residential	9 815 867	10 338 460	-5.1
Commercial	7 244 282	7 683 914	-5.7
Industrial	14 509 551	14 228 249	10.1
Direct	6 725 505	5 505 883	

[p] *Preliminary figures.*

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PUBLICATIONS RELEASED

Touriscope: International travel, July 1995, vol. 11, no. 7
Catalogue number 66-001P
(Canada: $7/$70; United States: US$9/US$84; other countries: US$10/US$98).

Canada's balance of international payments, Second quarter 1995
Catalogue number 67-001
(Canada: $36/$120; United States: US$44/US$144; other countries: US$51/US$168).

Education quarterly review, Fall 1995, vol. 2, no. 3
Catalogue number 81-003
(Canada: $20/$66; United States: US$24/US$80; other countries: US$28/US$93).

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI Z39.48 – 1984.
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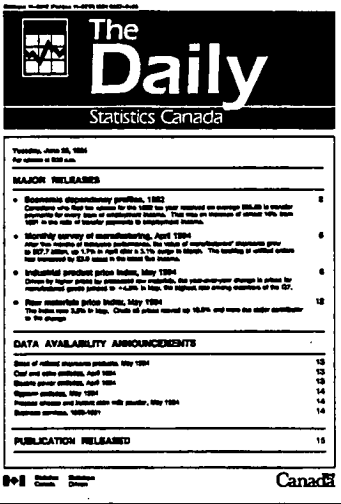

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