

highlights

a weekly digest of recently released British Columbia statistics

The Economy

- **Wages, salaries and benefits earned by workers in BC edged up 0.3% (seasonally adjusted) between May and June.** Earnings were up in all parts of the country, increasing 0.4% at the national level.

Labour income in the province increased 2.1% (seasonally adjusted) between the first and second quarters of this year. Workers in all parts of the country received more wages and benefits than in the first three months of the year. Labour income was up 2.5% nationally, with increases ranging from 1.5% in Saskatchewan and Yukon to 6.7% in PEI.

Source: Statistics Canada

- **Exports of BC products rose 1.1% (seasonally adjusted) between May and June.** The increase in exports occurred despite a 4.0% drop in the value of international forest product shipments. Exports of other goods were up 6.5% overall. This was primarily due to strong growth in exports of non-resource-based manufactured products (+7.4%). In addition, mining and mineral product exports expanded 5.3%.

US demand for BC-made products continued to stimulate export growth in June. Exports destined for the USA were up 5.1%, while shipments going to other parts of the world fell 6.2%. Forest product exports to the States were weak in June (-3.8%). However, US-bound exports of other products increased quite substantially (+12.8%) for the second month in a row.

Source: BC STATS

Agriculture

- **Farm cash receipts in BC were 6.0% higher in the second quarter than in the same period last year.** Both crop (+4.9%) and livestock (+7.6%) receipts increased. Floriculture and nursery products, which accounted for about half

of total receipts in the second quarter, were up 8.7%. Receipts from sales of apples (+11.2%) also improved over 1999, but growers of other treefruits, berries and grapes did not fare as well. Among livestock producers, cattle receipts were up sharply (+19.0%), as were revenues from turkeys (+13.6%), and hens and chickens (+5.5%). Livestock prices in Canada have been boosted by strong demand for red meat, which has pushed up hog and cattle prices.

Canadian farm cash receipts continued to improve in the second quarter, increasing 18.1% from the same period last year. The improvement was largely due to higher livestock receipts (+15.9%) and program payments (+109.9%). Crop receipts were up 7.6%. Among the provinces, receipts increased everywhere except in Newfoundland (-5.3%) and PEI (-7.6%).

Source: Statistics Canada

Tuition Fees

- **Tuition fees for undergraduate arts students at universities (both private and public) in the province are expected to average \$2,520 in the 2000/01 school year.** This is up slightly (+2.0%) from the previous year. Quebec (\$1,898) is the only province where fees are lower than in BC. Nationally, the average tuition fee for an undergraduate arts program will be \$3,378 this year, with fees in other provinces ranging from \$2,873 in Manitoba to \$4,408 in Nova Scotia.

Source: SC, The Daily

- **Across Canada, tuition fees have increased substantially since the beginning of the 1990s, although fees at public universities in BC, where there has been a tuition fee freeze for the last six years, have not increased as much as in other provinces.** Between 1990/91 and 2000/01, the average undergraduate arts tuition

Did you know...

Canadians are drinking more low-fat milk than they used to, but cream consumption has gone up. We used an average 6.3 litres of cream a person last year, up from 5.2 in the early 1990s. The reason? It's partly because coffee shops have become so popular.

fee rose 45.9% in BC, from \$1,727 to \$2,520. Nationally, the average fee has increased 125.8%, from \$1,496 to \$3,378. Fees more than doubled in every province except BC, New Brunswick (+85.4%) and PEI (+89.1%). In the early 1990s, BC universities charged students more than in most other provinces. The situation was completely reversed by the end of the decade.

Source: SC, The Daily

- **The cost of a year's schooling in most faculties at Canadian universities ranges between \$3,000 and \$3,500 a year.** However, students studying law (\$4,106), medicine (\$5,975) and dentistry (\$7,678) in the 2000/01 school year must invest considerably more in their education than other students do. At the opposite end of the scale, education students (\$2,833) pay significantly less. Graduate students will pay an average fee of \$4,020 this year. *Source: SC, The Daily*

Domestic Tourism

- **In 1998, close to three out of five Canadians travelled inside the country.** Canadians reported making 144 million domestic trips, staying away overnight on just over half of them (74 million). Most (126 million) of the trips made by Canadians were within their own province, while another 18 million trips were made to other parts of the country. Total spending on domestic travel reached \$19 billion in 1998.

Canadians travelling in BC put \$3.0 billion into the tills of businesses in the province. BC residents were responsible for \$2.2 billion of the total, while non-residents contributed another \$0.8 billion. In BC, the travel account balance was \$108 million, meaning that Canadians visiting the province spent more money here than BC residents spent when they travelled in the rest of Canada. Quebec (\$119 million) was the only province with a bigger travel account surplus. Ontario (-\$447 million), Manitoba (-\$73 million) and Saskatchewan (-\$55 million) were the only provinces with a deficit.

Pleasure trips (53,800) and visiting friends and relatives (52,000) remained the main reasons for travel within the country. Another 19,900 trips were made for business reasons or to attend conventions, while 18,500 were for personal reasons.

Source: SC, Catalogue 87-212

- **Residents of BC and PEI travelled less than other Canadians did in 1998.** On average, people living in this province made 3.7 trips within Canada, most (3.2) of them in BC. The average number of domestic trips made by residents of other provinces ranged from 3.9 in PEI to 7.3 in Saskatchewan. The average for all Canadians was 4.8 domestic trips. *Source: SC, Catalogue 87-212*

Biotechnology

- **One in twelve of the approximately 3,500 dedicated biotechnology firms in the world are located in Canada.** The US (1,350), Continental Europe (750) and the UK (450) have the largest number of these firms. Of the 282 dedicated biotech firms in Canada in 1997, about half (129) work in the area of human health. The second-most important application is agricultural biotechnology (62), followed by environment (32), food products (20), and other areas (39) such as aquaculture, bio-informatics and specialized chemicals.

Canadian biotech firms employed 15,800 people in 1997. The largest firms were those doing research in the area of human health. They represented more than two-thirds of those employees, with an average size of 81 workers. Firms in agricultural biotechnology employed 42 people, on average, while environment (22) and food production (20) biotech firms were typically smaller. Revenues of these firms totalled \$11.2 billion, with exports valued at \$4.9 billion.

Source: SC, Catalogue 88F00117MIB No 8

The Nation

- **Canada's economy grew 1.1% in the second quarter, marking the 20th consecutive quarterly increase.** Final domestic demand for goods and services rose 1.2%, but export growth (+2.1%) was outpaced by a 2.5% increase in the value of imports. *Source: Statistics Canada*

highlights, Issue 00-35
September 1, 2000

Economic Contribution of the BC High Technology Sector

HIGHLIGHTS:

- By all measures, the high technology sector in BC grew in 1998 and 1999 at rates higher than the BC economy as a whole.
- High technology sector GDP grew 6.2% in 1998, a year when the provincial economy expanded only 0.3%.
- In 1999, the high technology sector's 7,349 establishments had a payroll workforce of 52,060.
- The manufacturing industries in the high technology sector exported \$816 million in high technology commodities in 1999.

INTRODUCTION

Technology plays a unique role in the economy and in society, deeply affecting the way individuals perform their daily work, the results that come from that work, and the interactions with others at all levels. Aside from its impact on work, productivity, and society, the high technology sector is a growing source of employment and revenues, making it of interest in practical as well as theoretical terms.

Since 1994, BC STATS, in conjunction with the Information, Science & Technology Agency (ISTA), has annually produced the *Profile of the British Columbia High Technology Sector*.¹ The Profile gives measures of GDP, employment, wages and salaries, revenues, establishments, and exports and imports—what might be called the outputs of the high technology sector. By maintaining a consistent methodology from year to year, the *Profile* gives an excellent indication of the growth of the BC high technology industries. This paper summarizes the major findings of the 2000 edition of the *Profile*.

THE PLACE OF THE HIGH TECHNOLOGY SECTOR IN THE BC ECONOMY

BC's high technology sector has been growing over the past decade and a half, and by every measure that growth has outpaced the provincial economy as a whole. In spite of rapid growth, the sector remains a small part of the whole economy. By the end of the nineties, the high technology sector accounted for roughly three per cent of provincial GDP and employment, and just over four per cent of wages and salaries and establishments. While this proportion may seem relatively insubstantial, it is important to remember that BC is maturing into a diverse economy where no single industry dominates economic activity. Sectors of similar size to the high technology sector include the utilities industries and communication services. The financial, insurance and real estate sector² generates the greatest amount of GDP, with just under 10% of total.

THE GENERAL STRUCTURE OF BC'S HIGH TECHNOLOGY SECTOR

While the high technology sector in BC is made up of many individual industries, it is more

¹http://www.bcstats.gov.bc.ca/DATA/BUS_STAT/hi_tech.htm

² Excluding owner-occupied dwellings.

revealing to examine the sector as being made up of four broad groups of roughly equal size. The varied high technology manufacturing industries make up the first group. The individual service industries of computer and related services and engineering services are both of about equal size to each other and to the manufacturing industries group. The fourth portion of the sector consists of the two remaining high technology service industries, scientific and technical services and medical laboratories.

The dominance of the high technology service industries is apparent in every measure of the sector, from GDP to employment. By the measures presented in this report, these industries account for between two-thirds and three-quarters of the sector.

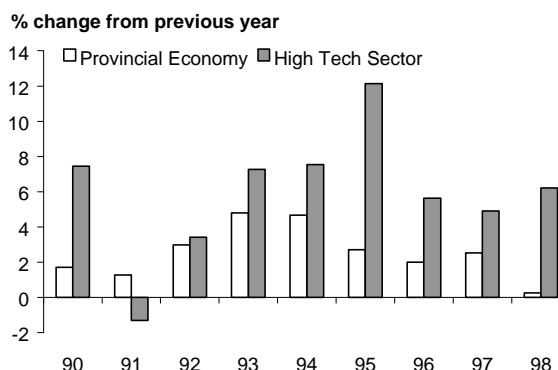
HIGH TECHNOLOGY SECTOR GDP OUTPACES THE REST OF THE ECONOMY

High technology sector GDP advanced 6.2% in 1998, reaching an estimated \$2.6 billion 1992 (constant) dollars. This is the highest growth since 1995 and exceeds the 5.7% average growth recorded thus far in the 1990s.

In 1998 the high technology sector's growth was roughly six percentage points higher than the overall provincial economy, which marked time in 1998 with a marginal increase of 0.3%. The only other year during the 1990s that the high technology sector outperformed the overall economy by such a large margin was in 1995, when it outpaced the economy by more than nine percentage points.

Growth in the high technology sector has outpaced the general economy in all but one year in the 1990s. High technology now accounts for 3.0% of BC's GDP, up from 2.3% in 1990.

High tech GDP growth outpaces BC economy again



Although the service industries dominate the high technology sector in terms of size, high technology manufacturers realized greater percentage GDP growth in 1998. The manufacturing industries have proven quite volatile over the decade, but have logged an average GDP growth rate of 10.9%³. This compares to 4.4% for high technology service industries over the same period.

GDP (constant 1992 dollars), 1998

	\$ million	% change
High technology manufacturing	648.3	20.1
High technology services	1,988.2	2.3
High technology sector: total	2,636.5	6.2
BC total	88,950.7	0.3

The rapid growth of the high technology sector often leads to the question of whether it is in fact the fastest growing sector in the economy. This is a question that can never be answered quite satisfactorily. The reason is that there is no single definition of what comprises the "sectors" for the

³ Compound rate.

remainder of the economy. Larger and smaller aggregations are routinely used by analysts for a variety of purposes. However, it can safely be said that the high technology sector has been close to the top in GDP growth for most of the decade.

During 1998, the high technology sector outperformed most other major activities in the provincial economy. Overall, the goods producing industries (including primary industries) saw GDP slide in 1998 (-2.5%), while the service industries—roughly three times as big—had an increase of 1.2%. Of the major sectors, only the communications services industry, with GDP growth of 7.1% (and total GDP of \$2.9 billion), outpaced the high technology sector.

From 1990 to 1998, the high technology sector had annual average growth of 5.7% while the BC economy grew 2.6% per year. Through this period, the only other major economic activity to have growth over four per cent was finance, insurance and real estate⁴ (+4.4%).

HIGH TECHNOLOGY EMPLOYMENT CONTINUES TO GROW

For the tenth year in a row, employment in the high technology sector was up from the previous year. In 1999, 52,060 workers were employed in the sector, up 10.0% from 1998. Employment growth in BC overall during 1999 was limited to 0.1%, and stood at 1,480,120.⁵ 1999 was the tenth straight year that high technology employment has outpaced BC's overall employment growth.

Another way to look at high technology's growth in the context of BC's overall performance is to examine the net increase in workers. The high technology sector added over 4,700 jobs in 1999, while the overall growth was limited to 1,400. This discrepancy is due to the fact that a number

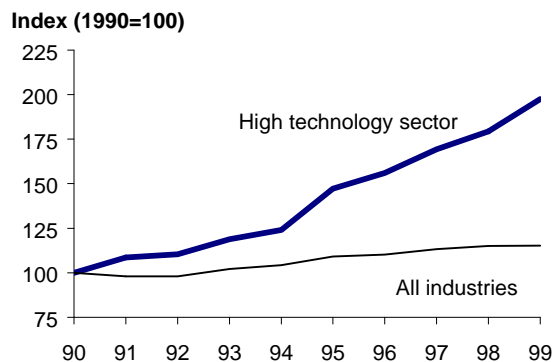
of industries lost jobs, led by a 3,900 worker drop in the construction industry.

Employment, 1999

	Workers	% change
High technology manufacturing	11,260	20.2
High technology services	40,800	7.5
High technology sector: total	52,060	10.0
BC total	1,480,120	0.1

This long run of growth has doubled the number of workers in the high technology sector during the nineties. The sector's growth is all the more impressive when compared to overall employment growth in BC over the same period, which has increased only 15%. The sustained growth in the high technology sector means that its share of provincial employment has increased during the nineties. The high technology sector's share of provincial employment jumped from 2.1% of total employment in 1990 to 3.5% in 1999.

High tech employment doubled in the nineties



⁴ Excluding owner-occupied dwellings.

⁵ This growth rate is based on Statistics Canada's Survey of Employment, Payroll and Hours. The more frequently cited Labour Force Survey (which includes self-employed workers, as well as workers in commercial fishing and agriculture) reports that for 1999, employment in BC grew 1.9%.

REVENUE GROWTH IN 1998 SLOWS TO LOWEST RATE SINCE '91

The high technology sector earned \$5.7 billion during 1998, an increase of 2.5%. While this was the second straight year that the sector's revenue has exceeded five billion dollars, the growth rate was the smallest increase since revenue fell 5.3% in 1991, when an economic recession slowed growth across North America.

HIGH TECH WAGES AND SALARIES UP 12.8% IN '99

Workers in the high technology sector earned a total of \$2.3 billion in 1999, up 12.8% from 1998. The high technology sector advanced more rapidly than total provincial wages and salaries, which grew a modest 1.2% to \$48.1 billion. The high technology industries accounted for nearly five per cent of wages and salaries paid out during 1999 in BC.

In the high technology sector, growth in wages and salaries outpaced employment growth, suggesting that individuals were paid more. This is indeed the case: average weekly earnings in the high technology sector in 1999 were \$870, up 2.5% from 1998. The average high technology sector worker both earned more and saw a bigger jump in pay during 1999 than the average BC worker. The provincial average pay in BC was \$630 per week, up 1.1% from 1998. The difference in the growth rates may be due to the burgeoning demand for skilled high technology workers, as employers are forced to pay more to attract and retain them.

THE NUMBER OF HIGH TECH ESTABLISHMENTS CONTINUES TO GROW

In 1999, there were 7,349 establishments in the high technology sector in BC. Eight out of every ten of these were in the service industries of the sector. There were 5,861 high technology service establishments, versus 1,488 in the manufacturing industries. There are more establishments in each of computer services (with 2,297 establishments) and engineering services (1,939 establishments) than in all of the

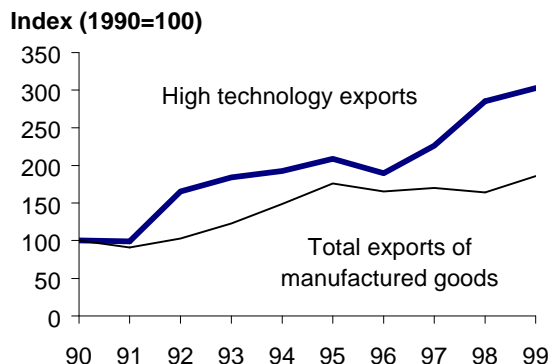
high technology manufacturing industries combined.

Mirroring the geographic pattern of BC's population, two of every three high technology establishments (4,736) were located in the Mainland/Southwest Development Region. Most of the remainder were found in Vancouver Island/Coast (1,273) and Thompson/Okanagan (665).

THE EXPORT OF HIGH TECH GOODS CONTINUE TO GROW

During 1999, the value of high technology commodities exported from BC rose 6.0% to \$816.4 million. High technology commodities accounted for just under three per cent of total BC exports. In 1999 BC exports of all commodities jumped 10.2% to \$28.7 billion. Of total BC exports, \$24.6 billion was in processed goods (that is, the outputs from manufacturing industries, as opposed to unprocessed natural resources), a 13.2% increase from 1998.

High tech goods export growth outpaces total goods exports



Despite the fact that 1999 saw high technology exports grow more slowly than total manufactured exports, over the long term high technology exports have outpaced total exports. Between 1990 and 1999, the export of high technology commodities has grown at an annual average rate⁶ of 13.1%, nearly twice the pace of total manufactured commodities (+7.1%). This

⁶ Compound rate.

rate of expansion meant that during the 1990s, the value of high technology exports from BC tripled.

Computers and telecommunications equipment remained the largest group of high technology export commodities, but 1999 saw their share of the total severely eroded. In 1998, computers and telecommunications accounted for 39% of the value of BC's high technology exports; in 1999, the share shrank to 28%. This decline in importance was caused by two opposite trends: the value of these commodities fell by roughly one-quarter (to \$230 million), while at the same time material design goods, opto-electronics, and life sciences commodities all posted impressive gains.

During 1999, BC manufacturers of high technology commodities exported \$680.5 million of their products to the United States, accounting for 83% of the total value of high technology exports. The next most important destination for BC produced high technology commodities was Taiwan, with only 2.9% of the total value (\$23.9 million).

HIGH TECH IMPORTS GROW, TOO

There is a consistently strong demand within Canada for BC-made high technology commodities: over half of BC's production of high technology commodities doesn't get exported outside the country. This domestic demand is also satiated through the importation of those same commodities. In 1999, BC industries used \$3.0 billion dollars worth of high technology commodities that were imported to BC—four times the value of the same commodities that were exported from BC.

HIGH TECHNOLOGY IN A BROADER CONTEXT

This reports describes the way in which one industrial sector has consistently logged growth that leads the economy overall. While significant in themselves, the increases in high technology sector employment, revenue, and other indicators are viewed as having a greater significance by most economists. Technological

change is perhaps the most important source of structural change in the economy. It eventually alters the mix of products, firms, industries, and jobs that make up the entire economy. The development of the industries designated as "high technology" is indicative of the suffusion of advanced technology in the economy overall. It indicates as well the growth of an innovative spirit and innovation infrastructure in the province that can have far-reaching future effects.

In addition, the high technology sector is part of the "new economy", which is often cited as including high tech, eco-tourism, film, new value-added industries, and other activities that make less intensive use of primary resources and take more advantage of services and the knowledge base.

OTHER RESEARCH INTO HIGH TECH AND INNOVATION IN BC

The high technology and innovation infrastructure in BC, with comparisons to other provinces, has been explored in the new publication *British Columbia High Technology Indicators: the 1990's*⁷. This is the first in a projected annual series monitoring the high technology sector from the input side. Its objective is to measure and analyze the production and application of knowledge available for development of the high technology sector and to foster innovation and technological advancement in the economy overall.

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⁷ Also available at:
http://www.bcstats.gov.bc.ca/DATA/BUS_STAT/hi_tech.htm

 fax transmission information service from **BC STATS**

 also on the Internet at www.bcstats.gov.bc.ca

BC at a glance . . .

POPULATION (thousands)		
	Jan 1/00	% change on one year ago
BC	4,043.7	0.9
Canada	30,606.7	0.9
GDP and INCOME		
<i>(BC - at market prices)</i>	1998	% change on one year ago
Gross Domestic Product (GDP) (\$ millions)	110,948	-0.2
GDP (\$ 1992 millions)	99,708	0.2
GDP (\$ 1992 per Capita)	24,908	-0.8
Personal Disposable Income (\$ 1992 per Capita)	15,969	-1.6
TRADE (\$ millions)		
Manufacturing Shipments (seas. adj.) Jun	3,238	7.5
Merchandise Exports (raw) Jun	2,838	14.3
Retail Sales (seasonally adjusted) Jun	2,960	6.2
CONSUMER PRICE INDEX		
<i>(all items - 1992=100)</i>	Jul '00	% change on one year ago
BC	114.2	2.0
Canada	114.1	3.0
LABOUR FORCE (thousands)		
<i>(seasonally adjusted)</i>	Jul '00	% change on one year ago
Labour Force - BC	2,077	0.0
Employed - BC	1,929	1.6
Unemployed - BC	148	-16.6
		Jul '99
Unemployment Rate - BC (percent)	7.1	8.5
Unemployment Rate - Canada (percent)	6.8	7.6
INTEREST RATES (percent)		
	Aug 30/00	Sept 1/99
Prime Business Rate	7.50	6.25
Conventional Mortgages - 1 year	7.90	7.05
- 5 year	8.25	7.80
US/CANADA EXCHANGE RATE		
	Aug 30/00	Sept 1/99
<i>(avg. noon spot rate)</i> Cdn \$	1.4795	1.4857
US \$ <i>(reciprocal of the closing rate)</i>	0.6770	0.6712
AVERAGE WEEKLY WAGE RATE		
<i>(industrial aggregate - dollars)</i>	Jul '00	% change on one year ago
BC	635.92	1.6
Canada	613.47	3.1
SOURCES:		
Population, Gross Domestic Product, Trade, Prices, Labour Force, Wage Rate	} Statistics } Canada	
Interest Rates, Exchange Rates: Bank of Canada Weekly Financial Statistics		
For latest Weekly Financial Statistics see www.bank-banque-canada.ca/english/wfsgen.htm		

Released this week by BC STATS

- Exports (BC Origin), June 2000
- Business Indicators, August 2000
- Current Statistics, August 2000

Next week

- No subscription releases