

Business Indicators ♦ November 2007

BC's High Technology Sector in Context

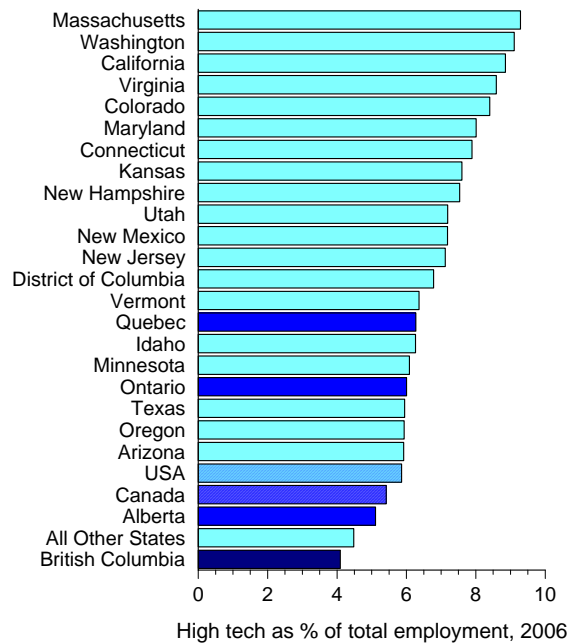
High technology has evolved into an important part of British Columbia's economy.¹ In 2006, high tech generated approximately 5.2% of the province's GDP and employed 74,590 people.² Employment in high technology industries in BC exceeded that of forest sector (which includes logging, silviculture and wood and paper manufacturing industries) and mining, oil and gas extraction industries combined. Nevertheless, BC's high technology sector is still relatively small compared to that of some other provinces and many American states.

In 2006, approximately 4.1% of the province's employees worked in the high technology sector, compared to 5.4% for Canada as a whole. BC ranked behind Quebec (6.3%), Ontario (6.0%) and Alberta (5.1%), the three other provinces with a significant high tech sector, and behind 31 states and the District of Columbia in terms of high tech as a percent of total employment.

At 5.9%, the percentage of American employees working in high technology was slightly greater

than the comparable Canadian figure, ranging from a high of 9.3% in Massachusetts to a low of 2.6% in Wyoming. Washington (9.1%) and California (8.8%) ranked just below Massachusetts.

High technology comprises a smaller portion of BC's overall employment



Source: BC Stats

In absolute numbers, employment in high technology in BC trailed that of Ontario, Quebec and Alberta, as well as 27 American states. High technology industries employed 74,590 people in BC in 2006, or almost 10% of Canada's 760,480 high tech workers. Over two-thirds of the nation's high technology employ-

¹ This article is based on a larger document, *Profile of the British Columbia High Technology Sector: 2007 Edition*, which is available for download on the BC Stats website: www.bcstats.gov.bc.ca

² Employment is measured using Statistics Canada's Survey of Employment, Payroll and Hours (SEPH), which is an employer survey and therefore does not include self-employed.

ees reside in Ontario (43%) and Quebec (27%). Alberta is home to 11% of Canada's high tech workers.

There were a total of 7.8 million people employed in the United States' high technology sector in 2006. California was home to almost 1.4 million high tech workers, or about 17% of the national total. Computer manufacturing and software services were the largest employers in the state. California's high tech employment was more than double that of second-ranked Texas, which had under 0.6 million employees in the sector in 2006.

Compared to Canada, manufacturing plays a far more significant role in the high tech sector in the United States. In 2006, almost 34% of all high tech jobs in the US were in manufacturing industries, compared to only 27% for Canada and 18% for British Columbia. There were seven states where manufacturing industries employed over half of the state's high tech workforce, topped by Indiana and Vermont (each 57%). At the other end of the scale, high technology employment in the District of Columbia, Alaska and Hawaii was almost all in the service sector with less than 3% of high tech workers employed in manufacturing.

Given that manufacturing is a larger component of the US high tech sector, it makes sense that the United States exports relatively more high tech goods compared to Canada. The US exported \$237.1 billion worth of high tech commodities in 2006, which represented about 22% of total US domestic exports.³ By comparison, in Canada less than 7% of the country's commodity exports consisted of high technology

products. In British Columbia, slightly less than 3% of total exports were high tech goods. Quebec is the only province that has a ratio that approaches that of the United States as high technology accounted for 18% of Quebec's total domestic exports in 2006.

The United States also imports more high tech goods compared to Canada, but the discrepancy isn't nearly as large. Just under 16% of all imports into the US were high technology goods in 2006, compared to approximately 12% of imports into Canada.

In terms of overall output, high technology has a far more significant presence in the United States compared to Canada. High technology industries generated just over 9% of GDP in the United States in 2006, or slightly more than \$1.2 trillion.⁴ By comparison, high tech comprised just over 6% of Canada's GDP and Canadian high tech output was about 6% of the US total.

In 2005, the latest year for which GDP data by state is available, there were at least 35 states where high technology contributed more to GDP than in British Columbia. High tech in BC generated approximately 5% of provincial GDP in 2005, which ranked third in Canada, behind Quebec (8%) and Ontario (7%). Alberta, at 4%, ranked behind British Columbia.

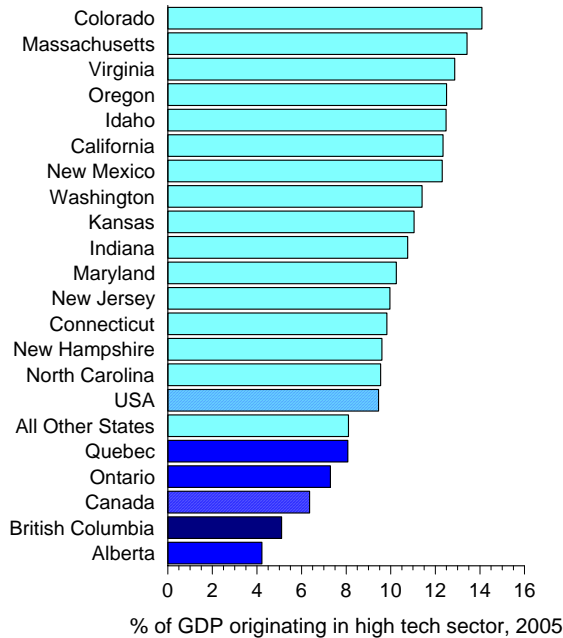
Top-ranked Quebec is a major world centre for the aerospace industry, with the Canadian Space Agency and Bombardier Aerospace headquartered there and companies such as Bell Helicopter and Lockheed Martin operating facilities in the province. The province is also home to a well-developed pharmaceutical in-

³ All dollar figures for the United States have been restated in Canadian currency to allow direct comparison with Canadian figures.

⁴ All GDP figures for the United States are in current dollars and comparisons with Canada and the provinces are made using current dollar figures.

dustry and is the location of approximately 30 Canadian head offices of international pharmaceutical companies, including Pfizer and Johnson & Johnson. Nevertheless, even Quebec ranked below 21 states in terms of percent of GDP generated by the high tech sector.

High technology plays a bigger role in the economy of the United States



Source: BC Stats

Among the states, Colorado is the most dependent on high technology with that sector accounting for 14% of the state’s GDP in 2005. Colorado is home to a large telecommunications hub and has significant computer services and computer manufacturing industries.

However, in terms of total size, California has far and away the largest high tech sector in the United States, generating \$241.8 billion in GDP in 2005, or 17% of the nation’s total high tech GDP. High technology accounted for just over 12% of the state’s GDP, driven by the computer industry in Silicon Valley, the large motion picture industry and a significant telecommunica-

tions presence. The GDP from California’s high tech sector alone was three times that of all high tech output in Canada as a whole.

Two of the other states sharing BC’s time zone also have well-developed high tech sectors. Just over 12% of Oregon’s GDP was produced by its high tech sector in 2005, which may come as a surprise to those who see Oregon as mainly a producer of lumber, but high technology is prominent in the state’s manufacturing industries. Portland is home to the factories of high tech giants such as Intel and Hewlett-Packard. In Washington State, high technology generates 11% of the state’s GDP. The largest industry in the high tech sector in Washington is computer software publishing, led, of course, by Microsoft. Idaho, another state that borders British Columbia, isn’t just about potatoes any more. It had just over 12% of its GDP generated by high technology. High tech has become a critical part of Idaho’s manufacturing sector with companies such as Hewlett-Packard, Micron Technology and AMI Semiconductor.

Compared to these and many other US states, it is readily apparent that BC’s high tech sector is still relatively small. However, the sector has been growing and BC is home to some high tech clusters, such as fuel cells, biotechnology and motion picture production, that are world class and, in some cases, world leaders. Companies such as Ballard Power Systems and Electronic Arts are world renowned and BC is home to other burgeoning companies that could also develop into high tech leaders.