



COLLEGES | COLLÈGES
ONTARIO | ONTARIO

ACAATO ARCHIVE DOCUMENT

2006 Environmental Scan

Chapter 5: Ontario Economic and Labour Outlook

ONTARIO ECONOMIC, LABOUR MARKET AND FISCAL OUTLOOK

Section Five

1.0 HIGHLIGHTS.....	123
2.0 ONTARIO'S ECONOMIC OUTLOOK	124
3.0 ONTARIO'S LABOUR FORCE AND PRODUCTIVITY GROWTH.....	126
3.1 Success of College-credentialed workers in the workforce	126
3.2 Ontario Labour Force Outlook	128
3.3 Outlook for Productivity Growth.....	130
3.4 Skills and Productivity Growth	132
4.0 ONTARIO'S FISCAL OUTLOOK AND EDUCATION SPENDING	133
4.1 Outlook for Education and Training Funding.....	134
4.2 Trends in Investment in Education.....	135
5.0 SECTOR EMPLOYMENT TRENDS	137
5.1 Distribution of College-Credential Workers in Industry Sectors	138
6.0 REGIONAL EMPLOYMENT TRENDS	140
7.0 OCCUPATIONAL OVERVIEW	142
7.1 Enabling Occupations.....	143

1.0 HIGHLIGHTS

- *Economic output* (real gross domestic product) is expected to grow solidly for the next few years after a somewhat disappointing 2.2 per cent annual increase in 2005. However, it is trending down for the following fifteen years, chiefly because Ontario's workforce growth is slowing.
- *Business investment*, particularly machinery and equipment, and *exports and imports*, is expected to grow faster than the economy for most of the next two decades.
- In contrast, *personal consumption* is expected to grow slightly slower than the economy, and *residential construction* will grow quite slowly as the number of new housing units flatline due to slowing growth in the number of households.
- The *labour force participation rate* is expected to fall slowly as the baby boom generation starts to retire. *Unemployment* is expected to trend down from an average of 6.6 per cent over next 5 years to 4.1 per cent from 2020-2025. *Wage increases* are likely to trend up above 3 per cent annually (nominal).
- *Productivity growth* is also expected to double from a current 0.7 per cent annual rate. This reflects tighter labour markets and higher business investment.
- *Provincial funding for education and training*, according to the Ministry of Finance, will grow more slowly in 2006-07 and 2007-08 than the large increase in 2005-06, and fall to 2.3 per cent in 2008-09. During the following 15 years, education and training investments are forecast to grow more slowly than health care, spending on children and social programs, and the composite of all other programs.
- *Sector employment trends*: The Ministry of Finance identifies three sectors as likely to experience rapid employment growth: information and communications technology, business and financial services and the entertainment and creative sector.
- *Regional employment trends*: Over the past few years, employment growth has been fastest for the Greater Toronto Area and Central Ontario. Job growth has been slowest in the North and in Southwestern Ontario. These trends are generally expected to continue for the next two decades.
- *Demand for workers with PSE certificates or diplomas* is forecast by the federal government to grow at the same rate as total jobs in the economy.

2.0 ONTARIO'S ECONOMIC OUTLOOK

This section provides an overall economic outlook for the short term as well as for the next two decades.

Table 1: Ontario Economy: Ten year history; short and long term outlook

Key Statistics	History		Short Term				Long Term Outlook			
	(Average Annual %)		Outlook (%)				(Average Annual %)			
	95-99	00-04	05	06	07	08	05-09	10-14	15-19	20-25
Real Gross Domestic Product (GDP)	4.3	3.0	2.2	2.6	3.2	3.3	2.9	3.0	2.6	2.3
Personal consumption	3.4	3.5	3.2	2.5	2.9	3.2	3.0	2.7	2.5	2.3
Residential construction	3.4	6.8	0.8	-1.3	2.2	2.5	1.8	1.6	1.9	1.6
Non-residential Construction	7.9	-2.9	1.6	3.1	3.5	3.5	5.2	3.9	1.8	2.6
Machinery & equipment	11.1	2.2	5.2	6.8	6.3	6.1	7.7	4.3	2.5	2.8
Exports	7.9	2.2	1.1	2.0	3.3	3.6	3.4	3.8	3.4	2.8
Imports	7.4	3.0	2.8	2.9	3.4	3.7	4.0	3.7	3.2	3.0
Nominal Gross Domestic Product (GDP)	5.6	4.8	4.1	4.5	4.8	5.0	4.9	4.8	4.8	4.7
Housing starts (000s)	50.8	79.7	78.6	73.5	74.9	76.6	75.0	78.3	77.7	76.1
Consumer price index	1.7	2.5	2.3	2.2	1.8	1.9	1.9	1.8	2.0	2.1

Sources: Ontario Ministry of Finance. 2005 Ontario Economic Outlook and Fiscal Review and Toward 2025: Assessing Ontario's Long-Term Outlook. (2005) (base case scenario).

Key points:

- **Economic output** (real gross domestic product) is expected to grow solidly for the next few years over a somewhat disappointing 2.2 per cent annual increase in 2005. However, it is trending down for the following fifteen years, chiefly because Ontario's workforce growth is slowing. There will be many baby boomers retiring, and relatively few young adults will be entering the workforce. As well, while immigration is expected to remain high, its share of the growing total workforce will gradually fall.
- **Business investment**, particularly machinery and equipment, is forecast to grow faster than the economy throughout most of the next two decades. This suggests that returns on capital, such as corporate profits, are likely to outpace wages and salaries. Investment is an important source of job and productivity growth, hence this is a key element of the outlook. High investment levels also generally require a workforce with more skills and flexibility.

- ***International trade.*** Ontario will continue integrating into the US and international economies. Both exports and imports are forecast to grow more rapidly than the economy as a whole. Increasing international specialization tends to support higher incomes as Ontarians tend to focus on what they do best. It also demands a workforce more oriented to different countries, languages and cultures.
- ***Personal consumption*** is expected to continue to grow at a healthy pace, but slightly slower than the economy as a whole. *Residential construction*, in particular, will grow quite slowly – essentially all the growth will be renovation, as the number of new housing units is flatlined for two decades.

Assumptions Behind the Economic Outlook

Any forecast is subject to a wide range of *positive and negative risks*: there are many unknowns about the economic factors which will influence the actual course of Ontario's economy over the next two decades.

Key assumptions include:

- ***A growing US market.*** The outlook assumes continued healthy growth in the US over the next two decades. The huge US budget and international trade deficits have led to spirited debate about whether the US is likely to experience a serious recession and/or a long period of very slow economic growth. Either event would have a substantial negative impact on Ontario's prospects.
- ***Continued growth in China and India.*** The outlook implicitly assumes stable Asian growth, but there is potential for both explosive growth spreading to other developing countries and for a partial melt-down.

In general, changes in Asian economies have indirect impacts on Ontario. Rapid Asian growth, for example, likely means higher energy and resource prices and loss of more manufacturing and service jobs in southern Ontario. However, these same impacts are positive for Northern Ontario, Western Canada and the US (which exports more to a wealthier Asia). Ontario's higher sales (e.g. financial and professional services) to these jurisdictions would tend to offset the direct losses.

- ***A positive economic policy climate:*** The outlook anticipates that the Bank of Canada will continue to be successful in maintaining inflation at about 2 per cent annually. It implicitly anticipates that Canadian governments will continue to balance their budgets and that Canadian businesses will have growing access to US and international markets.
- ***Strong job and productivity growth.*** The outlook anticipates that unemployment will fall due to a strong demand for Ontario workers. It also anticipates that productivity growth will be high. However, this scenario implicitly assumes that the income and productivity gap between Canada and the US will not be significantly lessened – business investment per worker in the US is already much higher than in Ontario, and is expected by many observers to continue growing.
- As well, this scenario rests on assumptions about a favourable climate for productivity growth. These include more workers with more sophisticated skills, an

improved record on innovation, strategic additions to infrastructure, and an evolving regulatory structure.

The relationship between skills and economic growth

“I would...emphasize that our most pressing task is fostering basic skills, reducing the high-school dropout rate, and raising the profile of our community colleges and CEGEPs. Our foremost objective should be to raise average labour productivity not as much by encouraging our already productive workforce to become even more productive as by bringing the low-productivity segment closer to the median.

Pierre Fortin. “From productivity to well-being: Keep the focus on basic skills.”
International Productivity Monitor. No. 11. Fall 2005. p. 3.

“Almost 50 per cent of businesses surveyed in 2003 said a shortage of qualified labour was one of the most important issues facing them. Moreover, 56 per cent of firms said they were forced to hire people even though they were not suitable and almost 30 per cent said they had foregone business opportunities.”

Skilled Trades: A Career You Can Build On. Backgrounder The Canadian
Apprenticeship Forum – Forum canadien sur l’apprentissage (CAF-FCA) August
2004

3.0 ONTARIO’S LABOUR FORCE AND PRODUCTIVITY GROWTH

“Investment in education and training helps form the human capital – the skills and abilities – that is a vital element in assuring economic growth and individual advancement and reducing inequality. It is an important element in combating unemployment and social exclusion. Some of the returns to this investment can be measured: others cannot, though they are no less important.”

Tom Healy. “Counting Human Capital.” The OECD Observer. No. 212. June/July
1998. p.31.

3.1 Success of College-credentialed workers in the workforce

College-credentialed workers have grown from 24 per cent of the workforce in 1991 to 32 per cent in 2004 and now represent the largest portion of the workforce. University-credentialed workers have also grown from 16 per cent to 24 per cent. In contrast, those with less than a high school diploma fell from 27 per cent to 13 per cent.

Figure 1:

Educational Attainment of Ontario's Workforce, 1991

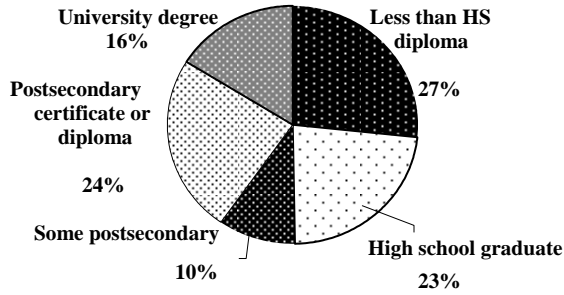
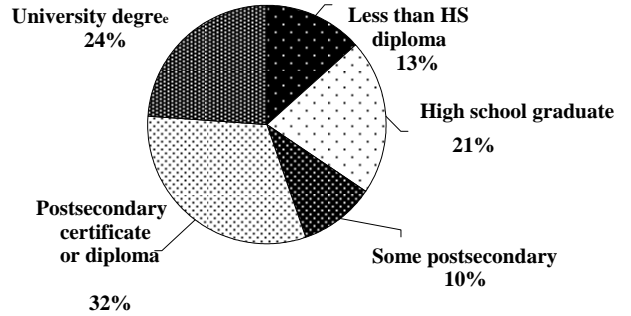


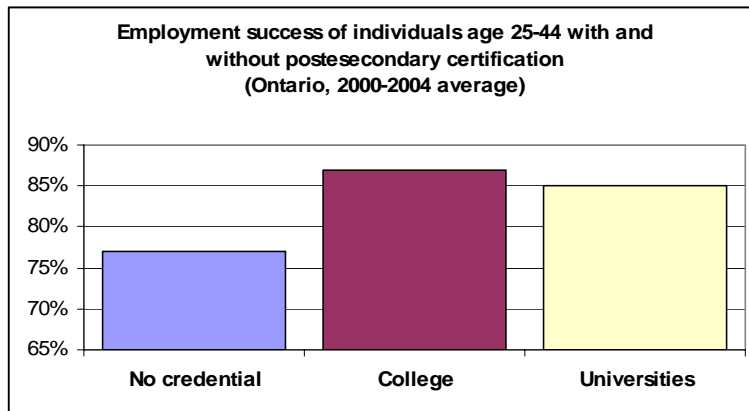
Figure 2:

Educational Attainment of Ontario's Workforce, 2004



College success in anticipating market demands and educating students for a good job and a solid career is borne out by student success. Over the past five years, 87 per cent of those aged 25-44 with college credentials had jobs, compared to 85 per cent with university credentials and 77 per cent without pse credentials. College students enjoy the same high rates of return as university students, but with lower average incomes, reflecting fewer years in school.

Figure 3:



3.2 Ontario Labour Force Outlook

As the baby boom slowly retires, the participation rate is expected to fall slowly. Labour force growth is also slowing because, while immigration is expected to remain high, it will gradually decline as a share of the growing population and labour force.

At the same time, the Ministry of Finance anticipates that continued strong demand for labour will result in gradually tightening labour markets. Unemployment is expected to trend down from an average of 6.4 per cent over the next 5 years to 4.1 per cent from 2020-25.

The Ministry of Finance does not forecast wages directly. But based on their forecasts of personal income and employment, it can be concluded that wages are likely to trend up above 3 per cent annually between 2005-2009.

Table 2: Ontario Labour and Productivity: Ten Year History; Short and Long Term Outlook

Per Cent Change	Actual (Average)			Projection (Average)			
	90-94	95-99	00-04	05-09	10-14	15-19	20-25
Participation rate* (%)	67.6	65.8	67.8	68.3	68.0	67.5	67.0
Labour force	0.3	1.6	2.4	1.5	1.2	1.0	0.9
Employment	-0.7	2.4	2.3	1.7	1.4	1.3	0.9
Unemployment rate* (%)	9.5	8	6.6	6.4	5.6	4.8	4.1
Wage increases**	7.3	3.3	1.9	3.0	2.7	3.1	3.7
Productivity							
Real GDP per capita	-1.0	3.0	1.6	1.6	1.8	1.5	1.3
Real GDP per employee	1.1	1.9	0.7	1.2	1.5	1.3	1.4

* The 2020-25 column shows only end-of-period for the participation and unemployment rate.

** Approximated by Personal Income less Employment for each time period.

Source: Ontario Ministry of Finance. Toward 2025: Assessing Ontario's Long-Term Outlook. (2005).

The following table provides more detailed historical data. For example, female and older worker employment has been rising at above average rates, while male and youth employment growth has been slower.

Table 3: Ontario Labour Force: Key Statistics, 2000-2004

Ontario Labour Force: Key Statistics, 2000-2004						
	2000	2001	2002	2003	2004	% change 00-04
Labour Force (000s)	6,170	6,327	6,499	6,672	6,775	9.8%
Annual Labour Force Growth (%)	2.6	2.5	2.7	2.7	1.5	
Participation Rate (%)						
- Male	73.3	73.4	73.7	74.3	74.1	
- Female	61	61.4	62.1	62.9	63	
Share of Labour Force (%)						
- Youth (15-24)	16.4	16.3	16.4	16.3	16.2	
- Older Workers (45+)	32	32.6	33.4	34.7	35.4	
Total Employment (000s)	5,814	5,926	6,035	6,208	6,316	8.6%
- Male	3,123	3,168	3,212	3,298	3,350	7.3%
- Female	2,691	2,758	2,824	2,910	2,966	10.2%
Annual Employment Growth (%)	3.2	1.9	1.8	2.9	1.7	
Net Job Creation (000s)	181	112	110	173	108	
- Private-sector employment (000s)	3,929	4,051	4,115	4,240	4,276	8.8%
- Public-sector employment (000s)	982	996	1,036	1,047	1,106	12.6%
- Self-employment (000s)	903	878	884	922	935	3.5%
- Manufacturing employment (% of total)	18.6	18	18.2	17.8	17.6	
- Services Employment (% of total)	72.8	73.5	73.4	73.6	73.9	
Part-time (% of total)	18	17.9	18.3	18.5	18.1	
Average Hours Worked Per Week	38.1	37.5	37.3	36.6	37.1	-2.6%
Total Unemployment (000s)	356	401	463	464	459	28.9%
Unemployment Rate (%)	5.8	6.3	7.1	7	6.8	
- Male	5.6	6.5	7.4	7.1	6.9	
- Female	6	6.2	6.8	6.8	6.6	
- Toronto CMA	5.5	6.3	7.4	7.7	7.5	
- Northern Ontario	8.3	8	8.1	7.4	7.8	
- Youth (15-24)	11.8	12.5	13.9	14.4	14.2	
- Older Workers (45+)	4	4.4	4.7	4.7	4.5	
Share of Total Unemployment (%)						
- Long-term Unemployment (%) (27 weeks+)	15.4	12.8	15.2	16.2	15.2	
- Youth (15-24)	33.7	32.2	31.9	33.9	34	
- Older Workers (45+)	22.4	22.8	22.1	23.5	23.4	
Average Duration (weeks)	17.8	15.3	16.4	17	16.1	
- Youth (15-24)	9.8	8.6	9.4	9.4	8.8	
- Older Workers (45+)	28.4	25.7	24.5	27.3	24.2	
EI Regular Beneficiaries (000s)	101	122	136	142	136	34.7%
EI Maximum Weekly Entitlement (\$)	413	413	413	413	413	0.0%
EI Total Benefits Paid(\$ millions)	2,787	3,524	4,328	4,342	4,429	58.9%
Social Assistance Caseload (000s)	436	408	411	413	418	-4.1%

Source: Ontario Ministry of Finance. 2005 Ontario Economic Outlook and fiscal review

3.3 Outlook for Productivity Growth

“The recent aggregate labour productivity performance of the United States has been unprecedented in its robustness. In contrast, labour productivity growth has been much weaker in Canada.”

Andrew Sharpe, Centre for the Study of Living Standards. “Recent productivity developments in Canada and the United States: Productivity growth deceleration vs. acceleration.” *International Productivity Monitor*. No. 8. Spring 2004. p. 16.

The challenge for business and governments in Canada, then is that “Over the past two decades, the productivity levels of Canadian industries have been slipping relative to those of American industries.”

Conference Board of Canada, *Annual Innovation Report*, 2004.

The Ontario Ministry of Finance has identified productivity, based on business investment, human capital and innovation, as critical for prosperity.

It forecasts that productivity growth will double from an average of 0.7 per cent for the last 5 years to an average of 1.2 per cent over 2005-09. In part this reflects anticipated tighter labour markets – skill shortages and higher wages encourage businesses to make labour-saving investments which raise average labour productivity. See Table 2. for more information.

While, the assumption that productivity will rise quickly is one of the most important in the outlook, many of the mechanisms which will achieve this result are not well understood. Indeed, many commentators are concerned that Canada is losing ground to the U.S., and that it is unclear how to achieve the productivity growth needed for higher incomes.

Moreover, productivity growth occurs as a result of many individual actions taken by individual firms and industries.

Productivity varies dramatically by industry, and it can be difficult to develop common prescriptions for growth. Table 4 shows that labour productivity per worker, measured as real GDP per worker, varies widely by industry: miners have well over twice the labour productivity as those working in arts, entertainment & recreation.

One of the most important factors in labour productivity differences is business investment per worker: industries like mining, with high capital investments, typically have high measures of GDP per worker.

Table 4: Labour productivity for major industries
Ontario, 2003, Index (1987=100)

Industry	Labour Productivity (Real GDP per Worker)
All Industries	122.5
Agriculture, forestry, fishing & hunting	174.5
Mining	174.9
Utilities	91.1
Construction	89.9
Manufacturing	147.9
Wholesale Trade	167.9
Retail Trade	125.1
Transportation & Warehousing	NA
Information & Cultural Industries	NA
Finance & Insurance	NA
Real estate & rental leasing	NA
Professional, Scientific & technical services	114.9
Management of companies & enterprises	NA
Administrative & support, Waste management & remediation services	92
Educational Services	79.8
Health care & social assistance	89.6
Arts, entertainment & recreation	79.1
Accommodation & food services	85.8
Other services (except public administration)	121.9
Public administration	117.3
<i>Source: The Centre for the Study of Living Standards and Prism Economics and Analysis; Industry breakout based on Statistics Canada's North American Industrial Classification System</i>	

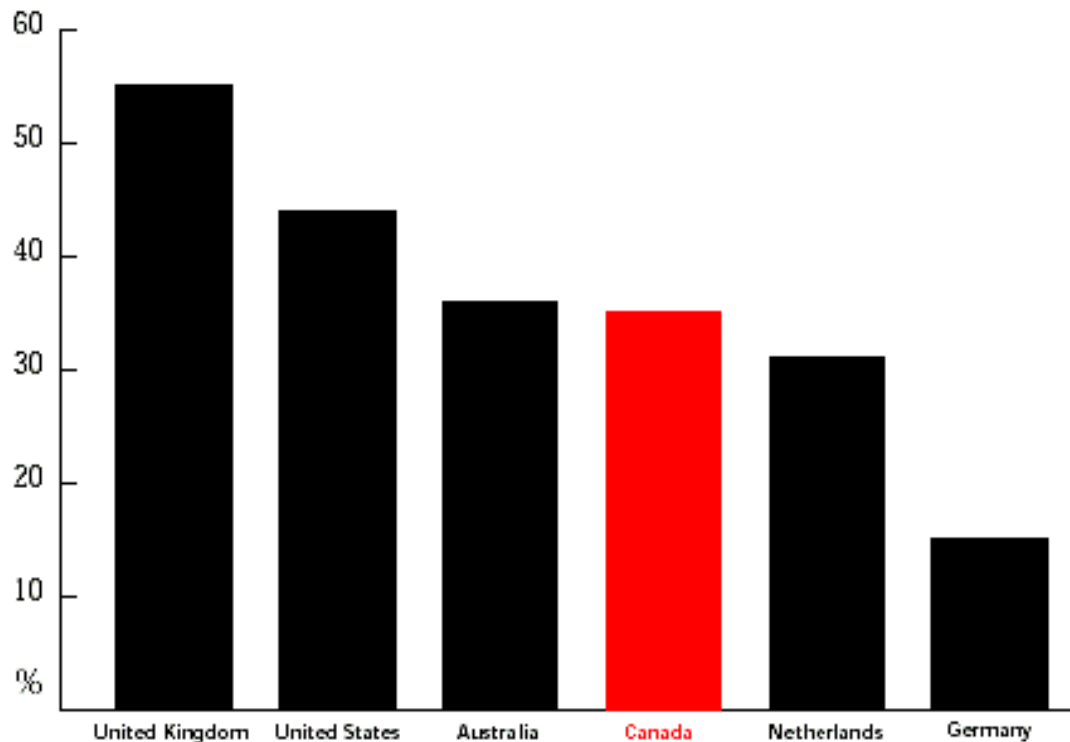
3.4 Skills and Productivity Growth

Business investment in computers, telecommunications equipment and software has grown by 1,500 per cent in the past two decades. It is this high-technology equipment that is transforming the workplace and making continuous productivity improvement possible.

In a few years' time, three quarters of all new-job openings in Canada will require postsecondary education. This creates a challenge in Ontario. Currently, only 53 per cent of the 25 to 34 year olds in Ontario have attained a postsecondary diploma or degree. In addition, Canadian employers spend less on workforce training than do their competitors.

Figure 4:

Percentage of employed adults aged 25-54 participating in employer sponsored formal job-related training, 1995



Source: OECD, Employment, 1999

4.0 ONTARIO'S FISCAL OUTLOOK AND EDUCATION SPENDING

Government plays a major role in the economy on at least three counts:

- Its taxing and redistribution powers introduce major changes in the way the economy operates – strongly influencing private sector spending, saving and investment.
- Government regulation of private sector activity influences the sectors in which investments are made, and in which economic activity takes place, and
- The broader public sector employs about 23 per cent of the workforce in Ontario. Changes in government spending can have an immediate impact on employment growth in the public sector as well as on spending throughout the economy by public sector workers.

The Ministry of Finance outlook calls for the Ontario government's share of the economy to gradually decline over the next twenty years. In part this is because it anticipates that revenues will rise more slowly than the economy. For example, federal transfers to Ontario are forecast to grow slower than the economy, even though much of the federal contribution is for fast-growing health costs.

Table 5:

Ontario's key FISCAL indicators: Ten year history; short and long term outlook										
NOMINAL	History Annual Average		Short Term Outlook (%)				Long term Outlook Annual Average (%)			
	95-96 to 99-00	00-01 to 04-05	05/04	06/05	07/06	08/07	05-06 to 09-10	10-11 to 14-15	15-16 to 19-20	20-21 to 24-25
Revenue	7.2	3.5	5.5	3.3	4.4	4.2	4.6	4.1	4.3	4.3
- Gov't of Canada	-5	15.4	10.9	-2.3	5.4	2.9	3.8	4.2	3.1	3.1
Expense	2.8	4.5	5.2	2.6	3.3	2.5	3.5	4.2	4.5	5
- Health Care	4.3	7.5	6.5	4.8	4.0	3.9	5.1	5.8	6	6.2
- Education & Training	4.9	5.3	8.1	4.4	4.8	2.3	4.0	3.0	3.5	3.8
- Children & Social	-4.4	4.2	6.5	2.0	2.0	1.0	3.4	4.1	4.3	4.5
- Other Programs	0.4	3.5	3.3	-4.0	3.3	0.0	-0.9	4.1	4.3	4.3
- Interest on Debt	7.1	-2.7	2.1	3.1	4.0	3.9	3.4	-0.1	-0.5	1.8
NOTE 1: Wage increase*	3.3	1.9	2.9	2.9	3.0	3.0	3.0	2.7	3.1	3.7
- ed less avg. wages	1.6	3.4	5.2	1.5	1.8	-0.7	1.0	0.3	0.4	0.1
- health less avg. wages	1.0	5.6	3.6	1.9	1.0	0.9	2.1	3.1	2.9	2.5
NOTE 2: Nominal GDP	5.6	4.8	4.1	4.5	4.8	5.0	4.9	4.8	4.8	4.7
- ed & training less GDP	-0.7	0.5	4.0	-0.1	0.0	-2.7	-0.9	-1.8	-1.3	-0.9
- health less GDP	-1.3	2.7	2.4	0.3	-0.8	-1.1	0.2	1.0	1.2	1.5
- business investment less GDP	6.8	-0.8	3.0	4.2	3.1	2.8	4.8	1.3	-0.1	0.5

Sources: Ontario Ministry of Finance. 2005 Ontario Economic Outlook and Fiscal and Toward 2025: Assessing Ontario's Long-Term Outlook. (2005) (base case scenario)

* Short term outlook uses 'wages and salaries', while other data uses personal income

As well, the report anticipates balanced budgets for most of the two decades, which means that interest on debt will trend down as a share of the annual budgets.

Ontario's fiscal position is important to colleges because it provides an early indication about future increases to college budgets.

During the decade from 1992 to 2002, Ontario was in a difficult fiscal position, and made cuts, or avoided increases, to many public services. The table shows the years from 1994 to 2004, which include some of the recovery in funding. Over this latter period, overall funding for schools, colleges and universities was almost at the level of nominal GDP growth. In comparison, health spending grew faster, and spending on children and social services grew more slowly.

4.1 Outlook for Education and Training Funding

Recent initiatives (*Reaching Higher Plan*) addressed some of the funding issues which became acute during the 1990s. As Table 5 shows, there was an 8.1 per cent increase in funding to schools, colleges and universities in 2005-06. As nominal GDP grew by 4.0%, this meant that education and training budgets rose 4.1 per cent faster than GDP.

The Ministry of Finance forecasts education and training funding growth will be slower in 2006-07 and 2007-08. In 2008-09 it will fall to 2.3 per cent.

During the next 15 years, the Ministry of Finance anticipates that education and training investments will grow more slowly than health care, spending on children and social programs, and the composite of all other programs.

Another way to consider education and training budgets is to compare how fast they are rising relative to the average wage rate. The first row in "Note 1" indicates how quickly the Ministry of Finance expects average wages across the economy to increase.

- The education and training budget rose 5.2 per cent more quickly than average wages in 2005, allowing for discretion to address challenges that had arisen as a result of previous budget cuts.
- After 2005, education and training funding is not expected to grow much more rapidly than wages. Not all of college spending is related to wage costs, however, so educators will have less opportunity to address deficiencies, meet growth opportunities or expand to help more students-at-risk.
- In comparison, the outlook anticipates more funds will be made available to the health sector to deal with growth.

4.2 Trends in Investment in Education

“A major cost or risk to adopting new technology is shortages of workplace skills to implement the technology.... An innovative culture that supports ongoing restructuring for success puts new demands on the full workforce, not just on a small cadre of managers and researchers.... Colleges play a crucial role in this process through programs that train the workers who will design, install, maintain, repair, troubleshoot and manage the new processes.”

Prism Economics and Analysis and Arthur Donner. *Role of Colleges of Applied Arts and Technology (CAATs) in raising Ontario's labour productivity and contributing to its prosperity*. (Forthcoming).

“The pace of technological change and the rapid response that will be demanded...mean that all employees will not only have to be flexible enough to adapt to changes in their job, but also be willing and able to continuously upgrade their knowledge and skills.”

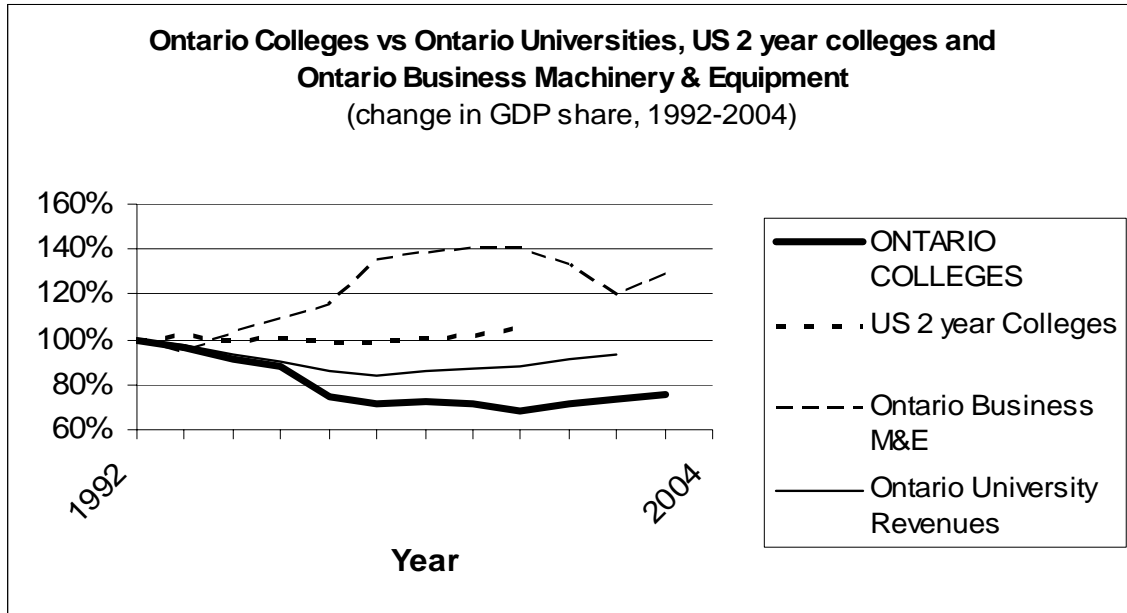
Canadian Manufacturers and Exporters, *Manufacturing 20/20: Building Our Vision for the Future*, 2005.

Business investment is typically measured as a share of the economy (GDP). More business investment results in higher capital stock per worker. Workers, on average, can produce more. Higher output tends to result in higher returns to capital (to repay the cost of the investment) and may mean higher incomes for workers who are producing more.

As can be seen from Figure 5:

- Between 1992 and 2004, business investment as a share of the economy (GDP) rose by close to 30 per cent, laying the groundwork for higher incomes in the years ahead. A large share of this increase was in information and communications technology (ICT) which allows companies to develop and improve products, but also, through business process engineering, to reduce costs.
- In comparison, in Ontario, investment in college education decreased by over 20 per cent as a share of the economy (GDP) between 1992 and 2004.
- In comparison to the 20 per cent drop for Ontario colleges, total expenditures by Ontario universities dropped by about 5% as a share of the economy, while US 2-year college expenditures actually rose as a share of the U.S. economy.

Figure 5:



The Ministry of Finance anticipates that business investment in machinery and equipment will increase by a further 37 per cent over the next two decades compared to the growth in the overall economy. And during the next two decades it expects capital stock per employee to rise by 40 per cent.

While workplaces with much more complex equipment would call for an increasingly sophisticated workforce, beginning in 2006-07, Ontario investment in education and training is forecast to begin to fall as a share of the economy.

5.0 SECTOR EMPLOYMENT TRENDS

Table 6 highlights several recent sectoral employment trends. For example, primary industries and agriculture are still losing jobs, and manufacturing employment has peaked. In contrast service sector industries are generally growing particularly noteworthy are business and financial services and health and social services. After 2001, employment in education also grew faster than average.

However, it is difficult to anticipate which industries will experience rapid employment growth over the long term because they are affected by so many technological and competitive issues.

The Ministry of Finance identifies three sectors as likely to experience rapid employment growth. These are: information and communications technology, business and financial services and the entertainment and creative sector.

In addition, several slow employment-growth industries are expected to continue to have rapid productivity growth. In these cases, there is a strong likelihood that existing workers will require new skills to keep pace with the changes they experience in the workplace. These industries would include primary industries, agriculture, manufacturing, and service sector industries with high investment per worker, such as telecommunications and financial services.

5.1 Distribution of College-Credential Workers in Industry Sectors

Table 6:

Ontario Employment by Industry, 2000-04									
	Thousands					% change over year earlier			
	00	01	02	03	04	01	02	03	04
Goods Producing Industries	1,579	1,572	1,608	1,641	1,649	-0.4	2.3	2.1	0.5
Primary Industries	134	119	112	113	113	-10.9	-5.8	0.8	0.1
Agriculture	99	83	77	82	79	-15.7	-7.2	5.7	-3.7
Manufacturing	1,080	1,066	1,097	1,102	1,109	-1.3	2.9	0.5	0.6
Construction	321	337	346	371	369	5	2.6	7.4	-0.8
Utilities	45	50	52	54	58	12.1	4.6	2.9	8.2
Services Producing Industries	4,235	4,354	4,428	4,568	4,667	2.8	1.7	3.2	2.2
Trade	877	928	920	937	963	5.8	-0.9	1.8	2.8
Transportation and Warehousing	274	278	279	289	300	1.4	0.2	3.8	3.8
Finance, Insurance, Real Estate and Leasing	381	390	389	409	430	2.3	-0.2	5	5.1
Professional, Scientific and Technical Services	417	437	437	448	436	4.7	0	2.6	-2.8
Business, Building and Other Support	240	242	247	264	277	0.8	2.3	6.7	5
Educational Services	365	357	368	375	390	-2.3	3.1	1.9	4
Health Care and Social Assistance	537	563	584	613	636	4.8	3.8	4.9	3.7
Information, Culture and Recreation	283	302	297	293	304	6.7	-1.6	-1.5	3.7
Accommodation and Food Services	336	330	363	369	365	-1.9	10	1.6	-1.1
Public Administration	279	281	297	309	311	0.8	5.8	4	0.4
Other Services	245	246	246	262	257	0.3	0.2	6.5	-1.9
Total Employment	5,814	5,926	6,035	6,208	6,316	1.9	1.8	2.9	1.7

Source: Ontario Ministry of Finance. 2005 Ontario Economic Outlook and Fiscal Review.

As shown in Figure 6, those with college qualifications are widely distributed across the economy with strong representation in virtually all industries – they constitute a fifth to a half the workers in 18 of 20 industries.

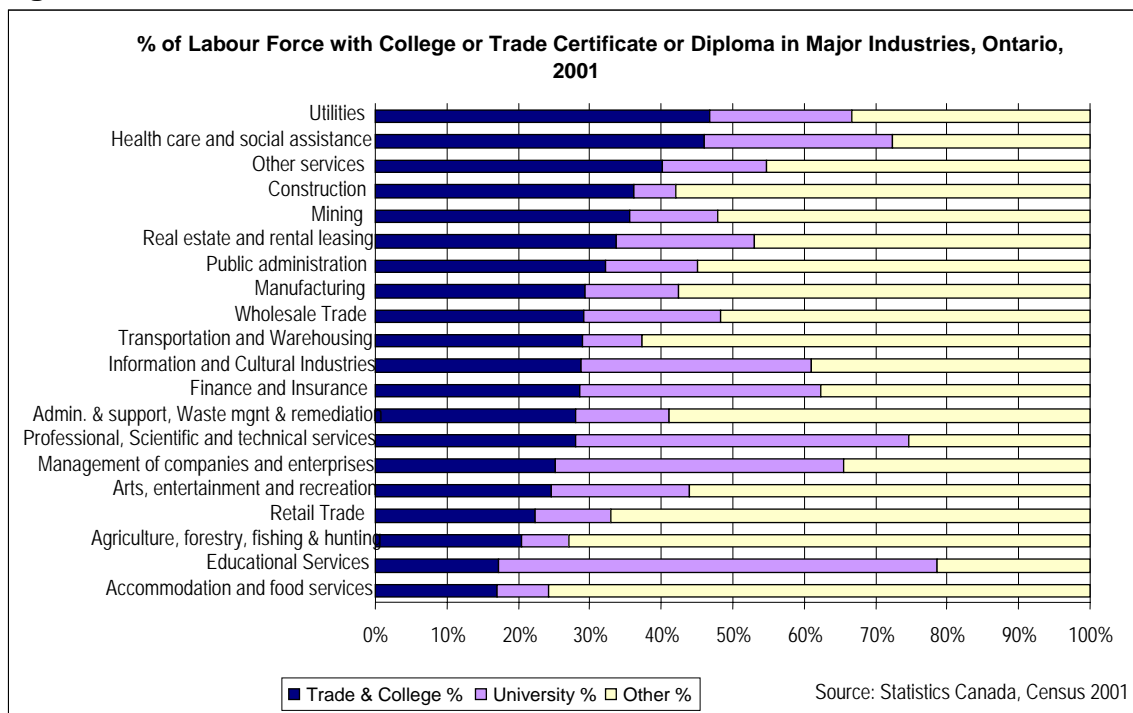
- In six of these 20 industries, over a third of workers have college qualifications. And in the top two industries, Utilities and Health Care and Social Assistance, 46 per cent of the workforce has college qualifications.

In comparison, the university-qualified workforce is more narrowly distributed. They exceed 20 per cent of the workforce in only four of 17 private-sector industries.

Close to half of all university graduates are employed in the broader public sector, which has about a quarter of the workforce. They are strongly represented in education services (61 per cent), public administration (32 per cent), and health care and social assistance (26 per cent).

The number of workers with college credentials exceeds the number with a university degree in 17 of the 20 industries. Throughout most of the private sector, those with college credentials are more numerous, often by a factor of two, and sometimes by a factor of three than those with a university degree.

Figure 6:



6.0 REGIONAL EMPLOYMENT TRENDS

Regional employment trends depend on a range of factors, such as the relative importance of specific industries and the level of immigration or out-migration. In some communities, the prospects of a few very large employers may have a disproportionate impact on community employment and on college prospects.

Over the past few years, employment growth has been fastest for the Greater Toronto Area and Central Ontario. Job growth has been slowest in the North and Southwestern Ontario.

To some degree, these trends are expected to continue for the next two decades. While the Ministry of Finance does not forecast job growth by region, its population forecasts provide a reasonable indication of the likely course of job growth.

Greater Toronto Area: Most of the immigrants to Ontario are expected to continue to head for the Toronto area, where job growth prospects are reasonably bright. The GTA is very diversified, with many very specialized business and financial services that serve the country and increasingly, international clients. It is also home to a strong information and communications technology sector and is the national (English-speaking) capital for the entertainment and creative cluster.

Kitchener-Waterloo-Cambridge-Guelph. This diversified area is one of the most rapidly growing in Canada. It is attracting both employers and new employees from the GTA area. It has a very strong information and communications technology sector as well as a large manufacturing sector. Undoubtedly this area, now an exurb of Toronto, will see increasing immigration.

Central Ontario. This area comprises a group of mid-size and smaller cities (e.g. Hamilton, Ste. Catharines, Oshawa, Peterborough, Barrie) often based on manufacturing. In many cases, manufacturing jobs are declining, and the communities are transforming to new sources of competitive advantage. In some cases, they could benefit from migrants from Toronto looking for a stronger sense of community, lower house prices, etc., a trend which could become stronger as retiring baby-boomers consider relocating.

Southern Ontario. Other cities in southern Ontario typically have strongly-defined sectoral strengths which play a significant role in community prospects. Ottawa has a large public sector and information and communications technology sector. London has both manufacturing and financial services. Windsor, Sarnia, Belleville and Cornwall each specialize in different manufacturing industries. Kingston combines manufacturing with tourism and some high technology. For many of these communities, it will be a challenge to find high employment growth opportunities to offset the weak employment prospects in manufacturing.

Northern Ontario. Northern communities have typically been very dependent on the resource sector, which is shedding jobs while rapidly increasing productivity. In recent years, several northern communities have benefited from public sector jobs, and more recently from large call centres. Some, such as North Bay, are quite diversified.

Table 7:

Ontario Regions: Employment change 2000-04 (000s)						
	2000	2001	2002	2003	2004	% change 00-04
Ontario	5,814	5,926	6,035	6,208	6,316	8.6%
Ottawa	571	592	596	617	614	7.5%
Kingston-Pembroke	186	192	199	199	205	10.2%
Greater Toronto Area	2,580	2,665	2,722	2,798	2,853	10.6%
Muskoka-Kawarthas	160	152	155	175	179	11.9%
Kitchener-Waterloo-Barrie	550	559	579	596	611	11.1%
Hamilton-Niagara Peninsula	648	651	654	679	686	5.9%
London	307	305	308	317	331	7.8%
Windsor-Sarnia	301	302	307	308	308	7.8%
Stratfor-Bruce Peninsula	152	148	151	150	164	7.9%
Northeast	248	251	251	253	254	2.4%
Northwest	111	108	113	116	111	0.0%
Notes: All figures average annual employment levels. Definitions of regions are provided in 2005 Ontario Economic Outlook and Fiscal review, Table 34.						

Source: Ontario Ministry of Finance. 2005 Ontario Economic Outlook and Fiscal Review.

7.0 OCCUPATIONAL OVERVIEW

Table 8 provides an overview of the distribution of occupations by industry in Ontario. The manufacturing sector, for example, has a high proportion of its workforce in processing activities, while the large majority of construction workers are equipment operators. And in service industries, there are many sales staff.

Table 9 provides an occupational forecast for Canada. The demand for college-credentialed workers is expected to grow at the same rate as total jobs in the economy. Jobs for university graduates are expected to grow faster, while jobs for those without PSE credentials will grow slower.

- Natural and applied sciences and health-related jobs will grow fastest.
- Other areas of fast growth include professional occupations in business and finance, and paraprofessional occupations.

Table 8: Occupation Employment by Industry, Ontario 2004

Occupational Employment by Industry* Ontario, 2004				
Occupational Grouping	Manufacturing Industry %	Service-producing Industry %	Construction Industry %	Primary Industry %
All Occupations	100	100	100	100
Management	8	10	14	2
Business, Finance and Administration	13	22	9	5
Natural and Applied Sciences	8	7	2	3
Health	--	7	--	--
Social Science, Education, Government Service and Religion	--	10	--	--
Art, Culture, Recreation and Sport	1	4	--	--
Sales and Service	4	30	1	--
Trades, Transport and Equipment Operators	18	9	73	9
Primary Industry**	--	1	--	79
Processing, Manufacturing and Utilities	49	1	--	--

Note: May not add to 100% due to rounding. -- indicates employment less than 1,500.

* Grouped according to North American Industry Classification System (NAICS) and excluded Utilities

** Primary Industry includes Agriculture, Forestry, Fishing, Mining, Oil and Gas.

Source: Ontario Job Futures. Overview of Ontario's Employment Patterns. (Statistics Canada, Labour Force Survey)

Table 9: Employment Growth by Occupation, 1999-2013

Total	Employment		Employment share		Annual average growth		
	2003	2013	2003	2013	1999-2003	2004-2008	2009-2013
	15,745,952	17,800,870			2.2%	1.5%	0.9%
Skill level							
Management	1,382,553	1,600,926	8.8%	9.0%	0.2%	1.8%	1.1%
Occupations usually requiring							
University education	2,595,966	3,120,615	16.5%	17.5%	2.7%	2.3%	1.4%
College education or apprenticeship training	4,808,503	5,392,422	30.5%	30.3%	1.8%	1.4%	0.9%
High school education	5,097,138	5,700,725	32.4%	32.0%	3.1%	1.4%	0.8%
Only on-the-job training	1,861,793	1,986,181	11.8%	11.2%	1.5%	0.9%	0.4%
Skill type							
Business, finance and administration	3,107,217	3,482,843	19.7%	19.6%	1.5%	1.4%	0.9%
Natural and applied sciences	1,090,153	1,349,948	6.9%	7.6%	3.8%	2.3%	2.0%
Health	965,207	1,248,359	6.1%	7.0%	3.4%	3.5%	1.7%
Social science, education, government service	1,132,274	1,318,624	7.2%	7.4%	3.5%	2.0%	1.0%
Art, culture, recreation and sport	472,085	519,889	3.0%	2.9%	3.3%	1.3%	0.7%
Sales and service	4,656,960	5,156,560	29.6%	29.0%	2.3%	1.4%	0.6%
Trades, transport and equipment operators	2,406,230	2,643,766	15.3%	14.9%	1.8%	1.1%	0.8%
Primary industry	567,127	594,886	3.6%	3.3%	-1.7%	0.6%	0.4%
Processing, manufacturing and utilities	1,348,699	1,485,996	8.6%	8.3%	2.2%	1.2%	0.8%
Occupation (two-digit level)							
01 All management occupations	1,382,553	1,600,926	8.8%	9.0%	0.2%	1.8%	1.1%
11 Professional occupations in business and finance	450,486	540,579	2.9%	3.0%	2.0%	2.2%	1.5%
12 Skilled administrative and business occupations	895,125	979,304	5.7%	5.5%	-0.8%	1.2%	0.6%
14 Clerical occupations	1,459,841	1,612,187	9.3%	9.1%	3.6%	1.2%	0.8%
21 Professional occupations in natural and applied sciences	592,385	741,622	3.8%	4.2%	2.8%	2.4%	2.1%
22 Technical occupations related to natural and applied sciences	440,099	536,657	2.8%	3.0%	6.0%	2.1%	1.9%
31 Professional occupations in health	432,646	562,886	2.7%	3.2%	2.3%	3.6%	1.7%
32 Technical and skilled occupations in health	197,245	253,946	1.3%	1.4%	1.9%	3.1%	2.0%
34 Assisting occupations in support of health services	249,893	326,146	1.6%	1.8%	8.0%	3.6%	1.8%
41 Professional occupations in social science, education and government service	919,344	1,057,768	5.8%	5.9%	3.4%	1.8%	1.0%

Table 9: Employment Growth by Occupation, 1999-2013(cont...)

42 Paraprofessional occupations in law, social service and education	179,464	220,126	1.1%	1.2%	2.7%	2.7%	1.5%
51 Professional occupations in art and culture	201,105	217,760	1.3%	1.2%	2.6%	1.2%	0.4%
52 Technical and skilled occupations in art, culture, recreation and sport	256,113	284,204	1.6%	1.6%	4.5%	1.3%	0.8%
62 Skilled sales and service occupations	1,017,587	1,151,385	6.5%	6.5%	3.9%	1.7%	0.8%
64 Intermediate sales and service occupations	1,562,156	1,725,104	9.9%	9.7%	2.7%	1.5%	0.5%
66 Elemental sales and service occupations	1,448,409	1,559,054	9.2%	8.8%	2.5%	1.1%	0.4%
72-73 Trades, skilled transport and equipment operators	1,300,824	1,409,620	8.3%	7.9%	1.2%	0.9%	0.7%
74 Intermediate occupations in transport, equipment operation, installation and maintenance	809,215	913,539	5.1%	5.1%	2.1%	1.4%	1.0%
76 Trades helpers, construction labourers and related occupations	136,081	134,739	0.9%	0.8%	1.6%	-0.2%	0.0%
82 Skilled occupations in primary industry	348,416	363,250	2.2%	2.0%	-1.7%	0.5%	0.3%
84 Intermediate occupations in primary industry	138,160	144,217	0.9%	0.8%	-1.6%	0.5%	0.4%
86 Primary industry labourers	72,740	78,719	0.5%	0.4%	-2.5%	1.2%	0.4%
92 Processing, manufacturing, utilities supervisors and skilled operators	173,629	193,930	1.1%	1.1%	5.0%	1.3%	0.9%
94-95 Processing and manufacturing machine operators and assemblers	877,873	979,533	5.6%	5.5%	3.3%	1.3%	0.9%
96 Labourers in processing, manufacturing and utilities	204,563	213,669	1.3%	1.2%	-3.2%	0.5%	0.4%

Source: Statistics Canada, National Occupational Classification; Statistics Canada, Labour Force Survey; HRSDC-PRCD, Labour Market and Skills Forecasting and Analysis Unit, Reference 2004 Scenario.

7.1 Enabling Occupations

This section summarizes a detailed report on “enabling occupations” with college credentials by Prism Economics and Analysis and Arthur Donner, *Role of Colleges of Applied Arts and Technology (CAATs) in raising Ontario’s labour productivity and contributing to its prosperity, (forthcoming.)*

To appreciate the role of colleges in Ontario’s prosperity, it is important to identify workers in “enabling occupations” who are educated in colleges. According to Prism Economics and Analysis and Arthur Donner, these occupations are catalysts that activate the potential of new technology in organizations. There is a tight link between new technologies driving productivity and the skills of enabling occupations.

Colleges teach practical skills that are essential in organizations investing in new technology or implementing new processes. College graduates often enter occupations that have been linked by research to the implementation of new technologies in specific circumstances (e.g. team work environments, software intensive applications, practical hands-on experience) that foster productivity.

Without skilled technicians and savvy operators, new technology is not contributing its full potential. Managers, engineers and scientists may have a vision of more productive potential, but it is the people installing, monitoring and problem solving the new processes who make things work.

These workers – often practicing new trades and occupations – are enabling the introduction of new technology and the associated productivity. “Enabling occupations” play a key role in allowing companies to build a culture of innovation in the workplace which they need if they are to continually restructure for success.

Workers with up-to-date qualifications in enabling occupations are commonly in short supply because the new approaches require training in new software and machinery. Many types of industrial changes are evolving around these enabling occupations, including redefining trades and occupations and outsourcing. This structural change is often painful and controversial. In fact, the process may well displace trades, skills and jobs that are now identified with college training.

Examples of enabling occupations

Engineering and Science Technicians and Technologists are a good example of enabling occupations. A report from the Canadian Technology Human Resources Board (CTHRB) in 2000 clarified this role through a survey of the workforce. The key findings include:

- Technology-driven change in industry has reallocated work from professional engineers and trades to engineering technicians and technologists, specifically:

As production equipment becomes more computer and control-system intensive, set up, troubleshooting and maintenance functions are shifting from skilled trades to engineering technicians and technologists

Engineering software has enabled calculation, design and process control tasks, previously undertaken by junior, Professional Engineers to be shifted to engineering technicians and technologists

90 per cent of the technicians and technologists are trained in colleges

Technicians and technologists are highly mobile across industries, specializations and regions

30 per cent of the sample attended, but did not complete, university training

90 per cent of the sample work on teams, usually headed by engineers

Over 70 per cent of respondents identified increased use of engineering software with rising productivity

Engineering technicians and technologists are distributed across the entire economy and are concentrated in manufacturing, consulting engineering, government, primary industry (mining, forestry, oil and gas), and construction.

These technicians and technologists are distributed across many industries. Their skills now displace the work of junior professional engineers. This feature of leveraging the work of professional groups is a key attribute of all enabling occupations. All of these occupational groups grew more rapidly than the total workforce and this is a general measure of the growing technological intensity of the economy.

Prism Economics and Analysis and Arthur Donner. *Role of Colleges of Applied Arts and Technology (CAATs) in Raising Ontario's Labour Productivity and Contributing to Its Prosperity*. (Forthcoming).