



Coming Up NEXT

The Transformation of Western Canada's Economy

Todd HIRSCH
Chief Economist

The NEXT West Project

CANADA WEST FOUNDATION

Coming Up NEXT

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by

TODD HIRSCH

Canada West Foundation Chief Economist



www.cwf.ca

About the Canada West Foundation

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A dynamic and prosperous West in a strong Canada.

Our Mission

A leading source of strategic insight, conducting and communicating non-partisan economic and public policy research of importance to the four western provinces, the territories, and all Canadians.

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In 1970, the One Prairie Province Conference was held in Lethbridge, Alberta. Sponsored by the University of Lethbridge and the Lethbridge Herald, the conference received considerable attention from concerned citizens and community leaders. The consensus at the time was that research on the West (including BC and the Canadian North) should be expanded by a new organization. To fill this need, the Canada West Foundation was created under letters patent on December 31, 1970. Since that time, the Canada West Foundation has established itself as one of Canada's premier research institutes. Non-partisan, accessible research and active citizen engagement are hallmarks of the Foundation's past, present and future endeavours. These efforts are rooted in the belief that a strong West makes for a strong Canada.

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Foreword

What Lies Ahead

Dr. Roger Gibbins

Canada West Foundation President & CEO

Forecasting the future is never easy. In addition, most predictions about the future are spectacularly wrong.

Consider the “futurists” back in the 1950s. When they thought about the future that we live in today, they envisioned a world where people flew in space ships and regularly visited the moon and planets. Their vision was one of supersonic modes of physical transportation that would revolutionize the planet.

Of course, their vision has not materialized. Airplanes and cars are still largely as they were in 1950, only safer and with more cup holders. Their vision focused on transportation and missed the revolution in communications. It is not spaceships that have changed our world over the past 50 years, but the computer, the Internet, cell phones, and satellites.

The only certainty is that change will happen, but how and in what form we do not know.

Consider the statement made in 1943 by Thomas Watson, Senior Chairman of IBM: “I think there is a world market for maybe five computers.” We chuckle at how wrong Mr. Watson’s prediction proved to be. Before laughing too hard, however, consider that the personal computer that is ubiquitous today had not even been invented in 1943 and that IBM did not come out with its first computer until 1953.

Given the suspect nature of predictions, why do we make them?

Certainly there is a financial motivation. There is a lot of money to be made if one is able to predict what will happen.

There is also a personal incentive to predict the future and be the first person to say “I saw that coming!” We also want to know what the future holds to ease our fears. There are few things as terrifying as not knowing what is going to happen next.

But there is also a less greedy and more practical motivation for trying to see into the future: it greatly improves our ability to plan. Farmers try to gain the best information about the coming weather to plan their crops and harvesting schedules. Car manufacturers consult “futurists” to give them a sense of what consumer tastes will be like in a few years so they can plan and design models accordingly. Governments and central banks estimate future inflation and economic conditions in order to make good fiscal and monetary policy decisions in the present.

The Canada West Foundation has been actively providing policy-makers and the public with information and recommendations for 35 years. But good public policy decisions can only be made if we have a reasonably good idea of what the future will bring.

Coming Up NEXT is our opportunity to present some educated guesses as to how western Canada’s economy will evolve over the next 10–20 years and why.

We offer these predictions with the hope that they will help with public policy planning in western Canada and the country as a whole. We trust that most will be right, but we also know that some will be wrong. In 2026, we hope that those looking back on these predictions will be forgiven for chuckling. Remember Mr. Watson!

A handwritten signature in blue ink, appearing to read "A. Smith", with a horizontal line underneath.



Preface

Death, Taxes and Change

Todd Hirsch
Canada West Foundation Chief Economist

It is said that nothing is certain in life except death and taxes. But we can add one more item to this list of certainties: change.

Changes such as the completion of the Canadian Pacific Railway and the discovery of oil in Alberta had clear and sudden economic effects. Other changes—such as the depopulation of the rural West—have been more gradual, but no less significant.

Many economic changes have been brought about by factors external to western Canada such as the development of the computer, wireless communications, and the Internet. These changes have radically altered the way we do business.

Looking forward, we should ask ourselves: what is coming up next? What forces will shape the economy of western Canada over the next 10–20 years? Why will these changes come about, and what are the likely implications?

Sometimes the biggest surprises are the things that do not change. For example, policy-makers back in the 1920s would likely have been quite surprised that Saskatchewan's population is about the same size today as it was back then.

Other changes are more immediate. Who would have believed in 1993 that Alberta would have eliminated its total debt by 2005?

Some changes are more predictable than others, such as the rising industrial and consumer power of nations like China and India. In all likelihood, these countries will continue to lead the world in economic growth.

Even so, history teaches us that what we *think* will happen often does not happen at all. If this volume had been prepared 20 years ago, there would have been a great deal of attention paid to another country which, at the time, was the centre of attention: Japan. What was not foreseen was the decade-long recession that Japan suffered in the 1990s. While it is still a major economy, it is nowhere close to eclipsing the United States in terms of economic dominance—something that seemed to be a real possibility 20 years ago.

And then there are the changes that come at such shocking speed and with such horrifying consequences that they are often beyond the scope of normal forecasting. For example, scientists tell us that a major earthquake is likely to hit Canada's west coast, but we do not know when it will happen or what it will mean in terms of lives lost, property damage, or economic disruptions.

Western Canadians have watched Tsunamis, terrorist attacks, and hurricane-induced floods ravage other parts of the world. It may not be one of these events exactly, but it is likely that an unforeseen event will eventually happen closer to home and, in turn, send powerful shock waves through western Canada's economy. By their very nature, these events are difficult to predict and almost impossible to prevent.

Coming Up NEXT presents a snapshot of 10 major western Canadian economic topics and offers predictions for the region's economic future. Some of these predictions are highly probable and are perhaps better described as trends than as predictions (e.g., the aging of the population). Others have required us to go out on a limb, and may be somewhat surprising.

In all cases, the changes that are coming up next need to be anticipated as much as possible. This information will help decision-makers plan for what is certain to be an uncertain future.

Todd Hirsch, Calgary
February 2006
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Chapter 1

International Trade

- ▶ The US is western Canada's dominant international trading partner—both as a destination for exports and as a source of imports—and will remain so for the foreseeable future.
- ▶ Exports are predominantly commodities, reflecting western Canada's comparative advantage in the efficient and cost-effective extraction of natural resources.
- ▶ Imports are largely manufactured goods such as automobiles, computers, electronics and other consumer goods.

TRANSFORMATIONS

Western Canada's international trade patterns are unlikely to change dramatically over the next several years; however, some underlying themes will bring about subtle yet important transformations.

Trade disputes (such as those over softwood lumber, live cattle, and wheat) with the US could intensify. The Canadian government must continue to be steadfast in its attempts to resolve these disputes within the spirit and framework of the NAFTA.

Canada must also continue to work with the World Trade Organization to eliminate barriers to free global trade. To facilitate this, Canada may be forced to abandon its systems of supply management in certain agricultural products.

At the same time, Canadian policy-makers are likely to continue pursuing trade agreements with countries other than the US (such as South Korea, Japan and China), striving as much as possible to diversify the markets for exports.

The rapidly expanding Chinese and Indian economies show promise as growing markets for western Canada's exports of goods and services, although trade with China will remain dwarfed by trade with the US. In the future, economies such as those of Indonesia, Vietnam and Brazil could play larger roles in international trade with western Canada.

Investments in transportation infrastructure, such as terminal loading facilities at western Canadian ports, will be critical for expanding trade opportunities. Western Canada could lose business to competing ports in the US if capacity is not expanded.

There may be some practical opportunities for exporting secondary manufactured goods (the elusive "value-added" theme) from western Canada. But geography, slower productivity growth, and relatively high labour costs may continue to limit the growth of exports of manufactured goods from western Canada.

The best opportunities for expanding international trade lie in designing, researching, testing, and creating. All of these are part of the chain of value-added, and western Canada has the chance to play a growing role in the export of these services.

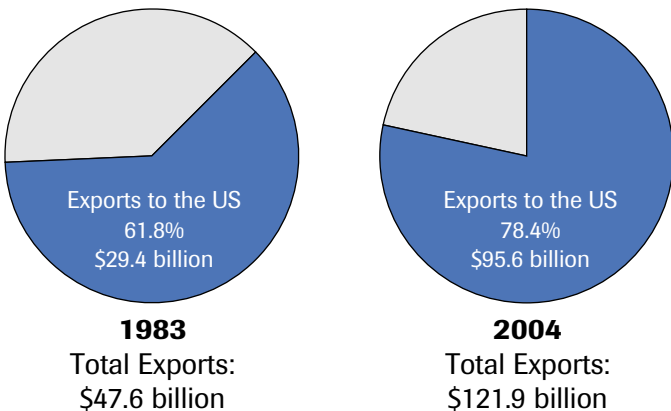
Western Canada has flourished in the global economy and the increasingly liberalized trade environment of the last few decades. Starting with the General Agreement on Tariffs and Trade (GATT) in the late 1940s—the first modern attempt to reduce trade barriers and increase trade flows among industrialized countries—Canada solidified its international role as a major trading nation. Canada's participation in a more liberalized trade environment continued as the GATT evolved into the World Trade Organization (WTO) in 1995.

Numerous trade barriers between Canada and the US were either eliminated or slated for elimination by the signing of the Free Trade Agreement (FTA) in January 1989. In January 1994, the FTA was expanded as Canada, the US, and Mexico launched the North American Free Trade Agreement (NAFTA) and, by so doing, formed the world's largest free trade area.

The FTA and the NAFTA have been controversial and hotly debated. The FTA agreement formed the contentious centerpiece of the 1988 Canadian federal election. The fear was that a free trade agreement with the US would erode Canadian financial and cultural strength, cause irreparable damage to a host of Canadian businesses, and increase the economic dominance of the US. Sixteen years since the signing of the FTA, there is still no consensus on the overall costs and benefits of increased trade with the US.

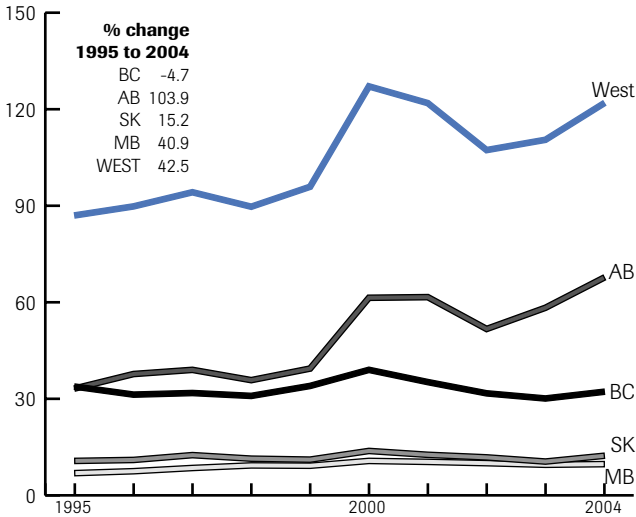
Without doubt, trade between the two countries has flourished. Exports from western Canada to the US soared over the 1990s (a combination of both free trade and a greatly devalued Canadian dollar). On the other hand, there have been some fairly painful adjustments in certain sectors of the Canadian economy, particularly in manufacturing. As well, Canada's economy is now more firmly entwined with the US economy. In 1983, 62% of western Canada's exports went to the US; by 2004, this reached 78% (see Figure 1). This trend has raised concern regarding western Canada's economic dependence on a single trading partner.

Figure 1:
Western Canada's International Merchandise Exports,
1983 and 2004 (2004 dollars)



Source: Canada West Foundation and Industry Canada Trade Data Online

Figure 2:
Western Canada's International Merchandise Exports, 1995-2004 (billions of 2004 dollars)



Source: Industry Canada Trade Data Online, Report date: Jan. 3, 2006

In general, though, most economists agree that the FTA, the NAFTA, and the trade liberalization brought about by the WTO have been economically beneficial to Canada.

Western Canada's merchandise exports totaled approximately \$122 billion in 2004, up from \$87 billion in 1995 (in real dollars), and \$48 billion in 1983 (see Figures 1 and 2).

International merchandise exports from the West accounted for about 29.6% of total Canadian international merchandise exports in 2004. The West's export-to-GDP ratio in 2004 was 28.7% (slightly less than the 31.8% for Canada as a whole).

While the real value of international merchandise exports from the West has grown considerably over the last twenty years, it has remained flat or has declined over the most recent five-year period (2000 to 2004). The inflation-adjusted value of western Canada's exports fell by 16% from 2000 to 2002. This loss was triggered by a weak US economy

following 9/11 and a weakening US dollar vis-à-vis the Canadian dollar in 2002. Since 2002, however, exports from the West have come roaring back. This upswing occurred despite the Canadian dollar's continued appreciation. A stronger US economy and relatively high commodity prices are largely responsible for this turnaround.

Data for service sector exports such as travel, transportation, and commercial and financial services are not as readily available as they are for merchandise exports on a provincial basis. Therefore, trade in services is not considered in this chapter to the same degree as is merchandise trade. However, the pattern and trend in service exports would likely be quite similar to that of merchandise trade (i.e., a generally increasing value of international trade in services over the past decade, with the US strongly dominating both imports and exports).

International Exports by Province

British Columbia

The importance of BC's natural resource sectors is reflected in the province's international merchandise exports. Topping the list of exports is sawmill lumber at over \$7.3 billion in 2004—up by some 27% from the previous year (see Figure 3 on the following page).

Exports of softwood lumber¹ (by far the largest segment of total lumber exports) have suffered in terms of volume over the past several years due to the trade dispute with the United States.

Despite the ongoing softwood lumber dispute, high commodity prices for lumber boosted the total dollar value of BC's lumber exports in 2004. (See Chapter 6 on non-energy resources for more detail on the Canada-US softwood lumber dispute.)

1. "Softwood" is wood from conifers such as pine, spruce, cedar, fir, larch, hemlock, cypress, redwood, and yew. Softwood is most commonly used in structural building components such as 2 x 4 boards and planks. It is also found in other products such as mouldings, doors, and window frames.

Figure 3:
Top 25 International Merchandise Exports from
British Columbia (by 5-digit NAICS code)

	\$ millions				
	2000	2001	2002	2003	2004
Sawmills and Wood Preservation	7,486	7,215	6,939	5,761	7,336
Pulp Mills	4,488	3,138	2,812	2,763	2,982
Oil and Gas Extraction	2,616	2,756	1,914	2,863	2,530
Paper Mills	2,065	2,060	1,857	1,600	1,583
Coal Mining	1,332	1,431	1,373	1,450	1,577
Veneer, Plywood and Engineered Wood Product Manufacturing	1,092	1,094	1,101	1,303	1,554
Alumina and Aluminum Production and Processing	651	519	482	496	628
Copper, Nickel, Lead and Zinc Ore Mining	560	466	405	430	611
Seafood Product Preparation and Packaging	540	564	565	581	589
Non-Ferrous Metal (except Aluminum) Smelting and Refining	517	261	350	368	448
Logging	370	395	536	477	444
Other Industrial Machinery Manufacturing	444	403	355	377	424
Navigational, Measuring, Medical and Control Instruments Manufacturing	207	215	266	290	346
Other Metal Ore Mining	42	46	158	137	335
Semiconductor and Other Electronic Component Manufacturing	964	307	205	265	335
Electric Power Generation	1,987	2,086	288	383	291
Other Plastic Product Manufacturing	211	205	262	266	267
Food Crops Grown Under Cover	51	61	69	202	250
Fishing	185	204	222	227	245
Animal Slaughtering and Processing	195	176	208	199	241
Other Basic Inorganic Chemical Manufacturing	138	148	264	189	233
Paperboard Mills	262	250	258	204	223
All Other Wood Product Manufacturing	174	170	197	193	210
Animal Aquaculture	228	265	293	244	206
Millwork	223	184	198	185	205
SUB-TOTAL	27,028	24,618	21,577	21,453	24,092
OTHERS	8,456	8,305	8,679	8,133	8,142
TOTAL (ALL INDUSTRIES)	35,484	32,923	30,256	29,586	32,234

Source: Industry Canada Trade Data Online, Report date: Jan. 3, 2006

British Columbia's pulp and paper mill exports totaled \$4.6 billion in 2004 compared to nearly \$6.6 billion in 2000. Producers of energy products (mostly natural gas) exported just over \$2.5 billion in 2004. Rounding out the other major international merchandise exports are coal, veneer and plywood (including oriented strand board), and base metals.

Total merchandise exports from BC were valued at \$32.2 billion in 2004.

Figure 4:
Top 25 International Merchandise Exports from Alberta
(by 5-digit NAICS code)

	\$ millions				
	2000	2001	2002	2003	2004
Oil and Gas Extraction	32,269	34,436	28,543	38,200	44,122
Resin and Synthetic Rubber Manufacturing	904	1,287	1,166	1,692	2,327
Animal Slaughtering and Processing	1,806	2,207	2,104	1,583	2,132
Petroleum Refineries	2,124	1,955	1,692	1,952	2,093
Other Basic Organic Chemical Manufacturing	1,030	1,206	837	506	1,483
Pulp Mills	1,672	1,307	1,258	1,197	1,231
Veneer, Plywood and Engineered Wood Product Manufacturing	499	471	512	681	1,088
Wheat Farming	1,191	1,136	780	737	1,044
Sawmills and Wood Preservation	714	716	687	603	766
Petrochemical Manufacturing	660	513	616	634	718
Fertilizer Manufacturing	631	489	488	491	616
Non-Ferrous Metal (except Aluminum) Smelting and Refining	239	237	266	400	538
Navigational, Measuring, Medical and Control Instruments Manufacturing	193	258	364	372	478
Oilseed (except Soybean) Farming	416	459	422	345	476
Telephone Apparatus Manufacturing	2,678	1,192	921	631	451
Radio and TV Broadcasting and Wireless Equipment Manufacturing	1,444	1,007	696	410	397
Starch and Vegetable Fat and Oil Manufacturing	291	276	209	263	336
Mining and Oil and Gas Field Machinery Manufacturing	155	304	382	295	304
Non-Ferrous Metal Rolling, Drawing, Extruding and Alloying	139	115	119	146	296
Pump and Compressor Manufacturing	104	229	195	231	284
Engine, Turbine and Power Transmission Equipment Manufacturing	213	299	283	251	281
Other Industrial Machinery Manufacturing	199	191	191	204	272
Frozen Food Manufacturing	154	160	169	155	238
Aerospace Product and Parts Manufacturing	127	119	119	79	198
Household and Institutional Furniture Manufacturing	165	200	191	173	186
SUB-TOTAL	50,014	50,771	43,209	52,230	62,356
OTHERS	5,866	6,765	6,103	4,981	5,329
TOTAL (ALL INDUSTRIES)	55,880	57,536	49,312	57,211	67,685

Source: Industry Canada Trade Data Online, Report date: Jan. 3, 2006

Alberta

Alberta is by far the largest exporting province in western Canada, and the energy sector dominates the province's international exports. Of the \$67.7 billion in exports in 2004, \$44.1 billion (65%) was natural gas and crude oil (see Figure 4).

Running a distant second in terms of export value are products related to the energy sector—resins, base chemicals, plastics, ethylene glycol, and styrene. These products accounted for \$3.8 billion of Alberta's exports in 2004. Refined petroleum products also add about \$2.1 billion. Exports of forest products (pulp, particle board, and sawmilled lumber) total almost \$3.1 billion. This is more than twice the value of the major crop exports—wheat and canola—which added \$1.5 billion.

Figure 5:
Top 25 International Merchandise Exports from Saskatchewan
(by 5-digit NAICS code)

	\$ millions				
	2000	2001	2002	2003	2004
Oil and Gas Extraction	3,218	2,548	2,577	3,057	3,846
Other Non-Metallic Mineral Mining and Quarrying	2,326	2,130	2,292	1,840	2,050
Wheat Farming	1,935	1,995	1,650	1,288	1,614
Oilseed (except Soybean) Farming	646	729	566	730	713
Dry Pea and Bean Farming	541	531	389	372	458
Starch and Vegetable Fat and Oil Manufacturing	299	199	195	213	325
Other Grain Farming	348	388	306	235	308
Pulp Mills	382	234	281	284	273
Veneer, Plywood and Engineered Wood Product Manufacturing	39	12	49	120	265
Agricultural Implement Manufacturing	106	147	195	208	264
Iron and Steel Pipes and Tubes Manufacturing from Purchased Steel	79	89	81	64	160
Other Basic Inorganic Chemical Manufacturing	200	321	302	171	153
Petroleum Refineries	114	138	110	117	133
Fertilizer Manufacturing	90	121	147	95	132
Paper Mills	181	193	86	117	130
Flour Milling and Malt Manufacturing	94	100	116	99	122
Sawmills and Wood Preservation	193	143	109	87	106
Animal Slaughtering and Processing	145	155	150	137	106
Pesticide and Other Agricultural Chemical Manufacturing	74	93	78	78	72
Iron and Steel Mills and Ferro-Alloy Manufacturing	68	58	99	52	64
Alumina and Aluminum Production and Processing	41	60	65	61	61
Radio and TV Broadcasting and Wireless Equipment Manufacturing	28	26	21	25	54
Motor Vehicle Body and Trailer Manufacturing	37	37	47	42	46
Material Handling Equipment Manufacturing	35	31	27	26	43
Other Plastic Product Manufacturing	37	42	39	41	43
SUB-TOTAL	11,258	10,518	9,976	9,556	11,541
OTHERS	1,345	1,214	1,306	789	800
TOTAL (ALL INDUSTRIES)	12,603	11,732	11,282	10,345	12,341

Source: Industry Canada Trade Data Online, Report date: Jan. 3, 2006

Saskatchewan

Despite its reputation of being primarily an agricultural province, the largest export category in Saskatchewan is crude oil and gas extraction at over \$3.8 billion in 2004 (see Figure 5)—most of which is crude oil. Although crude oil is the most valuable export item from Saskatchewan, it is still dwarfed by the \$44.1 billion in crude oil and gas exported from Alberta.

Taken together, crop exports from Saskatchewan totaled \$3.1 billion in 2004. Potash exports were \$2.0 billion. Total exports from Saskatchewan were \$10.6 billion in 2004.

Figure 6:
Top 25 International Merchandise Exports from Manitoba
(by 5-digit NAICS code)

	\$ millions				
	2000	2001	2002	2003	2004
Non-Ferrous Metal (except Aluminum) Smelting and Refining	608	740	776	800	865
Wheat Farming	511	691	583	622	677
Oilseed (except Soybean) Farming	340	402	345	608	550
Animal Slaughtering and Processing	415	535	506	454	450
Oil and Gas Extraction	596	664	757	489	401
Electric Power Generation	443	535	390	264	380
Hog and Pig Farming	208	248	246	276	352
Agricultural Implement Manufacturing	243	161	202	213	277
Starch and Vegetable Fat and Oil Manufacturing	147	142	181	217	268
Frozen Food Manufacturing	127	141	160	205	258
Aerospace Product and Parts Manufacturing	428	438	369	283	253
Heavy-Duty Truck Manufacturing	8	5	8	148	253
Motor Vehicle Body and Trailer Manufacturing	419	455	362	281	242
Veneer, Plywood and Engineered Wood Product Manufacturing	104	93	100	169	220
Paper Mills	214	202	220	221	211
Pharmaceutical and Medicine Manufacturing	130	149	121	216	195
Wood Kitchen Cabinet and Counter Top Manufacturing	112	131	164	166	168
Petroleum Refineries	204	118	131	179	165
Other Grain Farming	135	180	136	181	153
Printing	88	122	140	131	134
Dry Pea and Bean Farming	118	155	138	147	134
Household and Institutional Furniture Manufacturing	186	208	201	144	125
Unsupported Plastic Film, Sheet and Bag Manufacturing	96	126	122	131	125
Fertilizer Manufacturing	69	98	111	89	121
Material Handling Equipment Manufacturing	92	104	113	97	107
SUB-TOTAL	6,039	6,844	6,584	6,729	7,083
OTHERS	3,666	2,850	2,985	2,570	2,596
TOTAL (ALL INDUSTRIES)	9,705	9,694	9,569	9,299	9,679

Source: Industry Canada Trade Data Online, Report date: Jan. 3, 2006

Manitoba

Despite its \$9.7 billion in international merchandise exports in 2004 being the smallest of the four western provinces, Manitoba has the most diversified set of international export products in the region (see Figure 6). This gives the province some immunity from the boom-and-bust cycles that can plague other provinces that are more dependent on the global prices of specific resources.

Exports of wheat, oilseeds and other grains totaled \$1.4 billion in 2004; livestock farming and slaughtering activity collectively added another \$800 million. Non-ferrous metal smelting and refining, particularly of nickel, copper and zinc, contributed about \$865 million.

Western Canada's Export Markets

The US dominates western Canada's export markets. Alberta is the most reliant of the western provinces on the US, with 88% of its exports going south of the border in 2004 (see Figure 7). Saskatchewan and BC are the least reliant, with only two-thirds of their exports going to the US. BC has the most diversified set of export markets. Nearly \$7 billion (over 21%) of BC's exports go to Asian markets. Exports to Asia for the other western provinces are also important; China and Japan are the top two and three markets for the Prairies. Exports to all Asian countries from the Prairies total over \$6.4 billion.

Figure 7:
Destination of Western Canada's Merchandise Exports
by Province, 2004 (\$ millions)

	BC	AB	SK	MB	WEST	%
US	20,858.4	59,534.4	7,981.0	7,262.9	95,636.6	78.4
Japan	3,840.7	1,307.2	519.2	457.9	6,125.0	5.0
China	1,310.6	1,834.8	746.7	392.8	4,284.9	3.5
Mexico	201.6	707.3	322.9	260.6	1,492.5	1.2
South Korea	931.0	435.7	81.1	43.8	1,491.6	1.2
Italy	459.7	151.3	183.6	38.9	833.4	0.7
UK	387.7	295.9	63.6	65.7	812.9	0.7
Taiwan	496.4	191.9	50.1	61.8	800.1	0.7
Belgium	219.6	207.3	223.5	76.5	727.0	0.6
Hong Kong	338.0	125.9	2.7	172.2	638.8	0.5
Germany	431.2	113.8	45.6	36.2	626.7	0.5
Netherlands	329.2	218.6	44.0	22.0	613.8	0.5
Indonesia	178.3	126.8	153.2	41.3	499.6	0.4
Australia	238.0	144.0	51.3	65.9	499.2	0.4
Brazil	156.3	89.7	213.4	7.1	466.5	0.4
India	149.1	46.5	189.2	20.1	405.0	0.3
France	196.3	89.3	41.3	21.0	347.8	0.3
Philippines	130.3	80.5	67.0	38.2	316.1	0.3
Spain	62.1	85.0	95.2	62.2	304.4	0.2
Thailand	132.5	50.6	73.1	26.3	282.5	0.2
Venezuela	43.1	91.2	108.0	31.7	274.0	0.2
Malaysia	61.2	59.8	105.7	16.4	243.1	0.2
Colombia	30.6	60.3	97.9	33.5	222.4	0.2
Algeria	1.9	73.6	103.5	24.9	203.9	0.2
Singapore	43.3	126.1	8.6	25.4	203.5	0.2
United Arab Emirates	28.7	97.7	29.5	15.1	171.1	0.1
New Zealand	92.0	36.5	25.6	8.7	162.7	0.1
Turkey	97.4	15.0	19.0	18.9	150.3	0.1
Chile	61.1	43.3	32.9	12.6	149.9	0.1
Greece	49.7	51.0	31.1	15.0	146.9	0.1
Saudi Arabia	24.3	55.2	36.6	16.4	132.5	0.1
Russia	26.3	86.0	4.6	8.5	125.4	0.1
Ecuador	17.2	42.7	44.0	20.0	123.8	0.1
Morocco	1.1	38.0	81.1	3.3	123.5	0.1
Cuba	6.6	80.3	19.6	4.2	110.6	0.1
Switzerland	40.8	59.8	1.8	7.0	109.4	0.1
Guatemala	28.4	31.3	28.3	13.1	101.1	0.1
Peru	14.8	21.8	43.6	13.9	94.2	0.1
Pakistan	28.5	34.9	24.0	6.7	94.0	0.1
South Africa	33.2	30.8	16.3	7.8	88.2	0.1
ALL OTHER COUNTRIES	456.6	713.3	331.9	202.1	1,703.9	1.4
TOTAL EXPORTS	32,233.9	67,685.3	12,341.0	9,678.6	121,938.7	100.0

Exports to China

Over the past decade, merchandise exports from western Canada to China were fairly stable at around \$2 billion per year. This is a very small percentage (approximately 2-3%) of western Canada's total international exports, and is particularly small compared to trade with the US.

However, exports rose dramatically in 2004 to nearly \$4.3 billion (see Figure 8). The emergence of China as a major economic market in the global economy has given western Canada a new, important, and growing market for its exports. Growth in exports to China has been particularly strong for Alberta and BC.

Figure 8:
Western Canada's Merchandise Exports
to China, 1995-2004 (millions of 2004 dollars)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	% chg
BC	602	608	534	537	675	830	841	902	1,166	1,311	118
AB	816	802	505	555	632	856	960	796	779	1,835	125
SK	1,118	799	593	724	645	803	736	508	419	747	-33
MB	293	287	171	262	182	119	180	83	154	393	34
WEST	2,829	2,496	1,802	2,078	2,133	2,609	2,717	2,290	2,518	4,285	51
% of Exports From Western Canada	3.3	2.8	1.9	2.3	2.2	2.1	2.2	2.1	2.3	3.5	

Source: Canada West Foundation and Industry Canada Trade Data Online, Report date: Jan. 3, 2006

Imports into Western Canada

Just as the US is the dominant destination for western Canada's merchandise exports, it is the dominant source of merchandise flowing into western Canada. In 2004, nearly \$35 billion in merchandise was imported from the US into western Canada (see Figure 9 on the following page). (This number also underestimates the total value of trade with the US because it does not capture the value of goods imported into eastern Canada points-of-entry for distribution to western Canada.) Because of the appreciation of the Canadian dollar over the past few years, the total value of merchandise imports into western Canada has been fairly stable. The total volume of imports has risen, but this is masked by the higher value of the Canadian dollar.

Figure 9:
Merchandise Imports Into Western Canada
by Exporting Country, 2004 (\$ millions)

	BC	AB	SK	MB	WEST	%
US	12,694	9,597	4,179	8,525	34,995	56.7
China	6,105	596	57	390	7,148	11.6
Japan	4,593	151	35	138	4,916	8.0
South Korea	2,503	117	9	44	2,672	4.3
Mexico	663	538	35	181	1,417	2.3
Taiwan	870	144	12	126	1,151	1.9
Germany	386	287	59	181	914	1.5
UK	328	366	44	124	863	1.4
Italy	279	209	23	173	685	1.1
Malaysia	421	154	3	57	634	1.0
Thailand	457	83	3	29	571	0.9
France	238	197	21	62	519	0.8
Australia	373	68	5	17	464	0.8
India	177	50	3	26	255	0.4
Brazil	127	50	11	48	236	0.4
Netherlands	121	56	5	20	202	0.3
Indonesia	166	16	2	15	199	0.3
Switzerland	66	84	20	20	190	0.3
Sweden	94	53	10	26	183	0.3
Hong Kong	151	21	0	10	182	0.3
New Zealand	157	11	1	3	172	0.3
Denmark	42	93	24	9	167	0.3
Vietnam	146	9	1	5	161	0.3
Belgium	86	40	5	19	149	0.2
Chile	103	30	3	7	143	0.2
Singapore	84	29	4	12	129	0.2
Philippines	102	14	0	12	128	0.2
Peru	113	3	0	3	119	0.2
Austria	46	49	5	8	107	0.2
Spain	48	39	3	9	99	0.2
Bangladesh	80	2	0	7	90	0.1
South Africa	53	23	7	6	88	0.1
Finland	45	18	5	10	79	0.1
Ireland	32	35	2	10	78	0.1
Israel	42	15	4	10	71	0.1
Guatemala	42	18	1	9	69	0.1
Colombia	25	5	6	19	55	0.1
Lithuania	50	2	0	0	53	0.1
Ecuador	27	14	0	6	48	0.1
Argentina	12	26	2	5	46	0.1
ALL OTHER COUNTRIES	725	281	63	184	1,252	2.0
TOTAL IMPORTS	32,874	13,594	4,669	10,564	61,701	100.0

Source: Industry Canada Trade Data Online, Report date: Jan. 3, 2006

Goods imported from Asian countries—particularly China, Japan, and South Korea—round off the other major sources of imports into western Canada. China has taken over Japan as the second largest exporter to the West, having more than doubled the value of its exports to the region over the past five years. This is more evidence of China's emergence as a major international trading power.

More than half of all international imports into western Canada enter through BC, but are ultimately destined for distribution elsewhere in the West (as well as in central and eastern Canada). A good snapshot of western Canada's overall mix of imports can therefore be taken by viewing the top imports into BC.

Figure 10 shows the 20 largest import categories into BC in 2004. The list is dominated by manufactured or processed goods, particularly industrial and consumer goods such as cars, electronics, and computers. Only one category in the top 20—imported vegetables and melons at \$353 million—is a natural or agricultural resource.

Figure 10:
Top 20 Products Imported into BC, 2004
(\$ millions)

		%
Automobile and Light-Duty Motor Vehicle Manufacturing	4,775	14.5
Audio and Video Equipment Manufacturing	1,196	3.6
Computer and Peripheral Equipment Manufacturing	1,079	3.3
Iron and Steel Mills and Ferro-Alloy Manufacturing	990	3.0
Petroleum Refineries	906	2.8
Construction Machinery Manufacturing	583	1.8
Doll, Toy and Game Manufacturing	581	1.8
Aerospace Product and Parts Manufacturing	580	1.8
Heavy-Duty Truck Manufacturing	568	1.7
Household and Institutional Furniture Manufacturing	533	1.6
Seafood Product Preparation and Packaging	530	1.6
Other Transportation Equipment Manufacturing	474	1.4
Women's and Girls' Cut and Sew Clothing Manufacturing	458	1.4
All Other Miscellaneous Manufacturing	387	1.2
Alumina and Aluminum Production and Processing	382	1.2
Navigational, Measuring, Medical and Control Instruments Manufacturing	381	1.2
Semiconductor and Other Electronic Component Manufacturing	376	1.1
Engine, Turbine and Power Transmission Equipment Manufacturing	364	1.1
Vegetable and Melon Farming	353	1.1
Footwear Manufacturing	351	1.1
SUB-TOTAL, Top 20 Imports	15,848	48.2
TOTAL IMPORTS	32,874	100.0

Source: Industry Canada Trade Data Online, Report date: Jan. 3, 2006

Transformations: The Future of International Trade for Western Canada

At times, trade disputes between the US and the EU have led to high subsidies and protectionist trade regimes for agricultural commodities. Subsidies to support domestic farmers in both the US and the EU increase production and lower the world price for grains, oilseeds, and other commodities. Protectionist trade policies limit export market opportunities for Canadian farmers. Regulations on labeling, bans on imports of genetically modified organisms (GMOs), and other non-tariff barriers have put Canadian farmers at a distinct disadvantage in terms of export opportunities to the EU.

There has been pressure on the US and the EU through the WTO to reduce agricultural subsidies and eliminate trade barriers. This has been largely ineffective, although recent talks in the Doha round of negotiations (fall 2005) seem to indicate a somewhat more accommodating approach by the EU.

Other major trade disputes affecting western Canada include the softwood lumber dispute with the US (which has been going on since the 1990s), disputes over wheat production and the issue of whether the Canadian Wheat Board constitutes an unfair production subsidy, and the closure of the US border to exports of live cattle due to the BSE crisis in 2003.

Over the next decade, attempts to resolve these trade disputes will dominate western Canada's trade agenda. Because so many of the region's exports flow to the US, the hardships created by trade disruptions with the US are particularly acute. A major difficulty in dealing with these disputes is gaining the attention and support of the US government and consumers.

Canada has been a vocal advocate of reducing global trade barriers, supporting the efforts of the WTO. However, Canada is also guilty of maintaining its own trade restrictive barriers such as high tariffs on cheese, eggs, and dairy products. As well, the Canadian Wheat Board is charged with constituting an unfair government subsidy for wheat and barley exporters. To strengthen its free trade advocacy position, Canada may be forced to loosen the control granted to certain agricultural marketing boards and the Canadian Wheat Board—politically unpopular as those actions may be.

Energy is one area of trade that is almost certain to flourish over the coming years. Crude oil (particularly from Alberta's oil sands), hydro-electricity from BC and Manitoba, and uranium from northern Saskatchewan are likely to enjoy increased volumes and values of exports to the US as energy security remains critical to continued US economic growth. Exports of crude oil to China through BC ports are also forecast to rise dramatically over the next 5–10 years. Pipeline projects carrying bitumen from northern Alberta to Prince Rupert are being planned.

Exports of natural gas to the US have increased, but reserves of conventional gas from the Western Canadian Sedimentary Basin are running low as the basin matures. However, the plan to construct a major natural gas pipeline from the Mackenzie Delta in the Northwest Territories will provide a major new source of natural gas for export to the US. This Mackenzie Valley pipeline, though, is still in its planning stages and is running into some regulatory hurdles. It will be several years until the pipeline is built and operational.

Diversifying western Canada's export sector away from its reliance on the US has been an ongoing challenge. It behooves both federal and provincial government policy-makers to pursue preferential and/or free trade agreements with countries other than the US and Mexico. This could be done through either bilateral negotiations (such as those with Chile and Israel), or through the general liberalization of global trade through the WTO.

As the Chinese economy grows and its consumers become wealthier, it will require more of the raw materials used as inputs in its factories and construction projects—materials such as lumber, copper, nickel, aluminum, crude oil, fertilizers, and coal. Trade in business and personal services will also be affected. Western Canadian companies such as those in financial services, architecture, marketing, and engineering will surely benefit from stronger purchasing power in China.

The future of international trade in western Canada lies in the value-added sectors. Turning wood into chairs, wheat into pasta, and copper ore into wire—there are sensible opportunities for such enterprises based in the West. But the West's remote geography, a slower rate of productivity growth, environmental priorities, and relatively high labour costs may limit the growth of secondary manufacturing.

The best opportunities for expanding our international trade lie not in the assembly-line

manufacturing of consumer items, but in the design, research, testing, and creativity that these items require—all part of the value-added process.

Research and development in Canada has produced many promising new technologies, particularly in the fields of biotech and nanotechnology. But moving these projects from the research stage to the commercialization stage—at which point Canada could become a major exporter of these products—has been an enormous challenge. (Additional discussion of commercialization can be found in Chapter 7: The Knowledge Economy and Chapter 10: Venture Capital.)

For western Canada's exporters to compete and succeed on a global basis in the future, they will need world-class human capital, productivity rates, and transportation infrastructure. The following chapters cover these and many other challenges that will present themselves in the West over the coming years.

Chapter 2

Interprovincial Trade

- ▶ It is important to emphasize that the vast majority of trade between provinces takes place without barriers or other inhibiting factors. Nonetheless, the situation can, and should, be improved. Specific stubborn barriers to interprovincial trade remain economic problems despite the decade-old Agreement on Internal Trade.
- ▶ The most serious barriers to interprovincial trade and commerce result from differences in occupational and professional licensing, regulatory standards, and the local procurement policies of provincial and municipal governments.

TRANSFORMATIONS

Provincial governments should work harder to reduce barriers to interprovincial trade and labour mobility.

In the short-term, change will be slow and many interprovincial trade obstacles will remain in place. The political pressure to remove barriers is weak, while the pressure from vested interests to maintain barriers is strong.

Real progress in reducing barriers may be limited to bilateral agreements between individual provinces.

There is more optimism for change in the long-term as governments become increasingly concerned with Canada's flagging productivity and international competitiveness. Pressures to reduce inefficiency in the Canadian economy are mounting. Reducing interprovincial trade barriers is an obvious way to do this.

As described in Chapter 1, western Canada is a region highly dependent on global markets for international trade. But what about trade within Canada? How much do the western provinces trade with other regions of the country? How much do they trade among themselves? What patterns of interprovincial trade have emerged over time, and how does it compare with our global trading habits?

In the 1990s, a series of reports (including those from the Canada West Foundation) accurately pointed out that the growth of interprovincial trade was lagging far behind that of international trade. The lure of rich and populated markets south of the border strengthened international trade, perhaps at the expense of interprovincial trade. In some cases it was actually easier for companies to trade with the US than with other Canadian

provinces. The North American Free Trade Agreement (NAFTA) had set the trade flows on this continent on a seemingly irreversible path towards north-south integration.

But it turns out that the trade flow is reversible, at least temporarily. Statistics Canada data indicate that interprovincial trade has grown at a faster pace than international trade during the early years of this century. Between 2000 and 2002, interprovincial trade grew at an average annual rate of 3.2%, while exports abroad fell at an annual pace of 2.1% (although more recent data indicate international trade has increased in 2004).

This runs counter to the traditional thinking about trade, particularly since it was in the years 2000 and 2001—during which time the Canadian dollar was trading in the low 60-cent (US) range—that growth rates of interprovincial trade surpassed those of international trade.

Some perspective is still warranted: total Canadian international exports in 2002 were much greater (\$396.4 billion) than that of total interprovincial trade (\$232.5 billion). It was only the *rate of growth* that was higher for interprovincial trade.

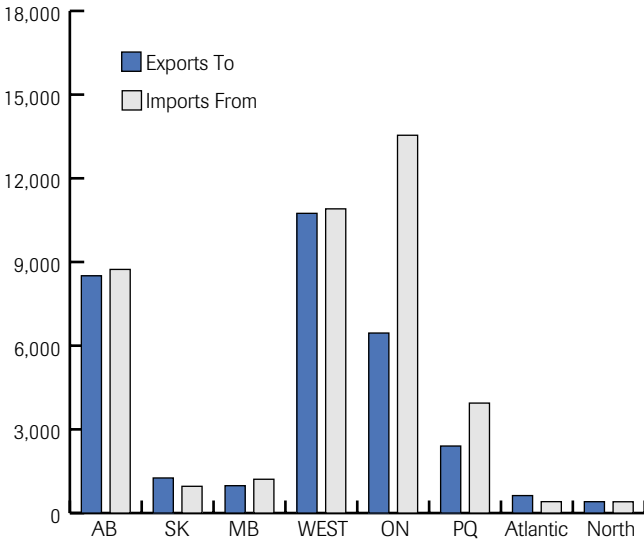
What happened at the turn of the millennium that suddenly forced a reversal in growth rates of international export trade? Part of the answer lies in the US recession. The post-tech market melt-down and the effects of 9/11 forced the US into a mild recession. A series of subsequent factors—such as the Enron debacle, fear of terrorism, a correction on Wall Street, and anxiety over the coming war in Iraq—dragged down American business spending and hiring. US real GDP growth in 2001 was a meager 0.5%, and the US economy actually shrank on a quarterly basis during the first nine months of that year.

At the same time, Canada's real GDP grew by 3.0% in 2001, and by 4.3% in 2002. The effects of the US recession and economic malaise did not show up in Canada until 2003. So, given the slowing US economy and the much faster pace of growth within Canada, it is perhaps not surprising that the pace of trade among the provinces outpaced that of international exports in the early 2000s.

Interprovincial Trade Patterns by Province

BC runs a trade deficit with every region of the country except with Saskatchewan, the Atlantic region and the North. Despite the geographic distance, BC imported over \$13.5 billion in goods and services from Ontario in 2001, but exported only \$6.5 billion to that province.

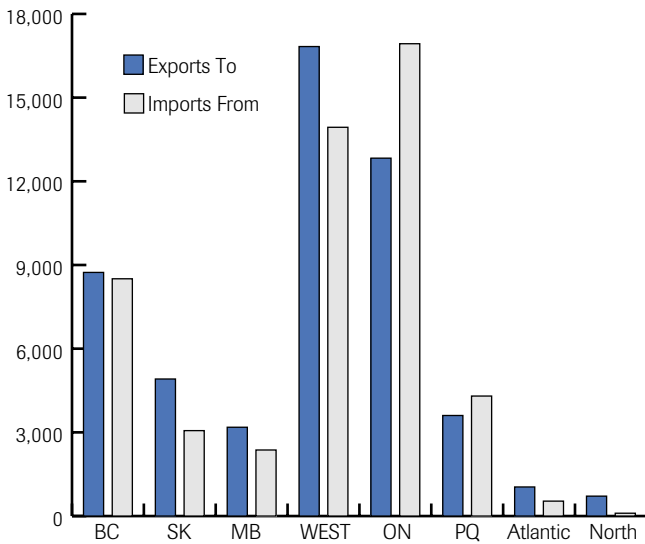
Figure 1:
BC Interprovincial Trade,
Goods and Services, 2001 (\$ millions)



Source: Statistics Canada CANSIM Table 3860002

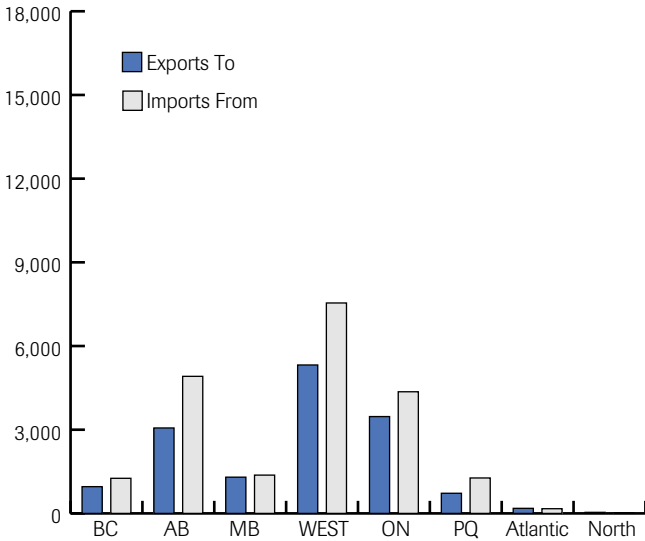
Alberta's strong export volumes yield a trade surplus with most provinces, but the massive industrial sectors in Ontario and Quebec are larger yet—Alberta runs a deficit in trade with these provinces. Trade with Saskatchewan represents the largest surplus in favour of Alberta.

Figure 2:
Alberta Interprovincial Trade,
Goods and Services, 2001 (\$ millions)



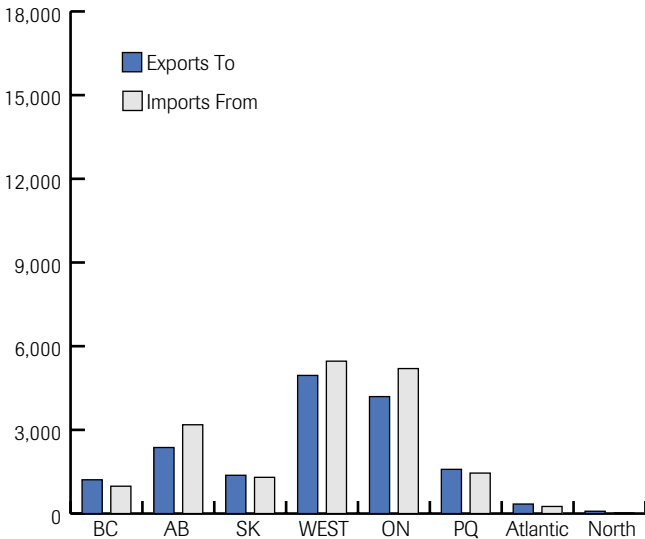
Source: Statistics Canada CANSIM Table 3860002

Figure 3: Saskatchewan Interprovincial Trade, Goods and Services, 2001 (\$ millions)



Source: Statistics Canada CANSIM Table 3860002

Figure 4: Manitoba Interprovincial Trade, Goods and Services, 2001 (\$ millions)



Source: Statistics Canada CANSIM Table 3860002

Saskatchewan imports more goods and services from every province and region than it exports to, with the exception of the Atlantic region and the North. The volume of trade is largest with Alberta, making Saskatchewan the only western province whose largest Canadian trade partner is not Ontario.

Trade in goods and services between Manitoba and the other provinces is fairly balanced. Only with Ontario does the surplus or deficit in trade exceed \$1 billion.

Interprovincial Trade Barriers

Despite the importance of trade among the provinces to the regional economy and long-standing efforts to increase the free movement of goods and services within the country and abroad, numerous barriers to interprovincial trade remain in place.

Barriers currently in place include:

1. Restrictions on Labour Mobility: Many barriers prohibit the free movement of workers from province to province. These include restrictions on hiring based on residency, different accreditation requirements for trades people, and the lack of common standards in licensing professionals between provinces.

2. Agricultural and Food Products: Barriers exist which restrict the movement and sale of many farm products and processed foods. Some of these barriers involve regulations that effectively—although not technically—prevent interprovincial trade. (An example of this is the laws in Quebec requiring margarine to be white. Margarine produced outside the province is yellow to make it more appealing to consumers; these margarine producers would be required to make a special variety of margarine without the yellow colouring in order to export and sell their product in Quebec.)

3. Transportation: Provincially-set regulations for transportation can vary widely. A maze of regulations on safety standards, weights, dimensions, and taxation—all varying by province—can result in a serious time and cost impediment for transportation companies that cross provincial borders.

4. Procurement: Despite violating the framework laid out in the Agreement on Internal Trade, many jurisdictions still maintain procurement practices that favour local companies. These biases can be overt or discreet (such as unfair registration requirements for out-of-province bidders).

5. Natural Resource Processing: Barriers exist in the processing of forestry, fish, and mineral resource products. Certain regulations require processing to be done locally, blocking the possibility of out-of-province processing.

6. Consumer-Related Measures and Standards: Certain products are subject to consumer protection requirements (for example, disclosure of detailed information on food additives). These requirements vary across provinces and can act as barriers to the distribution and sale of the item across provincial borders.

7. Environmental Protection: Similar to the consumer-related measures, the rules regarding environmental protection are inconsistent across the provinces. These inconsistencies create barriers to trade and procurement of services.

8. Alcoholic Beverages: Because most provinces still regulate the price and distribution of alcohol, there is restricted movement of beer, wine and spirits across borders.

The economic costs of interprovincial trade barriers are impossible to determine precisely, but may be as high as several billion dollars per year. Research suggests that the biggest barriers to open interprovincial commerce result from differences in occupational and professional licensing, regulatory standards, and local procurement policies of provincial and municipal governments.

Whatever the costs may be, the Canadian economy would certainly operate more efficiently if these barriers were eliminated.

Transformations: The Future of Interprovincial Trade in Western Canada

While economists generally agree that barriers to interprovincial trade are damaging to the economy, there is often an interested party that is able to successfully lobby for an exemption. For example, a union representing labour in a particular province may have a vested interest in reducing the inflow of out-of-province workers because this will add to the labour supply and drive down wages. Or an agricultural producer who would like to see less competition from out-of-province producers will lobby hard for exemptions.

The bottom line is that many lobby groups are very effective at pressuring provincial governments into providing exemptions to free trade. The Agreement on Internal Trade (AIT) was designed to reduce barriers to interprovincial trade, but it lacks the teeth needed to fully remove them.

The low priority of the issue among the electorate helps explain why provincial governments have not fully eliminated the barriers. The general public is often either unaware or uninterested in breeches of the AIT. Other weightier political issues easily dominate the agenda. And those that are aware or involved in economic matters pertaining to interprovincial trade are often against reducing the barriers (for example, construction workers facing competition from outside the province).

In the short-term, there is likely to be little substantial progress made on removing barriers to interprovincial trade on a national scale. Some progress may be made through bilateral agreements involving individual provinces (such as work being done at the moment between Alberta and BC).

There is more optimism regarding change over the long-term. More policy-makers are starting to realize that Canada's economic competitiveness and productivity growth must be boosted if it is to retain its enviable standard of living. Barriers to trade within our own country clearly work against efforts to boost productivity and generate increased wealth.



WESTERN CITIES PROJECT

Six in ten western Canadians live in the West's eight largest urban areas. Effectively addressing urban policy challenges and examining the role of big cities are critical to our long-term economic success and quality of life. The Canada West Foundation's **WESTERN CITIES PROJECT** has been providing decision-makers and the public with timely and accessible information about urban issues and putting forward practical recommendations for addressing urban policy challenges since 2000. To find out how you can support this important work, please contact Julie Johnston, Director of Fund Development, by phone (403.538.7355) or email (johnston@cwf.ca).

Chapter 3

The Labour Force

- ▶ Employees and employers in western Canada have increased their ability to adapt to changing labour market circumstances.
- ▶ While job tenure has increased somewhat over the past few decades, the concept of loyalty to any one employer has weakened as a value held by workers.
- ▶ Currently, shortages of skilled labour are restricting the ability of some employers to find qualified workers (particularly the construction trades, health care and transportation). In Alberta in 2005, the tight labour market has spread to a general shortage of labour, including unskilled workers.
- ▶ Increasing retention of older workers, bringing in immigrant workers, and tapping into the Aboriginal population are some ways employers could help address labour force shortages.

TRANSFORMATIONS

Employees and employers will become even more flexible in adjusting to shifting labour market conditions. Workers will become more “fluid” in their attitudes about work and career.

Federal and provincial governments will continue to emphasize and invest in post-secondary education as a means of addressing skilled labour shortages and improving economic productivity, and this will increase the education and skill level of the labour force.

Demographics will continue to drive up the average age of workers in western Canada.

The eventual elimination of mandatory retirement legislation in BC and Saskatchewan—and possibly some changes to the CPP and other pension programs—will also increase the average age of the labour force.

The disparity in wages and benefits is likely to widen between high-skilled, highly educated workers and those with fewer skills and less training.

Both employees and employers will continue to emphasize the importance of continual training and education.

The distribution of employees by occupation in western Canada is not markedly different than in other parts of the country. However, there are some slight differences that mirror the composition of the western economy.

Relative to the rest of Canada, a slightly larger portion of western Canadians are employed in the trades, transportation and equipment operations, and in occupations related to primary industries (see Figure 1). Likewise, a somewhat smaller percentage of western Canadians hold occupations in management, business, finance and administration.

In percentage terms, more people in Manitoba and Saskatchewan are employed in occupations related to healthcare, education and government services than their counterparts in BC and Alberta. British Columbians are the most likely in the West to be employed in sales and service occupations, likely as a result of the importance of tourism and tourist services in that province.

The portion of jobs in the trades, transportation and equipment operations is the highest in Alberta, spurred on by the activities and construction in the oil sands. However, despite Alberta's oil and gas activity, Saskatchewan leads the West in terms of the percentage of jobs in the primary sectors.

Figure 1:
Employment by Occupation in Western Canada, 2005

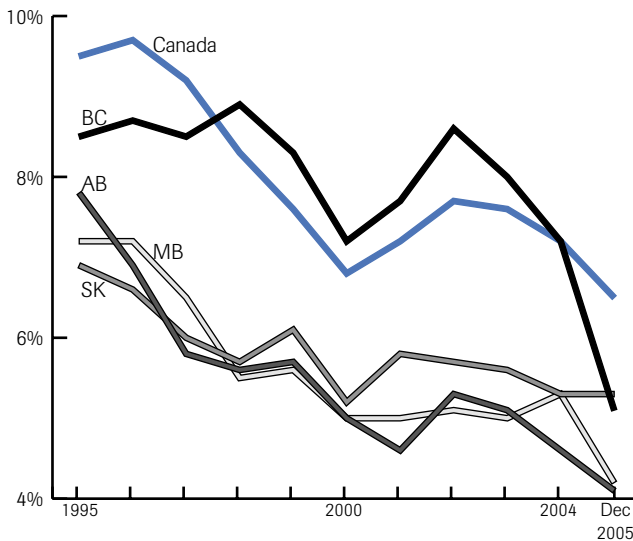
	000s					
	BC	AB	SK	MB	WEST	Canada
Management occupations	106.6	96.9	20.2	30.0	253.7	972.6
Business, finance and administrative occupations	341.8	290.7	70.2	94.9	797.6	2,716.2
Natural and applied science occupations	122.2	114.5	18.8	31.0	286.5	985.8
Health occupations	101.9	92.5	30.8	35.1	260.3	862.0
Occupations in social science, education, gov't or religion	125.5	100.2	30.6	42.2	298.5	1,087.7
Occupations in art, culture, recreation or sport	36.5	26.3	8.9	9.6	81.3	356.9
Sales and service occupations	492.0	361.1	107.3	129.1	1,089.5	3,443.3
Trades, transport and equipment operators	276.5	259.7	67.0	69.8	673.0	2,096.9
Occupations unique to primary industry	50.9	58.5	20.4	14.5	144.3	366.6
Occupations unique to processing, manufacturing	86.3	70.2	17.5	38.2	212.2	1,083.6
Other not specified	392.7	316.6	90.5	86.0	885.8	2,229.1
Total	2,132.9	1,787.2	482.2	580.4	4,982.7	16,200.7
	%					
Management occupations	5.0	5.4	4.2	5.2	5.1	6.0
Business, finance and administrative occupations	16.0	16.3	14.6	16.4	16.0	16.8
Natural and applied science occupations	5.7	6.4	3.9	5.3	5.7	6.1
Health occupations	4.8	5.2	6.4	6.0	5.2	5.3
Occupations in social science, education, gov't or religion	5.9	5.6	6.3	7.3	6.0	6.7
Occupations in art, culture, recreation or sport	1.7	1.5	1.8	1.7	1.6	2.2
Sales and service occupations	23.1	20.2	22.3	22.2	21.9	21.3
Trades, transport and equipment operators	13.0	14.5	13.9	12.0	13.5	12.9
Occupations unique to primary industry	2.4	3.3	4.2	2.5	2.9	2.3
Occupations unique to processing, manufacturing	4.0	3.9	3.6	6.6	4.3	6.7
Other not specified	18.4	17.7	18.8	14.8	17.8	13.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistics Canada CANSIM Table 282-0009

Unemployment and Participation Rates

While unemployment rates have fallen in most parts of Canada over the past decade, rates in western Canada remain the lowest. At one point in 2005, Alberta's rate fell to 3.5%, while rates in Saskatchewan and Manitoba generally range between 4%-5%. BC's rate has fallen significantly from nearly 9% in 1998 to 5.1% in December 2005 (see Figure 2).

Figure 2:
Unemployment Rates in Western Canada



Source: Statistics *The Daily*, January 6, 2006, and CANSIM Table 282-0001

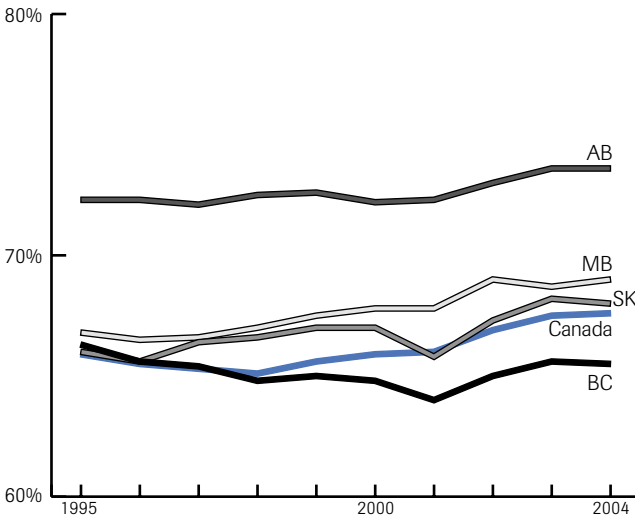
Low unemployment rates are typically a sign of strong economic growth, but in the case of Saskatchewan and Manitoba, low rates of unemployment are more indicative of the problem of out-migration from these provinces. One of the most significant challenges for these two provinces is creating good employment opportunities to stem (or even reverse) the out-flow of their young, educated workers.

The participation rate—that is, the portion of the population aged 15+ who are either working or looking for work—has risen somewhat in western Canada along with the Canadian average (see Figure 3).

BC's participation rate remains below the national average despite strong job creation over the past few years, a key reason likely being the number of retirees living in the province.

Alberta's participation rate is the highest in the country with nearly three-quarters of all adults participating in the labour force.

**Figure 3:
Participation Rates in Western Canada**



Source: Statistics Canada CANSIM Table 282-0001

Labour Market Shortages and Wages

A shortage of skilled labour is a growing problem in western Canada. In 2004, the Canada West Foundation conducted a survey of industry organizations across the West to determine the extent of skilled labour shortages. At that time, 62 of 76 organizations reported that their industry was experiencing “some” or “severe” shortages of skilled labour. When asked about their expectations for the next five years, 73 of the 76 groups anticipated skilled labour shortages.

For businesses, these shortages can mean increased labour costs, production delays, or barriers to expansion. This has been a particular problem in Alberta's oil sands projects which have faced serious cost overruns and delays in scheduling due in no small part to labour related issues.

Many factors are contributing to these shortages, including demographics and a social aversion away from traditional trades. The Government of Canada and the provincial governments all have dozens of programs in skills training, apprenticeship programs, and career planning to help address these shortages.

Figure 4: Employees and Average Hourly Wages,
Western Provinces, November 2005

	BC	# of employees (000s)	average hourly wage (\$)	% increase in wage from Nov. 04	AB	# of employees (000s)	average hourly wage (\$)	% increase in wage from Nov. 04
15 years and over		1,745.4	19.67	1.3		1,460.6	20.33	6.7
15 to 24 years		329.1	11.60	-0.6		293.6	12.14	8.4
25 to 54 years		1,213.7	21.34	2.3		1,012.6	22.48	7.0
55 years and over		202.6	22.73	1.4		154.4	21.80	2.0
Men		878.8	21.39	0.7		766.8	22.71	7.5
Women		866.6	17.92	2.1		693.9	17.70	5.4
Full-time		1,401.9	20.97	2.1		1,225.5	21.60	6.5
Part-time		343.5	14.36	-5.3		235.2	13.75	1.0
Unionized		579.0	22.90	-2.5		345.4	23.16	3.0
Non-unionized		1,166.4	18.06	3.8		1,115.2	19.46	8.4
Permanent job		1,560.0	20.08	0.9		1,307.4	20.79	6.6
Temporary job		185.4	16.19	3.3		153.2	16.41	6.0
	SK	# of employees (000s)	average hourly wage (\$)	% increase in wage from Nov. 04	MB	# of employees (000s)	average hourly wage (\$)	% increase in wage from Nov. 04
15 years and over		380.5	17.59	4.1		492.4	17.37	4.4
15 to 24 years		75.3	10.17	-0.1		94.4	9.75	2.0
25 to 54 years		261.6	19.39	3.7		336.0	19.30	6.3
55 years and over		43.6	19.63	8.0		62.0	18.51	1.1
Men		187.0	19.05	4.1		246.4	18.35	3.5
Women		193.5	16.18	4.3		246.0	16.39	5.3
Full-time		302.7	18.84	3.9		392.1	18.65	5.5
Part-time		77.8	12.71	5.2		100.4	12.37	-0.3
Unionized		137.6	20.73	1.8		183.3	20.99	6.4
Non-unionized		242.9	15.81	5.4		309.1	15.22	2.9
Permanent job		335.0	17.96	4.1		440.8	17.77	4.0
Temporary job		45.5	14.88	5.3		51.7	13.96	6.2

Source: Statistics Canada, CANSIM Table 282-0069 and 282-0073

The Canada West Foundation's 2004 report *Toward a Bright Future: Recommendations for Addressing Skills Shortages in Western Canada* makes ten policy recommendations aimed at improving the role of governments in addressing the skills shortage problem:

- Increase financial resources for post-secondary education
- Place a more regional focus on the federal government's Sector Council Program, while maintaining national standards
- Break the link between funding for training and EI eligibility in the Labour Market Development Agreements
- Improve quality and timeliness of shared information on labour demand
- Use tax credits to encourage companies to do more direct on-the-job training
- Work to change perceptions about careers in the trades
- Increase training and skills development for Aboriginal peoples
- Increase targeted immigration through the Provincial Nominee Program
- Increase flexibility of post-secondary education institutions in the establishment and delivery of programs
- Work to improve transferability of credits between post-secondary institutions

The report can be downloaded at www.cwf.ca.

The tightness within the labour market is beginning to spread to a general labour shortage, including a growing shortage of even unskilled workers. This is particularly true in Alberta where "HELP WANTED" signs are common features at almost every type of business.

The labour shortage is starting to manifest itself through rising wages, again particularly in Alberta. In 2005, the average hourly wage of employees in Alberta has risen by 6.7%, compared with the national average of 3.9% (see Figure 4). Wage increases in Saskatchewan and Manitoba are slightly above the national average.

Despite posting vigorous economic growth in 2004 and 2005, BC's average hourly wage increase remains very weak at 1.3% (Nov. 2004 to Nov. 2005). This lower-than-average increase could be due to the excess supply of labour remaining after the very weak economic years in the early 2000s, as well as a return to a net gain of interprovincial migrants as many of BC's residents began returning to the province in 2004 and 2005.

As the slack in the labour force is taken up over the next few years, wage increases in BC should rise above the national average.

Transformations: The Future of Western Canada's Labour Force

As the western Canadian economy continues to expand and mature over the coming years, the labour force will change and adapt with it. Labour shortages in certain sectors will shape recruitment efforts by employers. The western provinces are likely to increase their efforts to bring in foreign workers through the Provincial Nominee Program (PNP)—something that Manitoba has already been using quite effectively. As well, employers may be more likely to tap into the vast amount of human capital amongst the Aboriginal population.

Neither of these options to expand the labour force are easy—there are cultural, language and settlement barriers related to new immigrants entering the country and the job market. And often there are sensitivity issues and training on the part of companies and management when hiring Aboriginal workers. But while these issues are real, they are not insurmountable.

All of the western provincial governments have been increasing their attention to—and in some cases, investments in—post-secondary education. (Chapter 4 on Post-Secondary Training and Skills Development details some of the most recent announcements of spending by the provinces.) This will help create a more responsive post-secondary training system and a more educated and skilled labour force.

Demographics will be a major factor in shaping labour force dynamics. It is a well-known fact that our population—and our labour force—is aging. As a result, the average age of workers will continue to increase over the coming years. Older workers will become more common, particularly those over the age of 65 who opt to remain in the labour force.

BC and Saskatchewan currently have mandatory retirement legislation. This means that, under human rights legislation, older employees are protected against discrimination based on age only until they reach age 65. Employees who are 65 or over cannot file a complaint for age discrimination if they are forced to retire. Alberta and Manitoba have

no such mandatory retirement legislation (except in a well-publicized case in Manitoba regarding mandatory retirement of university professors). Unions generally tend to favour mandatory retirement legislation as it allows forced retirement and more position openings for younger workers.

Social and political pressures are moving towards the elimination of mandatory retirement legislation. Older workers are enjoying increasingly better health and in many cases are not ready for full retirement at age 65. It is likely that over the next few years, BC and Saskatchewan will change their legislation to eliminate mandatory retirement. Retirement ages in Canada may also increase to, perhaps, age 67.

Changes may also come to the rules of the Canada Pension Plan and other private pensions that discourage seniors from working and encourage full retirement. As well, employers will be forced to adapt and find ways to keep experienced seniors on staff by offering more flexible hours, more part-time positions, and more mentoring programs.

Pensions and benefits will continue to play a major role in the compensation packages for many employees. Private company pensions will continue the trend towards defined contributions and away from defined benefit packages. There may develop a gap between the more generous wages and benefits packages offered to professional and skilled trades people (i.e., those workers who are in demand), and the less generous wages and benefits offered to low-skill workers.

Both workers and employers will continue to emphasize the importance of continual training and education. This is not a new idea—the phrase “life-time learning” is well-entrenched into our cultural parlance. But the importance and necessity of continual training is likely to accelerate in the coming years. This has implications for programs offered to mature students, online educational courses, and other training offered to working adults.

Overall, western Canada’s labour force will increase its ability to adapt to changing circumstances. While job tenure has been increasing over the past few decades, younger workers entering the labour force will be more willing to consider other employment options. This will put the onus on the employers (particularly in good economic times) to keep their employees satisfied and well-paid. The idea of loyalty to your employer will continue to weaken as a value held by workers.

Canada needs older workers, OECD warns **Says revamp of retirement rules needed**

Wednesday, September 21, 2005

Globe and Mail

Canada is in better shape than most to deal with an aging population, but the country still needs a major overhaul of its retirement practices if it wants to pre-empt weaker economic growth, the OECD says in a study to be released today.

Governments and companies have many rules and incentives that are skewed towards encouraging early retirement, the Organization for Economic Co-operation and Development says.

“Older people offer tremendous potential value to businesses, the economy and society,” the report on Canada says. “Unfortunately, they often represent an untapped and discriminated-against resource, as many public policy measures and private workplace practices pose serious barriers to work, both paid and unpaid.”

All provinces should ban mandatory retirement, the report recommends. Government and private pension plans alike should be made more flexible so that older workers can collect some of their pensions and continue to draw a salary at the same time.

Ottawa should also re-examine its highly successful Registered Retirement Savings Plan scheme so that workers aren’t tempted to retire early and collect. Plus, Ottawa should sweeten the Employment Insurance program to help older workers with retraining and finding new jobs, the report says.

“The economic conditions are ripe for these changes,” the report’s author, Steven Tobin, said in an interview.

Canada’s population is not aging as fast as Europe’s or Japan’s, partly because of high immigration levels here, and because the fertility rate is not falling as fast in Canada as elsewhere. Plus, the federal government’s old-age security and Canada Pension Plan are on solid financial footing after reforms in the 1990s. And the job market for

older workers has improved steadily in the past few years, the report says.

But the proportion of people over 65 is climbing steeply, and if baby boomers leave the job market en masse, Canada's economic growth could be in trouble, the report warns.

Specifically, the OECD recommends that the federal government should scrap the stop-work clause in the CPP, which forces workers to stop working for at least a month before they can collect their pension. Federal rules that prevent people from working and paying into a defined-benefit pension while collecting benefits should also be nixed.

More flexible rules would eliminate financial penalties for those who want to work longer, Mr. Tobin said.

Ottawa should also take a second look at RRSPs, because they're becoming almost too successful, the report says, and "there is a risk that these plans may create strong work disincentives in the future."

Options for the RRSP program could include introducing an age restriction on when the savings can be accessed, a reduction of the tax incentives, or a change in minimum withdrawal rules, Mr. Tobin said.

But Mr. Tobin realizes that although Canada may have the means to make such changes, the political will may not be there.

Pressure on Ottawa to change RRSP rules would make the regime more generous -- the opposite of what the OECD suggests.

And while several provinces have abolished mandatory retirement and Ontario plans to proceed this fall with a gradual phasing out, unions have been opposed.

Chapter 4

Post-Secondary Education and Skills Development

- ▶ Shortages of skilled labour are threatening segments of western Canada's economy.
- ▶ Eighty-five percent of industry associations surveyed in the West reported that there are post-secondary programs in place that train individuals for work in their industry. However, more than half of these associations indicate that the number of students graduating from these programs is not sufficient to meet their needs in the future.
- ▶ While responsibility for post-secondary education lies with the provincial governments, both the provinces and the federal government are involved through funding arrangements, student loan programs, apprenticeship programs, research grants, and other investments in education.
- ▶ As evidenced by the latest budgets of the four western provincial governments, public investment in post-secondary education is attracting more attention.
- ▶ All four provinces have vowed to increase their commitment to, and investment in, post-secondary education.

TRANSFORMATIONS

The public demand for trades, technical training, and vocational programs will increase at a faster rate than will demand for traditional university degrees over the coming years. Enrollment in technical colleges will outpace that of universities over the next decade.

There will be an increase in participation from the corporate and business community in funding and designing programs, creating a custom crop of graduates from which to recruit.

Tuition costs may continue to increase—although at a slower pace than they increased over the past decade—as schools struggle to maintain capital infrastructure and attract faculty.

The federal government will become increasingly involved in post-secondary education by enriching scholarships, funding research chairs, and directing more money to skills training.

There has been considerable attention paid to the looming problems of labour shortages in western Canada. But the problem currently facing western Canada's work place is not a general shortage of labour, but a shortage of skilled labour. This shortage is more acute in certain regions and in certain sectors than in others.

The retirement of the Baby Boomers is only one factor. Increasingly, young people grow up in a culture dominated by technology and are choosing to make their careers in IT and related fields. This is leaving a growing shortage of new workers in traditional fields such as the construction trades.

Alberta and BC are also facing labour shortage problems stemming from increased demand. With massive expansions planned for oilsands operations in Alberta, workers in the trades and technologies are being hired as fast as they are available. In BC, major transportation projects, resource sector projects, and other non-residential construction are creating an

added shortage in the construction trades. The upcoming 2010 Winter Olympic Games will increase the strain when major projects get underway in 2006 and beyond.

This is not just a theoretical problem. In *Willing and Able: The Problem of Skill Shortages in Western Canada*, published in 2004 by the Canada West Foundation, 73 out of 76 industry associations that were surveyed across western Canada expected there to be labour shortages in the next five years. This shortage of labour will inhibit the ability of the West to continue to develop and grow.

Of the 76 industry associations interviewed, 85% reported that there are post-secondary programs in place that train individuals for work in their industry; however, more than half of them indicate that the number of students graduating from these programs is not sufficient to meet their needs. Given that these needs will intensify in the future, the problem is only going to get worse if left unchecked.

One factor contributing to the lack of qualified graduates is the shortage of funding and classroom spaces in these programs. Another factor is a culture of misinformation on the student side. With young people more interested in IT careers, changing demographics and parents often encouraging university attendance, fewer students are enrolling in skills training programs. Regarding these perceptions, the reality is much different than commonly thought. Many skilled labour jobs involve working with advanced technology and are very well paying careers. As well, due to the demographic situation there is huge potential for career advancement in these fields.

Post-Secondary Education in the West

The term “post-secondary education” refers to more than just the university system. It also refers to technical colleges, community colleges, vocational learning centres, and apprenticeship programs.

Post-secondary education institutions also carry out important functions related to research (see Chapter 7 on the Knowledge Economy). The economic impact of this research role cannot be understated nor should it be ignored; however, the focus of this chapter is on post-secondary education institutions as places of instruction and learning.

Some level of post-secondary education is becoming necessary for even basic, entry-level positions. Recently, demand for university education has increased, causing space constraints within institutions. Combined with increasing operating costs, university finances have been strained. As a result, tuition fees have risen sharply over the past decade, raising considerable concern as to the affordability of education and the barrier this poses to access.

Figure 1:
Average Undergraduate University Tuition by Province

	\$				% change		
	1990/91	2000/01	2004/05	2005/06	1990/91- 2005/06	2000/01- 2005/06	2004/05- 2005/06
Canada	1,464	3,447	4,140	4,214	187.8	22.2	1.8
Manitoba	1,512	3,219	3,236	3,272	116.4	1.7	1.1
Saskatchewan	1,545	3,668	5,062	5,062	227.7	38.0	0
Alberta	1,286	3,907	4,940	5,125	298.4	31.2	3.8
BC	1,808	2,592	4,735	4,874	169.5	88.0	2.9

Source: Statistics Canada, *The Daily*, September 1, 2005

BC has seen the greatest increase in average tuition fees over the past five years, followed by Saskatchewan and Alberta. Manitoba is the one exception. Over the past five years tuition in Manitoba has gone up only marginally (+1.7%).

Compared to 15 years ago, tuition in all four western provinces has gone up quite substantially, led by a nearly 300% increase in Alberta.

These rate increases are significantly higher than inflation and other cost of living increases. Accessibility of student loans and other forms of financing have not kept up with tuition increases and have left students struggling to pay for their education.

Currently, government, students and the private sector all contribute resources to post-secondary education. Governments pay the majority of the costs; student tuition accounts for approximately a quarter of the cost, but students also pay other fees and charges such as the cost of books. Businesses contribute to education in the form of donations, gifts and scholarships.

The Role of the Provincial Governments

Recently, provincial governments in the West have increased their focus on post-secondary education and skills training and are working to rectify some of the current problems. Education initiatives were a focus of the 2005 budget in all four western provinces.

In BC, infrastructure upgrades at Simon Fraser University and UBC (as well as the development of BC Campus, an integrated online learning system) are underway. In 2003 the Industry Training Authority was created to address the future skilled labour shortage problem. In 2005 it was announced that by 2010, 25,000 new student spaces would be created in BC post-secondary institutions. As well, the parental contribution level for student loans was reduced and the principal deferment program was increased to allow for improved access to education. BC has also overhauled the industry training system of apprenticeship programs.

In Alberta the Centennial Tuition Rebate was announced. Tuition for students at post-secondary institutions in the province will be held at 2004/5 levels with government grants covering any increases in cost. A commitment was also made to increase funding by 30%, and add 15,000 post secondary spaces over the next three years. Additionally, there was a \$5.7 million expansion of apprenticeship training programs and \$250 million invested in what is to become a \$3 billion dollar Access the Future fund to support post-secondary education.

In Saskatchewan, tuition rates have been frozen at 2004/05 levels. Funding for the college of medicine to increase residency spots was also increased along with increases in bursary assistance to over 10,000 students in all fields. As well, steps are being taken to increase the number of student spaces in nursing, apprenticeship training and adult basic education. The Centennial Merit scholarship program was doubled in size, and internship training programs were expanded. Finally, the graduate tax credit program was expanded providing tax relief to post-secondary graduates who choose to pursue their career in Saskatchewan.

Manitoba also made a commitment to post-secondary education and skills training in 2005. Increases were made to student aid including a new round of graduate student

scholarships. Also, the bursary program was increased to provide assistance to students with financial need. In general, tuition was decreased for the fifth year in a row and cash provisions were made to the University of Manitoba and Brandon University to help cover costs. Finally, funding was provided to increase the number of training spaces for medical doctors and health technicians, two areas where shortages are predicted to occur.

This is not an exhaustive inventory of provincial government initiatives with regards to post-secondary education. Many other changes and programs have also been introduced to address the pressing need for training and skills development.

Transformations: The Future of Post-Secondary Education and Skills Training

Of all the topics contained in this report, few are as critical to the future of western Canada's economy as is post-secondary education and skills training. In almost every aspect of the economy—international trade, knowledge-based industries, the service sector, manufacturing, resources—the theme of a highly skilled labour force emerges as an essential element for success.

What will post-secondary education look like in the next decade in the West? What challenges are likely to arise for the governments, students, businesses and schools that are involved?

One likely outcome is increased public demand for the technical and vocational programs such as electronics, the trades, health care vocations, and business services, with perhaps slightly less demand for the traditional academic programs offered by universities. Opportunities for good paying careers exist currently and are expected to increase over the medium- to long-term. Students will respond by seeking training in these areas; enrollment in technical colleges will outpace enrollment in traditional universities over the next decade.

A second trend that will mark the coming years is increased awareness and involvement on the part of the business community in post-secondary education. Already many

companies—particularly those that are finding it difficult to find skilled labour—are partnering with trade schools and vocational colleges in designing and providing funds for certain programs. This benefits the schools, the students and the companies themselves by providing a custom-made crop of graduates to recruit.

Industry/College Partnership in Action:

**Canadian Pacific Railway and Southern Alberta Institute of Technology
The Centre for Rail Training and Technology**

Officially launched in November 1999, the Centre for Rail Training and Technology (CRTT) merges SAIT's capabilities in traditional learning methods and electronic delivery with CPR's operating expertise and resources. The CRTT provides a full range of training services in competency-based and pre-employment programs and courses. Focusing on the development of new training courses and programs, the Centre can custom design solutions to meet the specific needs of companies and organizations. The Centre provides training to organizations in areas such as: track and signals maintenance, locomotive car repair and maintenance, train operations and controllers, front line management and customer services.

Source: www.cpr.ca

We are also likely to see government place an increased overall focus on post-secondary education. As evidenced by the recent budgets, all four western provincial governments are realizing the importance of investing in education and skills development. The federal government (in its pre-election mini-budget in November 2005) has also announced substantial amounts of financial support for students. Post-secondary education may become the new "health care" in terms of public policy urgency.

Fourthly, we are likely to see a continuation of the trend toward higher tuition costs for the students. They may not rise as precipitously as they have risen over the past two decades, but more increases may be inevitable as schools struggle to maintain facilities and attract faculty in a very competitive market. In the future, the degree to which higher tuition fees negatively affect students' ability to attend school will depend on the federal and provincial governments' policies on student loans, bursaries, and vouchers.

Chapter 5

Energy Resources

- ▶ Soaring world demand, geopolitical events, and fears of falling supply have been responsible for soaring crude oil prices in the mid-2000s. Natural gas prices have also risen dramatically.
- ▶ The Western Canadian Sedimentary Basin is a maturing source of conventional crude oil and natural gas; production from this basin is depleting.
- ▶ However, synthetic crude from Alberta's tar sands has already replaced conventional crude in terms of value of production in Alberta. Coalbed methane holds promise for increasing natural gas supplies from the West.
- ▶ Hydroelectricity is the source of almost all of the power generation in BC and Manitoba. Both provinces are net exporters of electric power to the US.
- ▶ Uranium, coal, and other alternate methods of power generation such as wind turbines are also significant sources of energy in the West.

TRANSFORMATIONS

Western Canada will continue to reap the benefits and wealth of its abundant energy resources.

Energy prices are not likely to be sustained indefinitely at the record highs reached in 2005; however, there is general agreement that the global energy market has moved into an environment of generally higher prices.

Higher prices for crude oil and natural gas will boost the economies and provincial financial situation of BC, Alberta and Saskatchewan in the immediate future. Medium- to long-term predictions are difficult to make because of the uncertainty around world prices.

Crude oil extraction in AB will continue to shift away from a drilling operation to a mining operation.

The environmental implications of oil sands development—emissions, water use, and impact on the land and forest—could become major economic factors in the future.

If energy prices for traditional hydrocarbons remain high for a sustained period, it may dampen economic growth in the rest of Canada and the US (and could even trigger a recession).

Hydroelectricity will continue to generate significant power for BC and Manitoba. There may be some risk to long-term generating capacity due to a trend of warmer and dryer conditions in North America.

Western Canada has the opportunity to be the world leader in the research and development of alternative energy. Wind, solar, biomass, hydrogen cell technologies, and even tidal power all hold promise for meeting the world's growing energy demand.

Western Canada is rich in a wide range of energy resources. Alberta's abundant oil, natural gas and coal, Saskatchewan's deposits of crude oil and uranium, Manitoba's and BC's vast rivers and hydroelectric generation—all of these resources make western Canada a major energy producer and exporter.

But many of these resources—particularly the hydrocarbons—are subject to the vagaries of world markets. Prices can swing wildly and often unexpectedly, making it difficult for provincial governments to plan around royalty revenues.

Other resources, such as hydroelectricity, require such massive capital investment that their development is limited by available public money (western Canada's hydro resources are all owned by Crown corporations) and fears that return-on-investment will not adequately cover the initial development costs. Hydroelectricity can also be negatively affected by low levels of precipitation.

How are energy resources currently fueling the western Canadian economy? And what are the likely challenges and opportunities that the future will bring?

Crude Oil

Alberta leads the West and the nation in production of crude oil. But conventional sources of crude—on which the provincial economy was built after major discoveries at Turner Valley and later Leduc—are mature and production is leveling off or declining. Production value has remained high due to soaring prices over the past few years. But the Western Canadian Sedimentary Basin (WCSB), which is anchored by oil deposits in Alberta, is a mature basin. Total known reserves of conventional crude have fallen consistently over the past decade (see Figure 1).

Bitumen—the thick, tar-like oil deposits found in the oil sands in the northern part of the province—is compensating for the decline in conventional crude in Alberta and now accounts for over half of annual oil production. Bitumen is far more costly to extract from the earth than is conventional crude and, once it is extracted, needs to be upgraded with diluents (creating synthetic crude) in order for it to flow within a pipeline to refineries.

Capital investment in oil sands projects has accelerated over the past five years, driven by very high oil prices, improved technology in bitumen extraction, and falling operating costs. Projects either planned or underway total \$60 billion over the next decade.

Saskatchewan is the country's second largest producer of crude oil, particularly heavy crude from the same maturing WCSB. This grade of oil requires additional diluents and refining to bring it up to the quality of light, sweet crude, making it somewhat less valuable. Nonetheless, the recent spikes in global oil prices have been a boon to the province. It is largely because of rising oil royalties accruing to the provincial government that Saskatchewan has recently joined Alberta and Ontario in the group of "have" provinces.

Natural Gas

Crude oil tends to overshadow natural gas, capturing more headlines and attention due to its recent price escalation. But the economic importance of natural gas in western Canada should not be understated. Over the past three decades, natural gas (not oil) can be given the most credit for Alberta's energy wealth and fiscal surpluses. In the fiscal year 2005/06, royalties from natural gas are expected to total \$9.1 billion, compared to royalties \$2.4 billion from conventional crude and bitumen/synthetic crude.

Like conventional crude, the maturity of the WCSB is resulting in less production of conventional natural gas in Alberta. This is especially true of the shallow gas wells in the southeastern part of the province. Deep gas finds along the foothills have contributed to the total reserves in the province, but these discoveries have been fewer and much more costly to develop than the traditional shallow gas deposits.

Alberta contains a substantial amount of non-conventional gas found within the seams of coal deposits—known as coalbed methane (CBM). There are some environmental concerns around water usage and wastewater involved in CBM extraction. However, if these environmental sensitivities can be addressed, the large quantity of CBM gas in Alberta holds promise for reversing the province's declining production of natural gas in the long-term.

Natural gas is also an important commodity for northeastern BC, which is the second largest gas-producing province after Alberta. Unlike its neighbour to the east, BC's total

gas reserves have been growing in recent years with significant discoveries in the north. Capital spending on exploration and development of these gas reserves has more than doubled since 2000.

Figure 1:
Crude Oil and Natural Gas Activity in Western Canada

	1997	1998	1999	2000	2001	2002	2003	2004
BC								
Capital Spending (\$ billions)	1.6	1.3	1.1	1.8	3.1	2.4	3.8	3.9
Reserves at year-end								
Conventional oil (millions of barrels)	140	169	174	174	155	140	148	*
Natural gas (trillion cubic feet)	8.8	8.5	8.5	8.9	8.9	9	9.2	*
Production								
Crude oil and equivalents (thousands barrels/day)	51	56	49	55	55	52	52	48
Natural Gas (billion cubic feet/day)	2.0	2.1	2.1	2.2	2.5	2.7	2.5	2.6
Industry Revenues (\$ billions)	1.7	1.6	2.2	5.2	5.8	4.5	6.7	7.1
Alberta								
Capital Spending								
Conventional oil and gas (\$ billions)	11.7	10.4	8.5	12.9	14.7	11.7	15.5	18.5
Oil Sands (\$ billions)	2.0	1.6	2.5	4.3	5.9	6.7	5.0	6.2
Total spending (\$ billions)	13.6	11.9	11	17.2	20.6	18.4	20.5	24.7
Reserves at year-end								
Conventional oil (millions of barrels)	2,278	2,215	2,148	2,079	1,947	1,921	1,753	*
Oil sands, mining- synthetic (millions of barrels)	2,346	2,847	5,034	5,011	4,919	4,881	5,213	*
Oil sands, in-situ (millions of barrels)	1,446	1,388	1,561	1,805	1,820	2,024	2,032	*
Natural gas (trillion cubic feet)	49.4	47.8	46.6	44.8	45.2	44.5	42.5	*
Production								
Crude oil and equivalents (thousands barrels/day)	1,638	1,649	1,550	1,541	1,544	1,566	1,631	1,743
Natural Gas (billion cubic feet/day)	13.0	13.3	13.7	13.8	13.6	13.4	13.1	13.2
Industry Revenues (\$ billions)	25.9	21.1	28.8	49.9	49.3	42.9	57.2	4
Saskatchewan								
Capital Spending (\$ billions)	2.6	1.2	1.0	1.7	1.7	1.5	2.0	2
Reserves at year-end								
Conventional oil (millions of barrels)	1112	1139	1064	1146	1164	1157	1163	*
Natural gas (trillion cubic feet)	2.7	2.5	2.4	2.7	2.9	2.7	3.1	*
Production								
Crude oil and equivalents (thousands barrels/day)	402	399	374	417	427	421	420	423
Natural Gas (billion cubic feet/day)	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
Industry Revenues (\$ billions)	3.4	2.4	3.8	6.2	5.5	5.7	6.5	7.3
Manitoba								
Capital Spending (\$ billions)	0.04	0.02	0.02	0.03	0.05	0.06	0.07	0.08
Reserves at year-end								
Conventional oil (millions of barrels)	35	29	27	28	25	22	29	*
Production								
Crude oil and equivalents (thousands barrels/day)	11	11	10	11	11	11	11	11
Natural Gas (billion cubic feet/day)	0	0	0	0	0	0	0	0
Industry Revenues (\$ billions)	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2

* - data not yet available

Source: Canadian Association of Petroleum Producers

Electricity Generation

Energy resources in western Canada go far beyond petroleum products. Manitoba and BC rely almost entirely on their abundant hydroelectric power resources. Alberta and Saskatchewan, however, rely much more on conventional thermal and combustion turbines, which is consistent with the large volumes of coal and natural gas reserves in those provinces.

Figure 2:
Electricity Generation by Province,
2001 (TWh)*

	Hydro	Combustion turbine (nat. gas, oil)	Thermal (coal)
BC	43.0	0.3	2.5
Alberta	1.5	7.7	50.0
Saskatchewan	2.3	1.5	13.0
Manitoba	33.0	0.0	0.5

* TerraWatt Hours (TW.h) – one billion kilowatt hours
Source: Canadian Electricity Association and Statistics Canada

The provincially-owned BC Hydro and Manitoba Hydro are relatively large producers of hydroelectricity. While electricity is exported to the US as well as imported on the continental system grid (depending on demand), both BC and Manitoba have typically been net exporters of hydroelectric power to the US (see Figure 3). In 2001, BC exported over \$2 billion to the US, mostly as a result of the power shortage and black-outs in California that year. Exports to the US have fallen off dramatically since then, but are still running trade surpluses.

Figure 3:
Balance of Trade with US
in Electric Power Generation (\$ millions)

	2000	2001	2002	2003	2004
BC exports	1,987	2,086	288	383	291
BC imports	338	1,383	122	192	269
Balance	1,649	703	166	190	22
MB exports	443	535	390	264	380
MB imports	22	33	61	253	161
Balance	421	502	329	11	219

Source: Industry Canada Trade Data Online

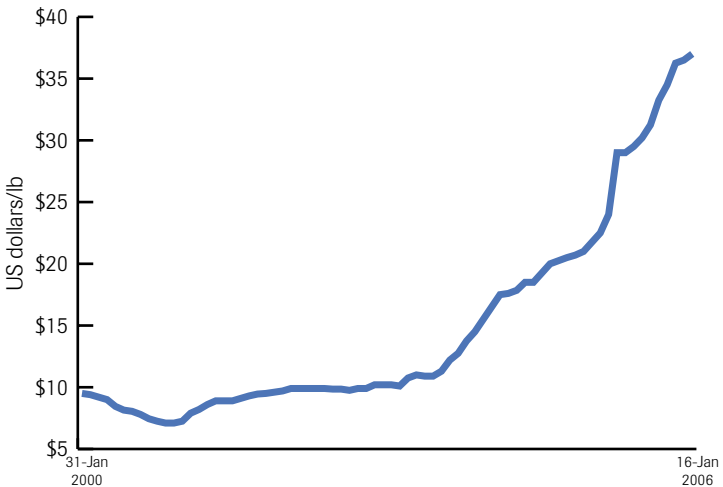
Other Sources of Energy

Most of Alberta's and Saskatchewan's electricity generation is coal-generated thermal power. Vast coal reserves in these provinces have provided electricity generators with an abundant and steady supply of thermal fuel. Once shunned for its polluting qualities and emissions of carbon into the atmosphere, coal has enjoyed a bit of a revival lately. Improved methods of removing particles and reducing carbon emissions (through carbon “scrubbers”) have helped to improve the negative perceptions and attitudes about coal as an environmentally unfriendly fuel source. Prices for coal have risen throughout the early 2000s along with all other forms of energy.

Uranium found in Saskatchewan—while not a direct source of energy in the West—is an important feedstock for nuclear power elsewhere in Canada and around the world. Saskatchewan produces all of Canada's uranium.

Following the Three Mile Island scare and the Chernobyl disaster, nuclear generation faced a major setback. Coupled with the decommissioning of nuclear weapons throughout the 1990s, demand and prices for uranium fell. Recently, there has been more interest

Figure 4: World Uranium Prices, 2000–2006



Note: Uranium does not trade on an open market like other commodities. Buyers and sellers negotiate contracts privately. Prices are published by independent market consultants Ux.
Source: The Ux Consulting Company (www.uxc.com)

in nuclear power as an emission-free source of energy. Prices and demand have once again been rising, as has uranium mining activity in Saskatchewan. Disposal of radioactive waste remains the biggest obstacle preventing nuclear power generation from flourishing.

China is planning to build 30 new nuclear facilities over the next two decades, which will continue to boost the world price for uranium.

While many sources of alternative energy are still being developed—solar, biomass, tidal energy, hydrogen cell, etc.—the most commercially successful alternative energy source in western Canada has been wind turbine generation. Southern Alberta is home to a small, but growing, wind energy industry. Wind generated electricity currently accounts for 270 Kwh, or about 2.2% of total electricity generation in the province (Alberta Energy, Backgrounder, May 2005, www.energy.gov.ab.ca/564.asp). Saskatchewan also has some wind turbine power generation in the south.

Transformations: The Future of Energy Resources in Western Canada

Following a series of geopolitical events in the Middle East, soaring demand from China and India, and the immediate impact of Hurricane Katrina on the US Gulf Coast, the price of almost every form of energy has spiked. In 2005, the price of crude oil peaked at \$US 70/bbl (although it has come down to around \$US55-\$60 since then), natural gas prices rose above \$US 15/mmbtu, and gasoline prices jumped to well over \$C 1.25 in most regions of the country.

In short, the global supply of energy sources has not been keeping pace with global demand. It is generally agreed (but not a certainty) that the world has entered a new period of higher energy prices.

What does this mean for western Canada? In the short- to medium-term, it is good news for Alberta and Saskatchewan where the majority of Canada's crude oil is produced. High oil prices will translate directly into higher resource royalties for the provincial governments, which in turn translate into options for greater government investment, reduced taxes, or improved government services (or a combination of all three). High

natural gas prices will also be a boon to Alberta and BC (natural gas is the main source of the Alberta government's natural resource revenue).

The downside of higher energy prices is the effect they will have on consumer costs (especially gasoline), transportation costs in general (e.g., trucking, airfare), and the negative impact this will have on other sectors such as manufacturing across North America. If high and sustained energy prices are sufficient to significantly weaken the North American economy—possibly to the point of recession—western Canada's economy will surely feel the pain.

A more serious and long lasting problem posed by high commodity prices is the possible “demand destruction.” If prices remain high for a prolonged period of time, consumers and industrial users will eventually react by conserving energy and finding other less expensive forms of energy. The long-term effect is a permanent drop in demand and price. This is especially true for crude oil, and the probability of demand destruction increases the longer the price for crude oil stays high. With high oil prices, there will be greatly heightened pressure to find alternate sources of renewable energy.

Natural gas prices—which have risen both because of higher demand for cleaner burning fuels and in tandem with crude oil prices—are also likely to experience sustained strength in the short- and medium-terms. Unlike crude oil, natural gas prices are currently set continentally, not globally. However, with the growth of liquefied natural gas (LNG) enabling shipping from off-continent sources, natural gas prices are likely to be increasingly global in the long-run. Coupled with the eventual addition of Arctic gas via the Mackenzie Valley pipeline, the increased supply of natural gas on the continent should have some moderating effect on price.

Hydroelectricity generation in western Canada will continue to be a major source of power generation in Manitoba and BC, although water shortages in low precipitation years can significantly alter the supply of hydroelectric generation. In the short-term, this is not likely to create much of a disturbance; however, in the long-term, with the North American continent becoming generally warmer and drier, there may be negative implications.

Coal mining and thermal power generation will continue to strengthen over the medium-term, particularly because of the additional energy required by Alberta's fast-growing

economy. In the long-run, however, the future of coal is not as certain. Growing pressures to reduce carbon emissions—not to mention the development and improvements of alternative renewable energy sources—could eventually reduce the demand and usage of coal in Alberta and Saskatchewan.

As demand for traditional energy sources (especially crude oil) rises—and global supply falls—pressures will mount to find low cost, low greenhouse gas (GHG) emission energy options. Canada's Kyoto Protocol commitment to reduce GHG emissions will increase the need to find commercially viable alternative sources of energy.

Western Canada has the opportunity to be the world leader in the research and development of alternative energy. Wind, solar, biomass, hydrogen cell technologies, and even tidal power all hold promise for meeting the world's growing energy demand. With strategic and purposeful investments in alternative energy research, the West can continue to derive tremendous wealth from energy in all of its forms and do so long after the age of hydrocarbons as the primary source of global energy has past.

Chapter 6

Non-Energy Resources

- ▶ Non-energy resources in western Canada include sizable sectors such as forestry, agriculture, base metals, and potash.
- ▶ Even though prices are currently strong, the long-term price trend for most non-energy commodities is negative.
- ▶ While attention has focused on the ongoing softwood trade dispute between Canada and the US, the larger challenges for forestry producers are increased international supply and an eroding competitive position. In response to these challenges, forestry companies in BC's interior have slashed costs, closed inefficient mills, and boosted productivity—all greatly improving their competitive positions. The coastal producers have not been as successful.
- ▶ Wheat, canola, barley, and a variety of specialty crops and vegetables anchor crop production on the Prairies. Cattle, hogs and poultry account for the majority of livestock agriculture.
- ▶ Base metal mining in BC and Manitoba has faced various periods of decline and resurgence, dictated by global prices. Potash and uranium production in Saskatchewan are on the rise.

TRANSFORMATIONS

While non-energy commodities are currently quite strong (as of 2005), prices are cyclical and are likely to continue their long-term downward trend over the next few years.

Employment in non-energy resources will not be an area of significant growth for western Canada over the coming years. These sectors are becoming more capital-intensive, relying on fewer, but more highly trained, workers.

Because of the mountain pine beetle infestation, the lumber sector will face a short-term surge in production followed by a period of severe under-production. Pulp and paper production will remain weak.

While there has been some movement to reduce tariffs on Canadian softwood lumber in late 2005, the trade dispute with the US will remain an irritant for Canada.

The small, traditional family crop farm will continue to decline in the West. More optimism prevails for specialty crop farms, vegetable processing, and large-scale farms.

Livestock farming, particularly cattle and hogs, holds much more promise than crop farming in terms of western Canada's competitive position.

Supply management in agriculture—including the Canadian Wheat Board and various marketing boards—may eventually be altered in order for Canada to more forcefully advocate for free global trade in agriculture.

Base metal mining will continue to ride the vagaries of global prices; adapting to new technologies and containing costs will be critical.

Energy resources—particularly crude oil and natural gas—tend to dominate the headlines because of their recently high prices. But western Canada's resources go far beyond energy. From forestry in BC to the agricultural belt of the Prairies to base metal mining

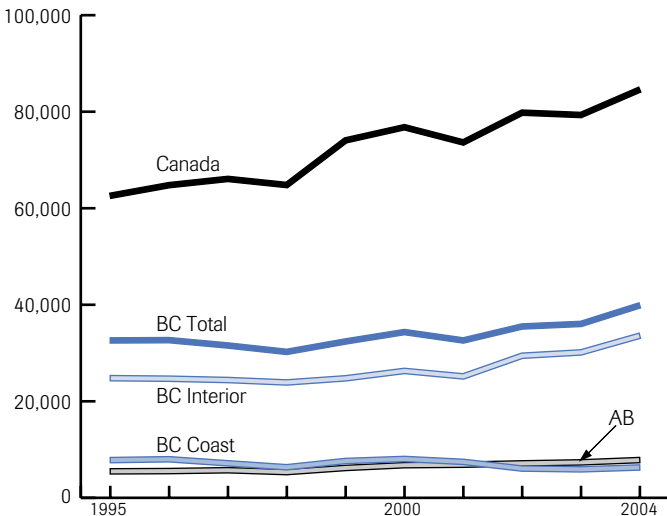
in northern Manitoba, western Canada possesses a diversified set of non-energy natural resources.

Forestry

What oil and gas are to Alberta, forestry is to BC. In every category of forest products, BC far surpasses the rest of the western provinces in what has become a \$13 billion industry annually.

The Canada-US softwood lumber dispute has been ongoing for some 20 years and, despite repeated rulings by NAFTA panels in Canada's favour, shows no sign of ending. At issue is the American contention that Canada's system of provincial stumpage fees constitutes a government subsidy. As a result of this claim, the US has imposed countervailing and anti-dumping duties on Canadian softwood lumber entering the US market (although some of these duties were lifted in late 2005). To date, some \$5 billion in tariffs has been collected at the US border by the American government.

Figure 1:
 Volume of Sawn Lumber, Canada, BC and Alberta
 (thousands of cubic metres dry)

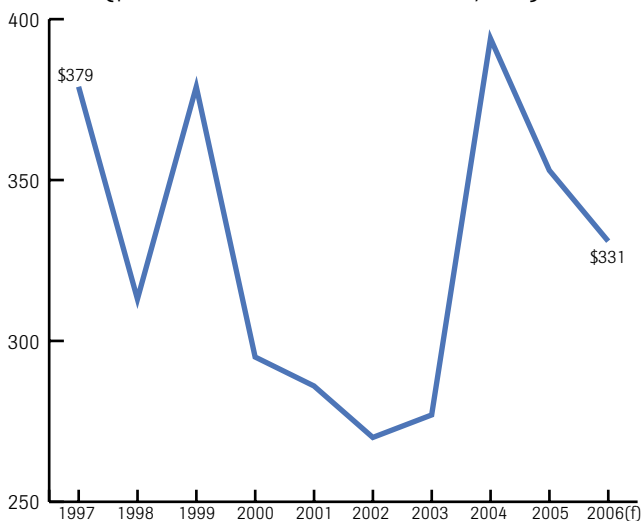


Source: Statistics Canada, CANSIM Table 303-0009

This has resulted in the closure of several mills across the lumber-producing regions of Canada, especially in BC and Quebec. But, in an unanticipated way, Canada has also gained by the US actions. Canadian lumber producers have closed older, inefficient mills and, as a result, are now among the most efficient producers in the world. Mills within the interior of BC are generally in better shape and are more competitive than the coastal region mills.

The trade barriers have also supported the price of lumber in the US markets, which has helped Canadian producers in terms of revenue per board foot of lumber. North American prices for standard lumber (Spruce-Pine-Fir, 2x4) are forecast to be around \$US 350 in 2005, about 30% higher than in 2002 (see Figure 2).

Figure 2:
Lumber Prices and Forecast
(\$US/thousand board feet SPF, 2x4)



Source: TD Economics Commodity Price Report, Feb. 13, 2006

The pulp and paper sector in the West has also seen a decline over the past decade. Large-scale operations elsewhere in the world have increased global supply and moved the long-term price trend downward.

In Alberta, the forest product industry is mostly comprised of sawmill activity. Similar to what has occurred in BC, there have been declines in sawmill production over the last decade. However, engineered wood product production has increased and is now worth over \$1 billion a year in production. Saskatchewan and Manitoba are relatively minor forest product producers.

Crop Farming

Saskatchewan leads the West in grain production, followed by Alberta and Manitoba. Wheat is still the largest and most value (in terms of farm receipts) crop, but canola production has increased over the years. Barley, oats, vegetables and specialty crops are also grown across the West.

Major issues confronting grain and oilseed growers in western Canada include international competition, subsidies in the EU and the US, and the long-term downward trend in commodity prices. As other countries such as Argentina, China, Brazil and the Ukraine increase production, world prices will continue to fall. Much of western Canada's farmland—which may have been productive 50 years ago relative to the rest of the world—is now marginal and no longer competitive.

Figure 3:
Principle Crop Production, Prairie Provinces
(000s tonnes)

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Alberta									
Wheat	7,789	6,839	6,752	8,219	7,124	5,802	3,729	6,457	7,797
Barley	7,076	6,271	5,661	5,987	5,269	4,746	2,569	5,530	5,835
Canola	1,701	2,109	2,472	2,971	2,189	1,633	1,021	2,223	2,926
Oats	1,080	979	771	864	657	592	370	876	886
Saskatchewan									
Wheat	16,547	13,070	12,601	13,840	13,412	9,851	7,484	10,433	12,252
Barley	5,356	4,431	4,311	4,942	5,302	3,656	2,526	4,355	5,008
Canola	2,223	2,699	3,232	3,976	3,425	2,155	1,656	2,676	2,903
Oats	1,882	1,403	1,758	1,535	1,377	961	1,049	1,203	1,434
Manitoba									
Wheat	4,377	3,350	3,220	3,158	4,266	3,431	3,355	4,163	3,877
Barley	2,112	1,685	1,631	1,215	1,622	1,234	1,176	1,372	1,367
Canola	1,068	1,497	1,803	1,708	1,488	1,134	1,429	1,769	1,778
Oats	1,056	736	1,030	854	1,016	748	1,018	1,095	904

Note: In all cases, wheat includes spring, winter and durum wheat

Source: Government of Alberta, Saskatchewan, Manitoba

BC produces the lowest quantity of grain crops of the four western provinces, but does have a significant fruit and vegetable industry in both the Lower Mainland and Okanagan Valley regions of the province. The BC wine industry has also thrived with improved quality and international recognition. There are over 80 wineries in the province with annual sales of approximately \$250 million.

By some accounts, the largest and most valuable agricultural crop in BC is illegally-grown marijuana (though it is difficult to measure its actual economic impact). Some estimate its value to be greater than the entire provincial forestry sector. For now, the industry remains an underground activity, but this could change if new legislation is passed regarding the use of marijuana.

Livestock

Alberta is the undisputed leader in the country for cattle and beef production. The BSE crisis of 2003 to 2005 (which saw the US border closed to Canadian exports of live cattle) did severe damage to the live cattle ranching industry in the West. However, once the border was partially open in 2004 to frozen and packaged cuts of beef, Alberta's two major beef slaughterhouses were extremely busy. Exports of packaged beef soared in 2004. The loss of market for live cattle created an oversupply in the Canadian market; as a result, Alberta's two major slaughterhouses were running at full capacity.

Over the last decade, Manitoba has increased its production of hogs and has overtaken Alberta to lead the West. Salmon farming is growing in BC, although there are serious issues and concerns related to salmon farming (including levels of toxins and the spread of disease to wild stocks) that are yet to be fully resolved.

Mining

Manitoba is the largest producer of nickel in the West (see Figure 4). Production of all base metals in Manitoba over the last decade has been fairly steady, save for a sharp decrease in copper production. BC also produces copper and zinc, but both quantity and value of production has declined over the past decade.

Saskatchewan is unique when it comes to mineral production in Canada. In addition to also producing copper and zinc, Saskatchewan is the sole location in Canada where potash and uranium are produced. Due to increased global demand for both potash and uranium, both of these sectors have been given a boost recently. Diamond-bearing kimberlite deposits have also been found around Prince Albert and hold some potential for the establishment of a major diamond industry similar to that in the Northwest Territories.

Figure 4:
 Non-Energy Mining Production (\$ 000s)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BC										
Copper	1,119,1631	725,348	696,922	681,363	418,585	733,024	687,838	612,114	375,443	348,560
Zinc	92,315	214,563	289,975	231,413	201,745	243,740	153,377	83,074	76,597	60,384
Saskatchewan										
Uranium	X	X	553,900	508,038	525,873	473,231	605,400	613,194	418,142	635,990
Zinc	X	X	X	1,734	503	1,849	2,884	6,320	6,259	7,006
Potash	1,424,344	1,277,860	1,528,341	1,747,985	1,634,041	1,644,196	1,617,433	1,627,225	1,608,791	1,930,025
Manitoba										
Copper	170,494	169,500	165,317	121,763	122,404	129,912	97,142	96,009	63,095	74,857
Nickel	451,459	374,371	442,023	341,732	277,137	561,634	412,215	X	X	X
Zinc	111,047	118,629	148,526	142,084	138,970	133,839	129,321	118,306	97,297	135,646

Note: X – not reported for confidentiality

Source: Natural Resources Canada, Mining and Minerals Statistics

Transformations: The Future of Non-Energy Resources in Western Canada

The theme of international competitiveness is particularly germane to non-energy resources sector. Across the non-energy resources sectors—lumber, pulp and paper, base metals, agriculture—the largest threat facing western Canadian producers is the long-term erosion of price brought on by increased global supply by other producers. This will continue to be a defining characteristic of non-energy resources over the foreseeable future. The increased competition and gradually falling prices will drive domestic companies and farmers to become even more lean and efficient than they have already become. Even with increased efficiencies, however, there will doubtless be several firms exiting the industry over the coming years.

Employment in non-energy resources will not be an area of significant growth for western Canada over the coming years. Even though some companies will achieve greater efficiencies and expand operations, they are not likely to be expanding their workforce. These sectors are becoming more capital-intensive, relying on fewer, but more highly trained, workers. The result will be fewer workers in non-energy resources, but earning higher wages.

One of the most significant challenges that will confront western Canada's forestry sector over the next several years is the outbreak of the mountain pine beetle. The infestation of this naturally-occurring beetle has been particularly severe and has already destroyed thousands of hectares of standing pine. The beetle kills standing pine trees by laying their eggs under the bark. A series of warmer-than-usual winters and dry summers is allowing the rapid spread of the beetle—including a spread across the Rockies into Alberta.

The mountain pine beetle problem has the potential to severely cripple the province's forestry sector. Action has been taken during 2004 and 2005 to harvest as much standing timber as possible to salvage the trees before they are killed, and to stem the spread of the insect. Controlled burns have also been prescribed. The impact on the forestry sector will be a surge in lumber production in the middle of the decade (intentional over-harvesting), followed by several years of very low production. The coming years of low production promise to pose very severe difficulties for the forest sector and the logging and milling communities that depend on it.

As well, the softwood lumber trade dispute between Canada and the US will continue to loom over the sector. Some reductions in tariffs were made by the US in late 2005, subsequent to a WTO ruling and a recalculation of the total value of lumber. However, the underlying issues remain and a mutually agreed upon solution has proven to be elusive.

Crop farming in western Canada will continue to struggle against low world prices, changing weather patterns (including drought and floods), and continually rising input costs. In short, the traditional wheat, barley and oilseed farming model that was largely responsible for the settlement of the Prairies during the 20th century is in decline. The trend toward fewer, larger farms will continue.

This gloomy outlook for the small, traditional family farm does not extend to all crops or forms of farming in the West. There is reason for some optimism in the specialty crop sectors, vegetables, organic crops, food processing, and large-scale industrial farms that can capture larger economies of scale.

The future of livestock farming and slaughtering activity in western Canada is somewhat brighter than the situation faced by traditional crop farming. Cattle and hog farming are securely positioned in the West. Despite the major disruption to cattle ranching over the past few years, it is now poised to be a leading sector in western Canadian agriculture. Larger operations, ranches, feedlots and slaughterhouses will dominate the landscape going forward.

A challenge to all livestock farming in the future—cattle, hogs, and now especially poultry—will be the diligent monitoring of herds for the possible signs of disease. In all cases of livestock, the world has become far more aware and alert to the risks of a major outbreak of disease carried by livestock. The prevention of disease—and quick response in cases where it is detected—will be critical for Canada’s livestock farmers.

Canada maintains a system of supply management in agriculture to protect producers in certain sectors from foreign competition. Dairy, poultry, and egg producers are protected with fixed prices, production quotas and steep barriers to imports. The Canadian Wheat Board also provides a measure of government-controlled pricing, buying and marketing of wheat and barley.

Looking to the future, Canadian farmers may eventually have to accept changes to the Canadian Wheat Board and supply management institutions such as marketing boards. As a player in the global market and an active voice at the World Trade Organization calling for unrestricted trade in agriculture, Canada is looking increasingly disingenuous. Our governments will not be able to call for other jurisdictions like the EU and the US to lower trade barriers while at the same time continuing to shield domestic producers from external competition.

The copper, zinc, and nickel mining and smelting activities in western Canada (as well as aluminum production at Kitimat, BC) will continue to rise and fall with global prices. The

market for base metals is characterized by cyclical ups and downs in price. In 2005, prices for most base metals have been strong because of surging demand from China. Some market analysts have suggested that global demand is currently nearing a peak—world supply (including production from Canada) has responded to higher prices, and global inventories are now growing. This suggests a possible softening of price over the next several years.

If base metal prices have peaked or not, the most significant challenge for western Canada's base metal producers will continue to be containing costs and remaining competitive with other major mines around the world. Relative to other countries, Canada faces higher labour and transportation costs. Our advantage lies in our ability to invest and adapt new mining technologies to offset costs. This ability to use technology will be critical for the mining sector in the West.

Chapter 7

The Knowledge Economy

- ▶ Knowledge-based and science-based enterprises are altering the economic landscape in western Canada, and future growth will depend increasingly on their success.

- ▶ Emerging knowledge and science-based industries that are making a mark in western Canada include:
 - Bio-tech/life sciences, such as health research, pharmaceutical development and manufacturing, and plant sciences
 - Information and communications technology and “New Media” companies (such as mass media based on IT, video games, interactive media and CD-ROMs, web development and design, e-commerce and streaming media)
 - Alternative energy research (sustainable, renewable forms of energy generation)

- ▶ Governments provide many different services, tax credits and funds to assist emerging knowledge-based sectors.

TRANSFORMATIONS

Knowledge-based industries hold tremendous potential for western Canada. The West's advantage lies in its highly educated workers; knowledge-based industries can harness that high level of education.

Over the coming years, governments will want to continue their support and encouragement of the knowledge-based industries. Extreme care must be taken to avoid "picking winners" whereby public money is spent in attempts to artificially attract and prop-up certain activities.

Public policy emphasis should be on creating a favourable business and investment climate, allowing these emerging industries to grow and flourish naturally on their own.

Steps must be taken to give young companies access to the capital that is so essential to their growth.

One of the most significant barriers to the expansion of knowledge-based industries is the commercialization stage. Public policy and government assistance should focus on appropriate ways to help knowledge-based companies take their research from the development stage to a commercially viable business.

Western Canada is experiencing a global trend towards the emergence of knowledge-based industries. What are these industries, and where do they fit in the context of western Canada? More importantly, how will the evolution of these sectors shape western Canada as it tries to compete in the "new economy" that is sweeping the globe?

The life path of industry very much resembles that of an organism. First, it comes into existence and goes through a stage of relatively quick growth and development. The growth will then level off and it will mature in a steady state. Finally, it will get to a point where it can no longer sustain itself and it will begin to wither and die off.

Most of the large, traditional industries in western Canada (agriculture, steel pipe manufacturing, natural resource extraction, etc.) are relatively mature, though most are

not poised to die off anytime soon. But the scope of sectors in the seed/development stage—the emerging knowledge-based sectors—holds tremendous promise and potential. It is in these areas that western Canada can anticipate growth and new sources of wealth creation.

Many industries can be considered to be “knowledge-based,” and indeed, the contribution to the economy of all knowledge-based industries cannot be duly covered in this short chapter. The focus of this chapter will be limited to those sectors that are leading the way in the West:

- bio-technology/life sciences (including agriculture and agri-food research);
- information and communication technology (including New Media); and
- research and development into sustainable sources of energy.

Bio-Technology/Life Sciences

Canada has over 500 bio-tech companies and ranks second in the world in terms of concentration. BC has the third highest number of biotech companies in Canada. It follows behind Ontario (mainly Toronto) and Quebec (mainly Montreal). The bulk of the companies in BC are located around Vancouver in the Lower Mainland along with the southern tip of Vancouver Island. BC also leads the country in human capital in this area with 80 leading bio-scientists conducting research in the province. BC (particularly Greater Vancouver) ranks in the top six bio-tech clusters in North America.

The range of research activity in BC includes therapeutics and diagnosis, bio-pharmaceuticals, medical device design, as well as agricultural, marine and forestry applications. Over 60% of the companies are focused on medical initiatives including research into cardiovascular disease, AIDS, cancer and alternative drug delivery. Many of these companies are involved in partnerships with government, university and hospital researchers.

Virtually all of the successful bio-techs in BC are spin-offs from UBC, which has one of the best records among North American universities in knowledge transfer and commercialization. Very few Canadian bio-tech companies are profitable, but two of the largest and most commercially successful—QLT and Angiotech—are based in BC.

Lack of profits and the length of time it takes to develop and commercialize products helps to explain the difficulty of attracting capital for small bio-tech companies. Large pharmaceutical companies are a key source of capital for mid-stage bio-techs focused on drug therapies; in BC's case, big pharmaceutical firms have invested over \$1 billion in local bio-techs in the past few years, without which much of the industry would have disappeared.

In Alberta, there are approximately 40 private sector biotech companies focused mainly on health and agricultural research and applications. Many firms are making advances in the integrated industry combining the tasks of research and development with clinical trials and production.

Aside from health, much of the Alberta biotech industry is focused on agricultural applications. Research is being conducted to improve the quality and safety of agri-food and to use gene manipulation to develop disease resistant crops. Work is also being done to develop better, more effective livestock vaccines so as to better protect the animals and the food chain.

One area where Alberta is pioneering is that of nanotechnology. This involves building circuits and mechanical devices out of individual atoms and molecules. One aspect of this will be the ability to make smaller and smaller pieces of electronic products, but it also has promise in the health industry. Research is being done in hopes of using tiny machines to develop more non-invasive surgical procedures and more efficient drug delivery systems.

Due to its extensive multidisciplinary research expertise, in 2001 the National Institute of Nanotechnology (NINT) was established at the University of Alberta. The institute will combine researchers in the fields of physics, chemistry, engineering, biology, informatics, pharmacy and medicine to discover the "design rules" for nanotechnology, and to develop platforms for building and applying these devices.

Saskatchewan has a rapidly growing agricultural bio-tech industry and in recent years has captured 30% of the national market share.¹ Innovation Place Research Park in Saskatoon has become a world-class facility for agricultural, pharmaceutical and environmental bio-

1. www.ir.gov.sk.ca

technology. It was researchers in Saskatchewan who first created modified commercial canola, and who developed the first genetically-engineered animal vaccine. Saskatchewan is also home to the largest legume and cereal microbial inoculants manufacturing center with huge potential for ongoing development.

Saskatoon is also home to extensive biomedical research. It has developed a critical mass of private companies that help to foster new development. The University of Saskatchewan is also home to the Canadian Light Source Synchrotron, the first of its kind in Canada, which is a useful tool for gaining further understanding of biological processes.

Manitoba also has expertise in bio-tech and agricultural biotechnology with an emerging environmental biotechnology sector. Though generally smaller than the rest of the western Canadian industry, it has its own specialty in health and agricultural niche products. Winnipeg has emerged as a major national and international centre for cardiovascular sciences, bio-diagnostics, medical imaging equipment, plasma development, biopharmaceuticals, and infectious diseases.

Anchored by three large companies—Cangene Corporation, Biovail, and Medicure Inc.—Manitoba is well represented on the national and international pharmaceutical and biotech industry. There are also many smaller biotech research companies, major research ongoing at the University of Manitoba, and investments by the Government of Canada in health research and disease control.

The manufacturing and research of nutraceuticals and functional foods has been expanding in Manitoba and will continue to be one of the fastest growing sectors in the province over the coming year. The provincial and federal governments, through the Agri-Food Research and Development Initiative (ARDI), have recently announced an investment of \$1.25 million in the University of Manitoba's Richardson Centre for Functional Foods and Nutraceuticals. This funding will be directed to key technical and operations positions at the Centre over the next five years. The Centre focuses on products derived from prominent prairie crops including oats, wheat, buckwheat, canola, flax, and hemp. Its presence in Winnipeg and the announcement of this funding are solidifying the city as a leader in Canada's nutraceutical research and development.

Information and Communication Technologies

The information and communication technologies (ICT) sector is large, broadly-based, and includes telecommunications, software development, and services related to data storage and transfer. The sector as a whole is much larger than the bio-technology described above, and is in some ways a much more “mature” industry (after all, telephone utilities are included in ICT, and they have been around nearly a century). Nonetheless, new advances in telecommunications such as wireless technologies, software advances, and New Media applications put this large and diverse sector squarely in the emerging “knowledge-based” category.

In BC, the Information and Communication Technologies sector is facilitating gains in both the traditional and “new economy.” Output increased at an average annual rate of 7.5% between 1997 and 2002, and during the same time frame exports nearly doubled. Over \$1.1 billion in financing was made available to ICT companies between 1996 and 2004.² There were substantial declines in 2001–2003 due to a correction in the tech markets, but financing is on the rise again and looks strong into the future.

The wireless technology industry is BC’s specialty. Historically, they have made much advancement in the field that includes things such as cell phones and information transfer devices. Seventy percent of BC’s wireless companies are privately owned and 68% of these are financed from within the province.³

Another characteristic of BC’s tech industry is its young educated workforce. For example, 91% of ICT employees in BC are between the ages of 26–40.⁴ This allows for the prospect of long-term learning and initiative.

In Alberta, ICT is a \$10 billion industry comprised of over 7,000 companies.⁵ There is extensive ongoing software development as well as a variety of other activities. Much of these developments are crucially linked to the Internet, and due to the Alberta SuperNet, as well as other services, this link is readily available.

2. Leading Edge BC (www.leadingedgebc.ca)

3. Leading Edge BC (www.leadingedgebc.ca)

4. Leading Edge BC (www.leadingedgebc.ca)

5. Government of Alberta, Economic Development (www.alberta-canada.com/ict)

The development of nanotechnology is also promising in Alberta. Besides the applications in life sciences, developments in nanotechnology hold huge potential for the ICT industry as well in terms of smaller and faster electronic parts. As mentioned, there is extensive research going on at the NINT in Edmonton.

In the past, Saskatchewan has been on the leading edge of the ICT sector. It was the first locale in Canada where automated banking machines were available and it was the first province to make use of an automated health care card system. More recently, Saskatchewan's ICT sector has grown into an \$805 million industry with over 250 companies.⁶

There is wide-ranging software research across Saskatchewan including developments in geo-mapping, atmospheric remote sensing and object oriented technology. This is aided by programs like Saskatchewan Intelligent Systems Technologies (SIST) and Saskatchewan Market Assessment of Research and Technology (SMART), which assist in research and the commercialization of products. One recent example of a successful software company is SED Systems, which was recently awarded a contract to develop digital video broadcasting software for the Canadian Space Agency.

Manitoba also has an up-and-coming ICT industry with over 300 firms. Since 2000, they have boosted enrollment in post secondary education so that over 6,600 students are taking degrees related to ICT. As well, there is an extensive telecommunications network, which helps connect business, researchers and the government to each other and the Internet.

The areas of research and development (R&D) of ICT in Manitoba include broadband/wireless technology, GIS systems, health informatics, electronics and microelectronics and new media. Smart Park, a high-tech research and commercialization facility being developed at the University of Manitoba is further pushing these discoveries.

The area in which Manitoba distinguishes itself from the rest of the Western provinces is through its manufacturing sector. In addition to the R&D activities in the province, there is also extensive production and assembly of telecommunications equipment and computer and electrical parts.

6. Government of Saskatchewan, Industry and Resources (www.ir.gov.sk.ca)

New Media, most often thought of as a sub-discipline of the ICT sector, refers to the digitally enhanced transfer of data that has been modified through artistic talent or additional information to give audiences a deeper, more user-friendly experience. This includes mass media based on IT, video games, interactive media, CD-ROMs and DVDs, web development and design, e-commerce, and streaming media.

Video game development and graphic and content design is the core of the new media industry in BC. Manitoba also has a large video game development sector. BC and Saskatchewan also have well-developed film and television industries with a growing pool of knowledgeable workers. These could be employed to make the transition into New Media.

There are many future partnerships available for cultural industries to create new media products. As well as entertainment, there are many crossover applications of New Media. It could be used in areas such as industrial training and health data management to make these products more interactive, user-friendly, and effective. One such example of a training ground for these applications is the Banff New Media Institute in Alberta.

As the Internet and technology develop and people are becoming more and more connected online, there will be an increasing demand for more exciting and interactive entertainment. The door is wide open for continued and even increased growth in the New Media sector.

Sustainable Energy

The search for a sustainable, environmentally friendly source of energy, that can meet a significant portion of domestic or global demand is ongoing. With much of the easy-to-obtain oil extracted, and increasing demand driving up prices, people are looking to alternative methods to provide power for their needs. As well, as our society becomes increasingly environmentally aware the potential and desire for sustainable energy has never been higher.

There is a large cluster of fuel cell developers in BC—the largest in Canada—working on fuel cell, hydrogen and natural gas vehicle technology. In total, revenue for these firms grew 40% in 2003 to \$188 million. Almost 70% of the revenue was from sales, which is a good indication that the industry is moving towards commercialization.

Finally, there is potential for the use of oceanic wave/tidal power for the generation of electricity. It is predicted that 2,700 GWh/year could be produced with current technology with an ultimate potential of 20,000 GWh/year. This represents an increase of 5% and 36%, respectively, over current hydro-generation capacity.

Another area where BC is making its mark is through bio-fuels and waste. Along with research into ethanol blending and bio-diesel there is the potential to use biomass waste from the forestry sector in new co-generation plants. Also, as of 2003, Maxim Power's landfill gas project has been attached to the electric grid.

In Alberta, there is also ongoing research into alternative energy sources like wind power and hydrogen fuel cells, but the majority of the developments now and in the near future have to do with recovering more of the petroleum products we know are available.

Production from the Western Canadian Sedimentary Basin (WCSB) peaked in the mid-1990s and has been declining ever since. In order to maximize production, technologies such as Horizontal and Directional Drilling as well as Enhanced Oil Recovery techniques are being employed. Though not new in their development, they are emerging to play a significant role in the conventional oil industry. In addition, software and other tools are being developed to assist with the modeling and running of these processes.

New technology is also emerging for the extraction and development of the oil sands. Processes such as VAPEX, which uses heated natural gas liquids as a solvent to extract the bitumen, and steam assisted gravity drainage (SAGD) are beginning to be used. In general, there is a need for more efficient sources of heat and more efficient solvent recovery methods.

There is also much research into harnessing natural elements to generate electricity. Wind power is being studied, both on and off shore and there is growing interest in the commercial use of solar power.

Saskatchewan is also actively pursuing alternative fuel research and development including bio-fuels research. There is much advancement to be made in biogas, bio-diesel and oils as well as ethanol blending.

The University of Regina is heavily involved in environmental and sustainable energy research, which could lead to private sector spin-offs. Also, the Petroleum Technology Research Centre in the Regina Research Park is poised to become one of the premier petroleum research facilities in the world.

Manitoba is known as the “hydro province” with about 95% of all electricity generated in the province coming from this clean energy source.⁷ Hydropower in the province will continue to develop (there is potential to more than double the current capacity) but there is also work underway to develop more and more different renewable energy sources.

On the electrical side, wind and geothermal energy are currently being looked at to supplement production. Wind generation is used in conjunction with the hydropower since wind is in intermittent supply. Additionally, ground source heat pumps can be installed to use the consistent temperature below the frost line to regulate the temperature in buildings. This process can reduce electricity consumption for heating by up to 75%.

Manitoba is well positioned for the development of hydrogen power technology. Due to the abundance of clean electricity, it is economically viable to produce mass quantities of hydrogen, through hydrolysis, to be used as fuel.

Transformations: The Future of Emerging Industries in Western Canada

Knowledge-based industries hold tremendous potential for western Canada. Many of them are, to return to the organism analogy, in their early development stages. Achieving the size, scope and recognition needed to compete globally is within the grasp of many western-Canadian based research companies—but much more still needs to be done.

Going forward, it will be essential for policy-makers, the academic community, and established businesses to help these knowledge-based sectors to grow. It is only through reaching higher stages of maturity that these firms will find their footing to compete globally.

7. www.manitobawaterpower.com

The knowledge-based industries are footloose—they have the ability to move to anywhere in the world they can find skilled labour. This is where western Canada has a tremendous advantage. The West is home to some of the most highly trained and educated workers anywhere. It is these “brain resources” that will propel western Canada’s knowledge-based industries in the future. But these resources must continually be developed and improved. (For more detailed discussions, see Chapter 4 on Post-Secondary Training and Skills Development, and Chapter 3 on The Labour Force).

Western Canada must also ensure it remains competitive globally as an attractive place to locate a business. Since much of the research and development is capital-intensive, businesses will locate where they have the potential to be the most profitable. Taxes and bureaucratic red tape should be kept to a minimum.

The financial aspect alone, however, is not enough to attract and foster developing industries. Companies also make location decisions based on overall quality of life in addition to the more quantifiable monetary considerations. Livable cities, recreational amenities, low personal taxes, and efficient and workable transportation systems all contribute to a region’s quality of life.

Access to Capital

Even as the development of knowledge-based industries is expanding, research and development costs are skyrocketing. There is a vital link between the development of knowledge-based industries and the availability of capital. If these industries are to remain competitive and grow in the future, they must have access to the funding they require.

It is not feasible or practical to expect the government to fund the majority of research and development activity. Going forward, it will be critically important to foster efforts between the government, academic researchers, and industry in order to improve access to the available stock of capital.

Commercialization

Many of the emerging industries are heavily concentrated in research and development, but the key to success in the future will be commercialization of these developments. It is in the marketing and sales of these products that will allow for the recuperation of development costs and the potential to internally fund new research.

So far, the commercialization stage has largely eluded western Canada's knowledge-based industries. The reasons for the commercial shortfalls are complex, with higher production costs, a less competitive business environment, geographic remoteness, and lack of appropriate marketing expertise all contributing to this lack of commercialization.

Public policy has a role to play in helping achieve commercial success in the knowledge-based industries, but there is no silver bullet. In the future, the challenge will lie with governments, industry, and the university communities to find ways to vault western Canada's emerging industries from the lab to the market.

Chapter 8

The Service Sector

- ▶ The importance of the service-producing industries in western Canada is often overlooked. Services account for roughly two-thirds of the GDP of the four western provinces; goods-producing industries—which include natural resource extraction and processing—account for only one-third.
- ▶ The service sector includes a wide range of jobs from low-paying “McJobs” to the highly paid professional occupations.
- ▶ Of the four western provinces, Manitoba’s service sector accounts for the greatest portion of provincial economic output (73.6%); Alberta’s service sector is the smallest relative to its total economy (60.9%).
- ▶ While the service sector is much larger than the goods-producing, much of the service sector is nonetheless dependent on the goods-producing sector as a base: natural resources, agriculture, and construction.
- ▶ In terms of employment, the service sector accounts for an even larger share of activity than its share of GDP. Over 75% of the jobs in the West are in service-producing industries.
- ▶ The primary occupations in the service sector are wholesale and retail trade, health care, and accommodation and food services. Public administration accounts for about 4.7% of all jobs in western Canada.

TRANSFORMATIONS

Looking to the future, the service sector will continue to dominate total economic activity and employment in the West.

Exportable service industries—such as legal, advertising, and business services—present the greatest opportunities for growth, but are also the most vulnerable sectors in the economy. They have an almost limitless international market in which to expand; however, they also face fierce international competition.

Because of this, public policy attention should focus on boosting productivity and the competitive position of these exportable service industries.

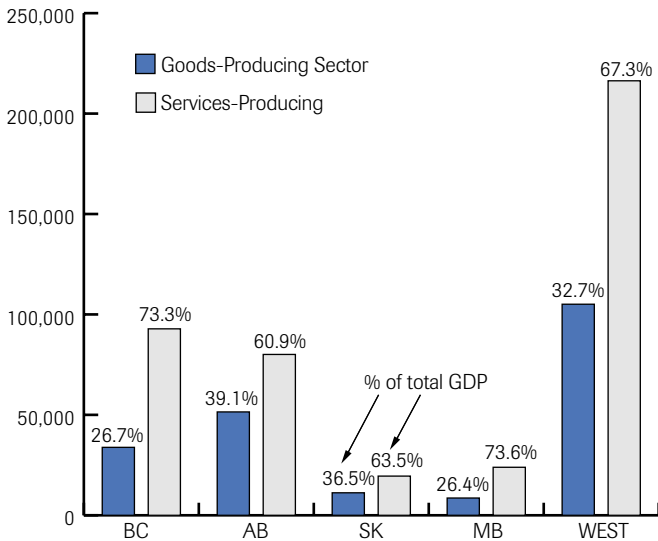
For wages in the service sector to continue to rise, it will be essential for western Canada to maintain a competitive advantage over service providers in other countries. Education, skills development, language training, and communication technology will be key.

Because economic growth in western Canada is currently being propelled largely by the strength of the natural resource sector, it is often assumed that natural resources make up the largest segment of the economy. But in fact, the goods-producing sector—agricultural, energy, mining, forestry, construction, manufacturing and utilities—accounts for only one-third of the total GDP. Two-thirds of economic activity in western Canada is in the service sector (see Figure 1).

The services-producing sector includes retail and wholesale industries, health care, education, financial services, personal and business services, information and cultural activities, and public administration.

Even in Alberta—where natural resource production looms the largest—over 60% of the economy is generated by the services-producing sector (see Figure 1). In terms of its relative proportion to the overall provincial economy, services account for the largest portion of activity in Manitoba with a 73.6% share.

Figure 1:
GDP at Basic Prices, Goods- and Services-Producing
Sectors, 2004 (millions of chained 1997 dollars)



Source: Statistics Canada, Provincial and Territorial Economic Accounts Review, 2004 Estimates Catalogue 13-016-XIE

Types of Services

Services can generally be categorized into three distinct types:

1. Services that **can be exported** from a given province or geographic region. These are things such as legal services, advertising, architectural activities, accounting, consulting, and communication services—basically, any service for which customers are not limited to geographic proximity.
2. Services that are **limited to the domestic market** and cannot be “exported.” Examples include retail services, home cleaning, most health care services, regional transportation, auto repair, and construction trades.

3. **Non-market services** such as those provided by government, nonprofit organizations, public administration, religious institutions, industry associations and advocacy groups.

For each type, the importance of economic factors will vary. For example, the exchange rate of the Canadian dollar is a key factor for services that are exported, but may not be a significant factor for nonprofit organizations serving a local community. On the other hand, government fiscal balances may be of great concern to public employees and the nonprofit sector, but of relatively little concern to exporters (unless business taxes are affected).

Also, note that high paying and highly skilled service jobs are not limited to any one of the three types—there are opportunities for “knowledge-based” careers in all three. Furthermore, all three types of service have growth potential in terms of job creation and economic output.

However, the greatest opportunities for expansion are among the exportable services for which the market is not limited to the small population base of western Canada. It is the international market that presents the most significant opportunities. However, for the same reason, it is these service sector industries that are most vulnerable to foreign competition. This is why nurturing the growth of exportable service industries is so critical for the western Canadian economy.

Because of the growing availability of information and communication technology, a growing number of services that were previously limited to the captive domestic market are becoming exportable services. The growth of on-line retailers such as Amazon.com and online medical services are examples.

Goods-Producing vs. Services-Producing Dependence

The fact that the services-producing sector in the West is more than twice as large as the goods-producing sector should not, however, overstate the interdependence of the two sectors. A good deal of the services-producing sector in the West still relies heavily on the goods-producing sector as a base.

Consider the following examples of service providers in the West:

- A credit union in a small Saskatchewan town that services primarily farmers and ranchers
- A hotel in Fort McMurray with customers drawn almost entirely from oil sands activity
- An architectural firm designing new office space for a gas pipeline company
- A trucking transportation company that hauls grains and oilseeds
- A restaurant and bar in a small BC mining town
- A college that provides training programs for forestry equipment operators
- An accounting firm on Vancouver Island that provides services to salmon farm operations
- A law office, the clients of which include a major fertilizer company

All of these are examples of the service sector's dependence on natural resources. The degree to which it is reliant on natural resources will, of course, vary by the size of the town and the proximity to the natural resource extraction or activity. In some cases, such as in Fort McMurray, it is not hard to imagine almost total reliance on the oil sands activity. In other larger centres such as Winnipeg or Vancouver, the reliance on natural resource activities will be much less.

Notice that the reliance of the services-producing sector on the goods-producing sector in the West does not usually work in reverse—the goods-producing sector does not typically rely on the services-producing sector in the same way. Certainly the goods-producing sector requires services (such as legal, financial, and wholesale and retail trades), and at times the availability of these services will determine where a goods-producing company will locate. But the services-producing sector derives a portion of its revenues from the goods-producing sector and not vice-versa. For example, a restaurant located in a small lumber mill town will be dependent on the economic performance and success of the lumber mill. But the mill is not dependent on the success of the restaurant.

This one-way chain of dependence was evident on the Prairies during the BSE (mad cow) crisis of 2003-05. Even though cattle ranchers are only small percentage of the rural West's population, the sudden loss of ranching income caused a ripple effect that spread to retailers, financial and insurance operators, farm equipment wholesalers, and other service providers in ranching communities.

Employment in the Services-Producing Sector

The size of the services-producing sector in the West contrasts sharply with the goods-producing sector when considered in terms of employment. Over three-quarters of all workers in the West are employed in the services-producing sector.

Figure 2:
Employment by Industry in Western Canada, 2005 (000s)

	Canada	BC	AB	SK	MB	West
All industries	15,949.7	2,059.7	1,757.9	479.9	576.0	4,873.5
Goods-Producing Sector	3,992.7	431.0	496.5	123.3	139.0	1,189.8
Services-Producing Sector	11,957.0	1,628.7	1,261.5	356.7	437.0	3,683.9
Retail and Wholesale Trade	2,503.6	320.6	265.1	76.3	85.2	747.2
Transportation and warehousing	809.3	117.7	98.5	23.2	34.5	273.9
Finance, insurance, real estate and leasing	955.0	131.5	90.0	26.9	30.6	279.0
Professional, scientific and technical services	1,010.1	145.2	120.5	17.3	24.8	307.8
Business, building and other support services	630.1	81.5	65.8	13.2	21.1	181.6
Educational services	1,038.4	135.1	109.1	39.8	42.5	326.5
Health care and social assistance	1,736.7	219.5	163.2	58.6	78.0	519.3
Information, culture and recreation	732.7	111.4	71.7	20.3	23.4	226.8
Accommodation and food services	1,006.8	174.8	124.2	32.7	34.0	365.7
Other services	705.1	93.5	82.8	22.8	25.8	224.9
Public administration	829.2	97.9	70.4	25.4	37.1	230.8

Source: Statistics Canada, CANSIM Table 282-0008 and Catalogue 71F0004XCB

The largest component of employment in the service sector is within the retail and wholesale trades, accounting for almost three-quarter of a million workers in the West. This industry alone accounts for about 15.3% of all employees in the entire western Canadian economy (see Figure 2). Other major employers in the services-producing sector are health care and social assistance (10.7%), and accommodation and food services (7.5%).

Public administration—that is, employees of the federal, provincial or municipal governments—accounts for only 4.7% of total employment in western Canada. This is slightly less than the national figure of 5.2%. As a percentage of total provincial employment, Alberta employs the fewest public administration workers (4.0%) in the West, while Manitoba employs the greatest share (6.4%).

Transformations: The Future of the Services-Producing Sector in Western Canada

A great deal of attention has been drawn to the gradual decline of the North American manufacturing sector over the past decade as low-cost producers such as China, India, Bangladesh, and Mexico have become increasingly competitive. The decline of some of the traditional goods-producing industries are evident throughout Canada, including Manitoba's garment manufacturing.

But what about the services-producing industries located in the West? Are they immune from foreign competition? Increasingly, the answer is no. It is not just assembly line workers in Canada that are competing with lower-wage workers abroad.

Improvements in information technologies such as high-speed Internet and voice over data networks have increased our ability to quickly and securely transmit large amounts of data. The world is a much smaller place, and because of this, even our high-skilled, high-wage service sector specialists are going to find it more and more difficult to compete. On the bright side, this also creates the opportunity to sell our services to a broader market.

An example of the shrinking globe for service workers is presented by medical providers in the US who are starting to use doctors in India. Patient x-rays are emailed to a doctor in India, and diagnostic information is emailed back to the hospital in the US. Other examples of services-producing industries under the strain of increasing global competition include call service centres, advertising agencies, and online retailers.

If employment in the service industry is to grow, and if wages are to rise, western Canada will have to foster a highly trained, highly specialized service sector that is fluid beyond its own borders. The West will have to keep its knowledge-based labour force one step ahead of the competition. (Much of this required training and education has been addressed in Chapters 3 and 4).

But for western Canada's service providers to truly succeed in the shrinking global market, an important element will be the ability to serve clients and customers in different cultures and in different languages. Forward-thinking employers and educators in the West would

be wise to emphasize language and cultural training, particularly in Asian and Latin American languages that are spoken by the most important growth markets of the future.

Maintaining state-of-the-art communications systems will also be essential for western Canada to keep up with the rest of the world. This can be facilitated by, for example, provincial programs like Alberta's SUPER-Net (a network of high-speed internet connections linking all Alberta communities, schools and libraries), or through more generous tax credits or capital cost allowances for business investment in new communications systems.

Chapter 9

Manufacturing

- ▶ Manufacturing activity is somewhat less important to the economy of western Canada than it is to the economy of central Canada, relative to its overall GDP.
- ▶ Alberta is the largest manufacturing province in western Canada.
- ▶ The majority of manufacturing in the West is highly dependent upon the presence of the energy sector, agriculture and other resource commodities.
- ▶ Food processing—especially meat packing—accounts for almost a fifth of total manufacturing activity in the West.
- ▶ The abundance of natural resources has also given rise to significant value-added manufacturing in forestry, petroleum refining, and chemical production.

TRANSFORMATIONS

The future of manufacturing in western Canada will be limited by a few key factors that are transforming global manufacturing:

- The continued rise of low-cost, low-wage countries like China as manufacturing powerhouses;
- Heightened global competition and greater efficiencies in other countries, keeping prices low and margins slim for Canadian producers (e.g., pulp and paper); and
- Geographic distances from major markets and the lack of large-scale capital investments required to achieve competitive economies of scale.

Despite these limiting factors, there is still a positive outlook for many manufacturing opportunities in western Canada over the coming years:

- Niche and specialized manufacturing, where economies of scale can be achieved within a relatively small scope of production;
- Manufacturing specific to location of natural resources, such as upgrading and refining of oil sands bitumen in Alberta; and
- Value-added activities requiring a higher level of skills and training, including design, engineering, and marketing.

Manufacturing accounts for a smaller proportion of total economic activity in the West than it does in central Canada. The value of Canadian manufacturing shipments totaled \$592 billion in 2004, of which \$117 billion (19.8%) came from western Canada. This is considerably less than the West's 30% portion of Canada's GDP.

Not only is manufacturing relatively less significant in the West than it is in Ontario and Quebec, the mix of manufacturing is entirely different. Central Canada's manufacturing sector is dominated by transportation equipment and other consumer durable goods, while manufacturing in the West is marked by value-added products related to the natural resource sectors: agri-foods, forest products, refined petroleum, and chemicals.

Figure 1:
Manufacturing Shipments by Province, 2004

	\$ millions	% of national total
BC	42,344	7.1
AB	52,966	8.9
SK	9,611	1.6
MB	12,528	2.1
WEST	117,449	19.8
ON	310,294	52.3
PQ	137,786	23.2
NB	14,072	2.4
NS	9,281	1.6
PEI	1,414	0.2
NFL	3,069	0.5
CANADA	593,452	100.0

Source: Statistics Canada, CANSIM Table 304-0014 and 304-0015

Food and Beverages

The food and beverage sector accounted for over \$21 billion (or 18%) of western Canada's total manufacturing shipments in 2004. It is the largest segment of manufacturing activity in both Saskatchewan and Manitoba.

BC's food and beverage sector is dominated by meat slaughtering and packaging (particularly poultry), fruit and vegetable processing, beer and wine, dairy, and seafood production. Just over half (55%) of all food processing firms are located in the Greater Vancouver area and the nearby Fraser Valley; another 30% of food processing firms are located in the Okanagan Valley and the coastal regions.

Food and beverage production in Alberta is less diversified, with beef and pork slaughterhouse and packing accounting for a large portion of total activity. However, Alberta's food and beverage sector is the largest of the four western provinces. The BSE crisis of 2003-2005 had a somewhat negative impact on beef packing activity in 2003 (which is reflected in lower food manufacturing values in that year). However, once the US border was opened to packaged and frozen cuts of beef, Alberta's two major beef processing plants worked overtime to deal with the excess supply of live cattle (which was not open for export to the US until well into 2005). This resulted in 2004 being a record year for food manufacturing from Alberta.

Saskatchewan's food and beverage industry is the largest manufacturing sector in the province, accounting for over \$2 billion (about one quarter) of all annual manufacturing shipments. Primary products include meat products (30%), flour milling and bakery products (20%) and vegetable products (10%).

Slaughterhouse and meat packing activity account for a quarter of total food processing activity in Manitoba, mostly pork products. Dairy products, flour and feed, beverages, and poultry round off Manitoba's food and beverage manufacturing activity.

Figure 2:
Major Manufacturing Shipments, 2004
(percentage of total shipments)

	BC	AB	SK	MB
Food and Beverages	14.6	18.8	22.0	24.7
Wood, Pulp and Paper	44.7	10.5	12.1	10.3
Chemicals, Plastics and Refined Petroleum	5.7	38.7	11.7	11.5
Machinery and Transportation Equip.	7.6	9.1	9.7	21.5
All other	27.5	22.9	44.6	32.0

Source: Statistics Canada, CANSIM Table 304-0015

Processing of Natural Resources

With western Canada's wealth of natural resources, it is a logical extension that a good portion of manufacturing in the West is related to processing these commodities. Cut down a tree and it is counted as "forestry activity" in the National Accounts system of calculating GDP. But send the fallen tree to a sawmill and cut it into lumber, and the value that is added to the worth of this tree is counted as "manufacturing activity."

Manufacturing related to the forestry sector in the West includes paper, pulp, lumber, panel/veneer, oriented strandboard (OSB), and other wood products, and amounted to nearly \$27 billion in 2004. Most of this activity is in BC (see Figure 3), with a smaller portion in Alberta.

The lumber industry has faced several years of contraction—particularly in BC—as a result of the ongoing dispute with the US over Canadian exports of softwood lumber. This has led to the closure of several older, less efficient mills throughout the BC interior, which has had the effect of making western Canada's lumber sector more cost-efficient. As a result

of higher lumber prices throughout North America, the value of exports of lumber to the US has actually been increasing, even though the total volume has been lower.

Value-added manufacturing activity also spins out of western Canada's vast energy resources, especially oil and natural gas. Refinery activity in Alberta leads western Canada, accounting for almost all of the \$10 billion in value in 2004 (see Figure 4). Oil upgraders and refineries in Alberta are located primarily in Strathcona County, east of Edmonton. In addition to the production of refined products such as gasoline and other fuels, the region is also responsible for the upgrading of much of the product from the oil sands, preparing the tar-like bitumen into a synthetic crude that can be transported via pipeline.

Chemical production in Alberta is based primarily on the extractions from natural gas feedstocks—the natural gas liquids (or NGLs), which include ethane, propane and butane. These liquids are extracted at facilities along Alberta's natural gas pipeline system, and are used to produce other fuels and plastics. Two major facilities in Alberta—the DOW Chemical plant near Edmonton and the Nova Chemicals/Dow Chemicals joint plant at Joffre in central Alberta—are major ethylene and polyethylene production facilities. These chemicals are used in the production of plastics used in packaging and consumer products.

Other Manufacturing Activities

Food processing and activities related to natural resources accounted for \$77 billion (66%) of western Canada's total manufacturing shipments in 2004. But other smaller manufacturing sectors also make important contributions.

In Manitoba, transportation equipment manufacturing accounts for almost \$2 billion (see Figure 6). Winnipeg is a major centre in Canada for jet engine assembly and other manufacturing related to air transportation. There are also two major bus manufacturing plants in the city.

The production of fabricated metals, such as steel production, added about \$7.4 billion to manufacturing in the West in 2004. Much of this activity is centered in Alberta where steel products such as pipe, sheet metal and boilers are manufactured for use in oil and gas extraction. Another \$4 billion in machinery manufacturing in Alberta is also largely related to the energy sector, particularly the assembly of specialized machinery used in the oil sands (see Figure 4).

Figure 3:
Manufacturing in British Columbia (\$ millions)

	1997	1998	1999	2000	2001	2002	2003	2004
Total Manufacturing	33,496	31,757	36,679	40,699	38,281	38,499	37,223	42,242
Non-durable goods industries	13,492	12,540	14,519	17,084	16,662	16,061	16,429	17,016
Food	3,707	3,577	3,730	4,108	4,505	4,725	4,890	5,043
Beverage and tobacco	776	875	985	1,032	993	1,087	1,091	1,133
Clothing	..	..	..	..	..	..	..	..
Leather and allied products	..	10	..	13	12	15	23	46
Paper	5,582	4,913	5,649	7,500	6,264	5,497	5,652	5,881
Printing	665	675	713	853	909	829	759	780
Petroleum and coal	949	729	..	..	..	..	..	..
Chemicals	991	885	999	1,009	1,001	1,017	1,084	1,264
Plastics and rubber	692	748	987	976	1,052	1,054	1,156	1,140
Durable goods industries	20,004	19,216	22,159	23,615	21,619	22,438	20,794	25,226
Wood products	11,417	10,192	11,977	11,872	10,817	11,270	9,913	12,991
Non-metallic minerals	995	1,021	1,040	1,037	1,057	1,268	1,416	1,561
Primary metals	1,294	..	..	2,116	1,592	1,953	1,995	2,427
Fabricated metals	1,435	1,419	1,584	1,695	1,698	1,714	1,722	2,031
Machinery	1,266	1,421	1,456	1,635	1,539	1,685	1,837	2,129
Computer and electronics	1,016	1,112	1,294	1,721	1,449	1,224	1,101	1,105
Electrical equipment	..	357	497	624	..	..	..	..
Transportation equipment	1,273	1,367	1,875	1,772	1,671	1,565	991	1,062
Furniture	418	459	537	617	672	757	799	893
Miscellaneous	328	335	..	527	591	640	652	655

Source: Statistics Canada, CANSIM Table 304-0015

Figure 4:
Manufacturing in Alberta (\$ millions)

	1997	1998	1999	2000	2001	2002	2003	2004
Total Manufacturing	34,184	32,842	37,096	44,430	45,399	43,673	45,838	52,887
Non-durable goods industries	21,604	20,044	23,384	28,835	28,656	27,894	28,779	33,083
Food	6,687	6,660	7,413	8,313	8,407	8,269	7,976	9,089
Beverage and tobacco	644	..	..	773	873	817	813	877
Clothing	..	..	..	..	..	..	..	..
Leather and allied products	..	..	..	..	..	..	..	..
Paper	1,469	1,357	2,033	2,079	1,715	1,762	1,788	1,784
Printing	537	572	617	708	762	700	662	657
Petroleum and coal	4,883	3,721	5,073	8,195	7,480	7,440	8,200	9,953
Chemicals	6,513	6,215	6,392	7,596	8,243	7,856	8,285	9,645
Plastics and rubber	781	732	906	939	939	828	836	882
Durable goods industries	12,580	12,797	13,711	15,595	16,743	15,779	17,058	19,805
Wood products	2,186	2,215	2,856	2,766	2,603	2,634	2,932	3,757
Non-metallic minerals	1,005	1,066	1,239	1,216	1,258	1,567	1,556	1,695
Primary metals	1,341	938	1,024	1,235	1,265	1,282	1,812	2,137
Fabricated metals	2,021	2,177	2,103	2,526	2,936	2,779	3,410	4,136
Machinery	2,254	2,261	2,093	2,598	3,258	2,927	3,308	4,063
Computer and electronics	2,074	2,239	2,520	3,193	3,100	2,230	1,520	1,472
Electrical equipment	161	186	199	249	287	325	356	396
Transportation equipment	442	525	510	563	704	715	780	746
Furniture	640	714	815	872	980	951	851	828
Miscellaneous	302	336	353	378	352	370	534	574

Source: Statistics Canada, CANSIM Table 304-0015

Figure 5:
Manufacturing in Saskatchewan (\$ millions)

	1997	1998	1999	2000	2001	2002	2003	2004
Total Manufacturing	5,964	6,080	6,279	7,116	7,396	7,634	7,913	9,641
Non-durable goods industries	3,499	3,440	3,694	4,187	4,509	4,708	4,906	5,789
Food	1,534	1,666	1,589	1,619	1,763	1,871	1,947	2,083
Beverage and tobacco	..	88	83	..	74	64	33	34
Clothing	25	25	25	..	28	26	28	28
Leather and allied products	..	..	..	..	..	..	..	..
Paper	..	..	481	511	492	509	434	468
Printing	113	113	108	136	134	139	147	147
Petroleum and coal	..	..	..	..	..	..	..	..
Chemicals	562	520	624	618	733	686	799	985
Plastics and rubber	73	59	84	99	102	103	107	140
Durable goods industries	2,466	2,640	2,585	2,929	2,888	2,925	3,007	3,852
Wood products	313	314	381	346	314	409	468	694
Non-metallic minerals	..	95	95	92	93	77	71	80
Primary metals	..	..	..	..	..	..	..	..
Fabricated metals	270	316	361	382	397	371	389	470
Machinery	624	543	441	488	628	684	611	670
Computer and electronics	..	..	..	..	..	..	..	..
Electrical equipment	252	324	437	675	389	213	145	171
Transportation equipment	190	227	248	267	230	272	240	268
Furniture	28	32	44	48	52	63	68	69
Miscellaneous	36	41	..	52	50	48	55	58

Source: Statistics Canada, CANSIM Table 304-0015

Figure 6:
Manufacturing in Manitoba (\$ millions)

	1997	1998	1999	2000	2001	2002	2003	2004
Total Manufacturing	9,727	10,372	10,918	11,439	11,372	11,263	11,413	12,569
Non-durable goods industries	4,067	4,206	5,089	5,361	5,360	5,286	5,405	5,864
Food	2,139	2,137	2,438	2,493	2,443	2,432	2,457	2,896
Beverage and tobacco	..	..	..	..	212	210	208	203
Clothing	323	368	380	377	293	277	264	262
Leather and allied products	..	..	..	..	..	..	..	..
Paper	..	..	453	565	554	503	443	462
Printing	430	393	483	513	547	516	510	506
Petroleum and coal	12	..	..	..	27	27	33	22
Chemicals	430	465	516	545	636	635	814	818
Plastics and rubber	350	390	461	468	512	538	568	607
Durable goods industries	5,660	6,167	5,829	6,078	6,012	5,977	6,008	6,704
Wood products	341	421	552	588	623	667	697	835
Non-metallic minerals	..	..	..	168	161	170	163	145
Primary metals	..	..	..	..	..	..	..	..
Fabricated metals	517	544	559	605	582	585	620	738
Machinery	1,407	1,347	828	809	788	880	802	916
Computer and electronics	..	..	..	..	..	..	..	..
Electrical equipment	152	173	190	260	233	213	166	146
Transportation equipment	1,274	1,627	1,808	1,729	1,790	1,639	1,697	1,785
Furniture	420	484	506	510	499	549	544	542
Miscellaneous	..	186	..	248	201	179	175	213

Source: Statistics Canada, CANSIM Table 304-0015

In summary, the manufacturing base of western Canada is much more dependent upon the extraction and “value-added” of natural resources than is central or eastern Canada. Pockets of industrial and transportation manufacturing do exist in the West, but not nearly to the extent that they do in Ontario and Quebec.

Transformations: The Future of Manufacturing in Western Canada

The primary challenge facing traditional manufacturing in western Canada—and indeed, in all parts of North America and Europe—is the fact that labour costs are much higher in these areas than they are in many parts of the developing world. Witness the increasing dominance of China and East Asia as a manufacturing powerhouse. Lower wages have led to a continual shift in manufacturing activity away from North America and into the Far East.

There are certain activities that, because of the proximity to supply, are less “footloose” in their location choices. For example, oil sands upgraders or sawmills are typically located near their sources of input (in the case of the upgrader, a supply of bitumen, and in the case of a sawmill, a logging area). These are also manufacturing activities that require a large capital outlay and massive infrastructure, which cannot be picked up and moved.

But even these industries are not safe from the competition coming from lower-cost countries. While the sawmill or beef packing plant cannot be picked up and moved, new refineries and packing plants may be attracted to the lower-cost country, increasing global supply and driving down the price of the finished good. The lower prices—which are set globally—will make it more difficult for the existing plants in the high wage country to be profitable. The global market for pulp and paper, and the difficulties that BC producers have had in remaining competitive, is a good example of this.

Another factor limiting western Canada’s manufacturing potential is that many activities require large capital investments and huge production capacity to capture sufficiently large economies of scale to remain competitive. Because of western Canada’s small population base and distance from major markets, it is difficult for the region to attract capital investments of this magnitude. It is why, for example, there are no major auto assembly plants in western Canada.

Capacity and Economies of Scale in Beef Packing

The beef slaughtering and packing industry in western Canada provides an excellent example of how production capacity and economies of scale determine how manufacturing activity is distributed. Currently, there are only two large packing operations in the West (both in Alberta), each capable of handling several thousand head of cattle daily. But much larger operations in the US are easily capable of dealing with the supply of live cattle that cannot be handled by these two plants alone.

When the US border was suddenly and unexpectedly slammed shut to live cattle in 2003 due to BSE, the equation of cattle supply and slaughter capacity changed sharply. Suddenly, the supply of Canadian cattle far outweighed the slaughter capacity in Alberta's two plants. The Canadian cattle industry could easily have handled one or even two more massive-scale facilities (there is one smaller scale facility currently being built near Calgary). The problem was that plants of this magnitude can take up to two years to build, and with the uncertainty surrounding the US border closure, no one in the private sector was willing to invest so much money in such a risky plant. When the US border re-opened, as it eventually did in 2005, a large-scale beef packing plant in Canada would have then represented excess packing capacity—and would likely have lost money.

Factors such as lower wages in Asia, global competition, and a lack of large-scale plant capacity weigh against the future of traditional manufacturing in western Canada. But this does not necessarily mean that manufacturing is on an irreversibly downward trend. Several other factors will continue to work to the distinct advantage of western Canada's manufacturing sectors.

First, as mentioned earlier, some manufacturing activity is tied to location by the geography of its input supplies. Alberta's oil sands and the related upgrading and refining activities provide the best example of a growth industry in the West. As long as the world price for oil remains moderately high (i.e., above, say, \$US 25 per barrel), manufacturing in Alberta's petroleum sector is likely to grow.

Second, there are many opportunities for niche manufacturing in the West that do not

require the same massive scale of capital investment to be economically efficient and profitable. An example of this is the specialty nutraceuticals and food supplements that represent a growing industry in Manitoba and Saskatchewan. While relatively small in size, this manufacturing activity is helping to broaden and diversify the economies of these two provinces.

Third, while western Canada may not be able to compete with the low-skill, low-wage countries for many traditional manufacturing activities, the West is very capable of competing in other activities that require a high level of skill and training such as chemical production, transportation equipment manufacturing, and the assembly of specialized equipment. Western Canada's labour force is among the most educated and skilled in the world, and is certainly able to compete in these manufacturing activities. It is imperative that the West continues to invest heavily in post-secondary education and training facilities to increase its supply of skilled workers. Without them, this western Canada advantage will quickly erode (see Chapter 4 on Post-Secondary Education and Skills Development for a broader discussion of this factor).

Overall, manufacturing activity in western Canada is likely to show modest growth over the coming years. We will not be competing with the low-cost regions of the world for the manufacturing of mass-produced consumer products. But certainly there is room for expansion in value-added activity in certain resources, niche market manufacturing, and those industries requiring specially trained and skilled workers.

Chapter 10

Venture Capital

- ▶ Between 1995 and 2002, the total amount of venture capital invested in western Canada grew from just under \$6 billion to over \$22 billion. Even so, the total amount of venture capital in Canada is small compared to the US. While Canada's total GDP is about 8% of that of the US, its pool of venture capital is well short of that.
- ▶ Canada's venture capital investors are typically less actively involved in the operation of the company than they are in the US or Europe. As well, the Canadian industry is unusually dominated by passive and semi-private investors such as labour-sponsored funds, government funds, and hybrid funds. Some have suggested that the large involvement of these passive and semi-public investors in Canada—none of which is permitted to take a large ownership stake in the companies in which it invests—makes the Canadian venture capital environment less dynamic. It emphasizes return on investment for shareholders, rather than rewarding risk or innovative ideas.
- ▶ In 2004, approximately 80% of the total value of venture capital in Canada was invested in Ontario and Quebec. About 14% was invested in BC, and only 3% on the Prairies.

TRANSFORMATIONS

The lack of available venture capital financing is a serious problem that must be addressed quickly.

Without an adequate and accessible pool of venture capital, much of the entrepreneurial and risk-taking talent in the West will go untapped.

The rising sense of urgency is driven by the fear of the region losing emerging industries to competing jurisdictions with more accessible venture capital markets.

As western Canada's economy becomes increasingly driven by technology and knowledge-based sectors, the need for more and easier access to venture capital funding will be heightened even further.

Some steps that could help accomplish this are:

- increasing government incentives;
- decreasing the cost of investing (including capital gains taxes);
- streamlining the reporting and filing requirements in the securities system (including one national securities regulator); and
- expanding the venture capital base that is already present by cultivating new sources (e.g., pension funds).

With the fast pace of technological growth and rapid innovation that has characterized the early 2000s, entrepreneurs around the world are thirsty for capital. Ideas and creativity are the currency of the millennium. But cash is needed to get these creative business ideas off the ground. And while the world's capital markets have relatively deep pockets for sound investment prospects with assured rates of return, the capital needed for untested, unproven ideas is much harder to come by.

Western Canada's innovators, entrepreneurs, inventors, and creative business minds are in a tighter spot than most. Investment money for unproven ideas (that is, venture capital) is scarce. But the need for venture capital is greater than ever.

How does venture capital propel growth in the economy and why is it necessary? What does the lack of availability of this type of funding mean for the western Canadian economy? And how do venture capital markets in other jurisdictions increase global competition?

Venture capital can be described as private financing for the early stages of a business, particularly those with long-term growth potential but that have been deemed too risky for banks, regular capital markets, or other institutions. This type of financing differs from more traditional forms of capital investment because it is privately funded and most often not institutionally backed. The risk comes from the fact that many of the companies that are being financed are developing products and services that are relatively new and untested. In addition, since these are not public securities, there is no required reporting standard. The investors themselves must go through a process of due diligence in order to determine the prudence of their investment. Also, due to the fact that venture capital comes at an early stage investment—when companies may not even be at the point of production—the investments must be considered as long-term undertakings.

Venture capitalists do not accrue stock or interest on bonds as investors do in the better-known debt-financing sense. Rather, they take an equity position in the ventures they finance. Money is made for the venture capitalist through a well-crafted “exit strategy” planned for the future. This can take the form of an Initial Public Offering (IPO), going public, or some other form of acquisition. Because of these reasons and the fact that the idea is untested, venture capital investors demand higher returns from the projects they finance.

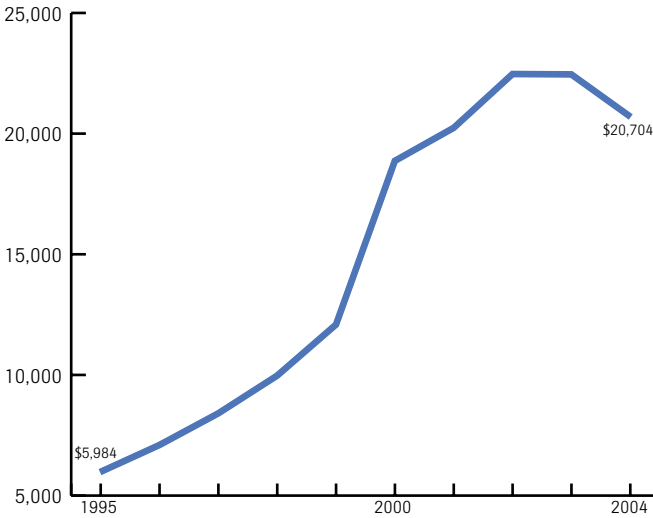
A venture capitalist (VC) will bring more than simply money into an investment. In addition to direct funding, VC's will also often help with arranging additional financing from other sources, assessing and reviewing business plans and re-formulating the overall business strategy. Often VCs will have previous experience in the field in which they are investing, enabling them to inject knowledge and human capital into the process. They have a direct link and intrinsic stake in the success of the business so they will also assist in identifying key managers and providing operational and technical guidance contributing to the overall achievement of the venture.

Though the terminology differs across jurisdictions, there are several different stages of venture capital financing. At the first stage there is seed capital. This is used prior to the

start up of a company to conduct market research, concept and early testing. The second round of financing is called start-up capital and is used to rent office space, purchase infrastructure, purchase inventory, hire staff, apply for permits and generally take care of all the activities required for starting up a business. As the operation grows there may be additional second-stage financing in order to expand production. Mezzanine financing is the last stage of venture capital financing usually as preparation before the company goes public or through some other sort of exit.

Venture Capital in Canada

Figure 1:
Total Venture Capital in Western Canada
(\$ millions under management)



Source: Canadian Venture Capital Association (www.cvca.ca)

Between 1995 and 2002 the total amount of venture capital invested in Canada grew almost four-fold from just under \$6 billion to over \$22 billion. The greatest increase came between 1999 and 2000 where in this year alone the total increased by over \$6 billion. This corresponds to a point in time when there were large amounts of rapid growth in the tech sector.

Yet in spite of the significant increase in 2000, a Canadian Federation of Independent Businesses survey released in 2001 reports that over 20% of companies said they could not secure enough financing.

Regional Distribution of Venture Capital in Canada

Figure 2:
Value of Venture Capital Investments in Canada
(\$ millions)

	1998		1999		2000		2001		2002		2003		2004	
	\$	% of total	\$	% of total	\$	% of total	\$	% of total	\$	% of total	\$	% of total	\$	% of total
BC	147	8.9	250	10.0	540	10.2	514	13.5	302	11.9	114	6.9	248	14.1
AB	93	5.6	129	5.2	243	4.6	88	2.3	87	3.4	77	4.6	22	1.2
SK	34	2.1	21	0.8	23	0.4	14	0.4	48	1.9	23	1.4	28	1.6
MB	26	1.6	46	1.8	39	0.7	44	1.2	34	1.3	20	1.2	24	1.4
ON	531	32.1	1,257	50.5	2,939	55.8	2,107	55.4	1,304	51.6	759	45.7	786	44.6
PQ	630	38.0	727	29.2	1,410	26.8	984	25.9	720	28.5	614	36.9	618	35.1
Atlantic	34	2.1	61	2.4	75	1.4	49	1.3	34	1.3	55	3.3	37	2.1
Canada	1,495	100	2,491	100	5,269	100	3,800	100	2,529	100	1,662	100	1,763	100

Source: Canadian Venture Capital Association (www.cvca.ca)

Approximately 80% of the total value of venture capital investment in Canada takes place in Ontario and Quebec. BC claims about 10%–12% on average, roughly in proportion to its economic size relative to the national economy. However, Alberta—with 10% of the country's population and 12% of GDP—punches well below its weight. It has only 2%–4% of total venture capital in Canada.

This is also true of Saskatchewan and Manitoba where the share of venture capital is only around 1% (compared to their share of GDP and population of around 3%–3.5%).

Nationally there was a peak in venture investment in the year 2000, with the value of additional investment dropping off in following years. This roughly corresponds with the rapid expansion and subsequent correction in the high-tech markets.

The Canadian venture capital industry differs from its American and European counterparts in one major respect. In most of the other nations the sources of funds are mostly institutionally backed, limited-partnerships of professional VCs. While these partnerships do exist in Canada, the domestic industry is unusually dominated by passive and semi-private investors such as labour-sponsored funds, government funds and hybrid funds.

Figure 3:
Venture Capital Financing in Canada
(# of financed investments)

	1998	1999	2000	2001	2002	2003	2004
BC	82	75	120	110	73	48	68
AB	48	28	65	28	28	29	15
SK	39	11	20	8	26	20	17
MB	20	29	45	65	32	26	29
ON	273	258	424	295	224	202	180
PQ	511	465	620	434	395	366	278
Atlantic	29	25	33	28	18	18	25
Canada	1,074	989	1,502	968	796	709	612

Source: Canadian Venture Capital Association (www.cvca.ca)

Figure 4:
National Venture Capital, GDP and Population
(as a percentage of Canadian total over 2000-2004)

	Venture Capital Investment	GDP	Population
BC	11.3	12.2	13.1
AB	3.2	11.9	9.9
SK	1.1	2.9	3.2
MB	1.2	3.2	3.7
WEST	16.8	30.2	29.9
ON	50.6	42.1	38.5
PQ	30.6	21.1	23.8
Atlantic	1.9	5.7	7.2

Source: Canadian Venture Capital Association (www.cvca.ca)

Some have suggested that the domination of these passive and semi-public investors in Canada—none of which is permitted to take a large ownership stake in the companies in which it invests—makes the Canadian venture capital environment less dynamic. It emphasizes return on investment for shareholders, rather than rewarding risk or innovative ideas.

Given the relative size of Canada and the US, it would be expected that the size of the venture capital industry in Canada be about 8-10% of its American counterpart. However, in the years around the turn of the millennium the Canadian venture capital industry was only 4-8% of that in the US.

This imbalance has led many companies in Canada to seek funding from venture capitalists in the US, especially by those start-ups seeking seed or early stage capital, which is particularly scarce in Canada. One problem with this is that it precipitates the eventual

emigration of many successful companies to the US by the nudging of their investors and the higher rates of return available from other traditional investments.

Canada has taken steps to try to address this problem with the Scientific Research and Experimental Development (SRED) Program and other research and development programs. This includes benefits like the full deduction for current expenditures, the full deduction for greater than 90% of dedicated capital expenditures, and the ability to “pool” SRED deductions for use in future years in relation to deductions from corporate income. Also, a 20% tax credit is offered on qualified expenditures and there is a 13-year period in which to apply for the investment tax credit.

Provincial policies to try to stimulate this early stage investment include:

BC

- Corporate capital tax holiday for new investments in R&D
- 10% tax credit on expenditures for qualifying SRED carried out in the province

Saskatchewan

- Ability for corporations to reduce taxable capital in the year in which eligible SRED expenditures become deductible for income tax purposes, rather than in the year in which they are actually deducted
- 15% non-refundable income tax credit for qualifying expenditures incurred in Saskatchewan—unused credits can be carried forward up to 7 years or back up to 3 years
- A non-refundable investment tax credit, equal to the provincial sales tax (currently 6%), on the purchase of shared-use equipment

Manitoba

- 15% non-refundable income tax credit for qualifying expenditures incurred in Manitoba—unused credits can be carried forward up to 7 years or back up to 3 years
- Sales tax exemption for the design, development, and programming of custom software
- Other government programs (e.g., Innovations Fund, Science and Technology Fund, Health Research Initiative, Agri-food Research & Development Initiative)

NOTE: The Alberta government does not give tax credits for incentives.

Source: The RnD Team (<http://www.therndteam.com/html2/provincial.htm>)

BC, Saskatchewan and Manitoba also make available tax credits for investing in Labour Sponsored Venture Capital Corporations (LSVCC's). Labour organizations are able to sponsor pension funds which undertake venture capital initiatives and give investors tax credits for their investment. There is an ongoing debate as to whether or not these funds are useful in stimulating venture capital investment because often they are plagued with heavy management costs and a reluctance to take risks.

Government Tax Credits and Incentives in Alberta

In Alberta the situation is drastically different from the other western provinces. In the mid-1990s the government set up Vencap, which was a government sponsored venture capital investment program. Unfortunately this program suffered from a common problem of public funds, namely a lack of good investments and a reluctance to take risks. This fund was sold off in 1998. Since then the government has not started any other funding programs or authorized any LSVCC.

Also in 1998 the Government of Alberta commissioned a report from the Alberta Tax Review Committee. One of their mandates was to make recommendations about specific tax incentive programs versus a broad-based, low tax rate. As per the committee's suggestion, the government chose to adopt the latter. Consequently, Alberta (along with PEI) does not offer any provincial tax credits relating to venture capital investment.

However, Alberta does have programs in place to try to create venture capital investment in the province. One specific program is the Alberta-California Venture Channel. Under the program, companies that have received one round of funding in Alberta can apply to be matched up with investors from Silicon Valley. In this way, companies can be founded locally, yet still gain access to the US market and US funds. It is through information sharing, as opposed to direct investment, that the Government of Alberta facilitates venture capital financing.

One of the reasons for the lack of seed and start-up capital investment in Canada is the shortage of so-called "angel investors." Angel investors play an important role in financing small- and medium-sized companies. They typically invest a smaller amount of money than large venture capital firms, or funds, but provide more than money. The angel also

offers advice and expertise to the entrepreneurs that can often be the difference between success and failure.

Overall, investors in Canada are less inclined to take large risks and are slower to take advantage of emerging business opportunities. An interesting point came out of the Canadian e-Business Opportunities Roundtable held in 2000:

“The [investment] environment is less dynamic in Canada because the venture capital market here is dominated by passive and semi-public investors. Labour-sponsored funds, government funds and hybrid funds – none of which is permitted to take a large ownership stake in the companies in which it invests – make up over 60% of the Canadian venture capital pool. In contrast, only 1% of U.S. funds are under management by non-private investors.”¹

Transformations: The Future of Venture Capital in Western Canada

The next few years will be critical for the West. The region is rich in creative entrepreneurs with new, innovative—and untested—business ideas. They need cash to turn these creative ideas into commercially viable realities that will generate wealth and keep the West prosperous.

To take full advantage of the rich economic opportunities characterizing the early 2000s, it is not good enough for western Canada to be simply a purveyor of good ideas. These ideas must be nurtured, developed, and commercialized in the West. This is especially true since many new high-tech and knowledge-based companies are footloose. If they cannot obtain the necessary venture capital financing here, the companies will move to Ontario, Quebec or abroad to succeed, taking with them jobs, wealth creation, and a potentially large tax base.

Simply put, the West’s entrepreneurs need greater and easier access to venture capital. If venture capital markets are not enriched, the West will very quickly lose ground to international competitors.

1. Canadian e-Business Opportunities Roundtable, 2000

Some ways that this can be accomplished are through increased government incentives (many good ideas are already being carried out as detailed above), decreasing the cost of investing in Canada, and by expanding the venture capital base that is already present.

One potential way to cultivate new sources of available capital is to tap into pension funds. Pension funds contributed significantly to the pool of venture capital in the 1980s, but have since pulled back to a minimal level. According to a Canadian Labour and Business Centre Report reasons for this include:

“[The] recession of the late 1980s, the risk-adjusted substandard performance of pooled assets compared to rates obtained in the United States, and the difficulties in dealing with VC funds, some of which were attributable to fees and the complexities of monitoring, and others attributable to the lack of preparedness of pension funds to make illiquid investments.”²

Another step that could be taken is to reduce the cost of venture capital investment in Canada. The reduction of the inclusion rate for capital gains taxes is one way to lower these costs.

Yet another “cost” of doing business in Canada is the existence of 13 separate jurisdictions for securities regulations. In order to initiate an IPO, a company must file with each different securities regulator, adding a costly and time-consuming burden. Registering and complying with all these regulations drastically increases the cost of an IPO, which is a major form of “exit” for venture capitalists.

This barrier to doing business in Canada has striking similarities to some of the issues regarding interprovincial trade that were discussed in Chapter 2. Canada is the only G7 country to have securities regulated by a secondary order of government.

Recently the Council of Ministers of Securities Regulation (which includes representatives from all the provinces and territories except Ontario) has signed a Memorandum of Understanding (MOU) committing them to simplifying securities regulation in Canada:

2. *Prudence, Patience and Jobs: Pension Investing in a Changing Economy*, Canadian Labour Board of Canada, 1999

“The MOU represents a formal and unprecedented commitment to move ahead with a ‘passport system’ for an improved securities regulatory framework, to develop highly harmonized securities laws, simplified where appropriate, and to explore further options to consolidate and/or strengthen co-ordination and consistency of securities laws among provinces and territories, including a commitment to explore, on an ongoing basis, new opportunities to strengthen the Canadian securities regulatory framework.”³

This is a good first step, and there are plans to look at the further harmonization of the regulators. But the process should be hastened and expanded. Serious consideration should be given to amalgamating these thirteen securities regulators into one national standard in order to simplify compliance and the related costs of time and money.

Certain provinces, particularly Alberta and BC, have raised concerns about a national securities regulator. An important issue for them is whether such a national body would be able to represent the distinct regional business cultures and smaller publicly traded companies. While the concern is valid, it is unwise to dismiss outright the ability of a proposed national regulator to maintain an understanding of regional differences. Single regulators in other large countries with diverse regions (such as the US) manage to do so; there is no reason why a single regulator in Canada, if established correctly, would not be able to achieve the same.

3. Securities Canada (www.securitiescanada.org) news release, November 16, 2005

Chapter 11

Conclusion

It was admitted at the outset that some of the “predictions” made in this volume are highly probable and more akin to trends than actual predictions while others are simply educated guesses. Both types of forecast point to and help us understand what western Canada’s economy may look like in 10–20 years. In this regard, several themes emerge that can be thought of as “mega-themes.” While not all of the predictions made in this volume will come to pass, there is little doubt that these mega-themes will have a significant impact upon the future shape of western Canada’s economy.

The Future of Western Canada’s Economy: Seven Mega-Themes

First, the West will face **growing competitive pressures** both from within Canada and from abroad. We will continue to be part of an ever-shrinking world economy, and this will put increased pressure on our ability to keep up with large, global players. Our competitive position is slipping—not just relative to the US, but increasingly against China, India, and a host of other nations that are excelling at the global game.

It is not—as some anti-globalization voices argue—only about cutting costs and a race to the bottom. It is about who has the brightest minds, the best environment for research and development, and the most risk-taking entrepreneurs. This competitive pressure will only be met through improved education and skills development, better trade relations, and better access to the tools and capital businesses need to make a mark on the world stage.

The second theme is **changing demographics and an aging population**. This is, without question, going to affect several areas of our economy. The labour force will feel the pressures of the Baby Boomer retirements as more and more workers start to exit the labour force or look for alternative working arrangements. This has implications for the shortage of skilled workers, the need to increase post-secondary training today to fill the gaps of tomorrow, and the importance of increasing targeted immigration, and improving the labour force participation of Aboriginal peoples. There are also important implications for our public finances and the funding of our health care system.

Third, **natural resources** will remain our greatest friend—but possibly our greatest curse as well. In 2006, it is tempting to envision a long period of strong demand for western Canadian resources, especially crude oil and natural gas. It is fairly reasonable to assume that oil and gas demand will remain strong for at least the next few years; but it is also reasonable to imagine some event—a major technological breakthrough, a major world recession, a steep drop in demand due to changing consumer habits—that would see energy prices fall. Other resource prices (lumber, base metals, grains, etc.) will continue to be subject to cyclical ups and downs.

The tremendous wealth of natural resources in western Canada will continue to fuel the economy in the years to come. They will dominate our international and interprovincial trading patterns, support a massive service sector, generate employment for thousands, and boost our public finance coffers. The danger lies in our heavy reliance on them and the boom and bust economic cycle they help perpetuate. Economic diversification will remain a difficult goal to achieve.

A fourth theme for the future is **interprovincial co-operation**. This theme goes well beyond the discussion of interprovincial trade in Chapter 2. In several of the chapters in this volume there are predictions of worsening economic conditions if provinces are not able to reach a higher level of co-operation. Post-secondary education and skills development is an area in which the Canada West Foundation has done considerable work and has recommended a higher degree of interprovincial co-operation in western Canada. The successful progress on issues of accessibility of capital, energy resources, water and environmental resources, and transportation are all heavily dependent on provinces working in partnership with each other.

Achieving greater **value-added** is a fifth theme running throughout the predictions for the future. The question of how to add value to our economy—particularly in relation to our natural resources—has hounded western Canadian policy-makers for decades. It is sometimes wrapped in the discussion of economic diversification. But it boils down to the central question: how can we add value to our products and keep more of the wealth in the West, rather than simply export our resources and remain “hewers of wood and drawers of water?” This is a question without a simple, obvious answer. It is not enough to build more factories for secondary manufacturing (turning wood into chairs, wheat into pasta, or natural gas liquids into plastics). In some cases, the West has done a tremendous job of finding a manufacturing niche. But in other cases, it cannot compete with lower wages in other countries.

Adding value to our resources is not likely to come from labour-intensive, assembly-line production facilities. It is most likely to come from the intellectual resources of the West: our minds. We may not build the chairs, but we will design them. We may not make the pasta, but we will research and engineer higher protein-yielding grains.

A sixth theme is **education**. Again, this theme is one that runs throughout every chapter, not just the chapter on post-secondary education. Without a smart and skilled labour force, we are bound to slip behind in our international trade position. Our labour force will shrink or lose jobs to “smarter” countries. We will not have the tools and the talents to take our research and our new technologies and commercialize them here at home. It comes up repeatedly—we cannot overemphasize the need for an educated labour force.

A final theme that can be noted is the need for **quick reaction and adjustment** to changing circumstances. In international trade, sudden shifts in trading patterns (such as with the BSE crisis) will require immediate adjustment strategies. For companies seeking venture capital, the ability to act quickly is crucial when a window of opportunity is opened. In our labour force, both workers and employers will have to increase the speed at which they react to changing labour market developments. In the services sector, those to adapt and implement new information technologies will have a leg up on the competition. Throughout the western Canadian economy, there will be a growing urgency for all participants to be fleet of foot. This, in turn, has implications for public policy. Policy should help—not hinder—economic agents in quickly reacting to change.

These seven mega-themes will shape western Canada's economy over the coming 10–20 years. The future cannot be seen with certainty, but these driving forces can be assumed. In the face of these mega-themes, dangers and pitfalls will no doubt challenge our policy-makers. But through all of them, optimism also prevails. There are chances to capitalize on the changing circumstances and establishing western Canada's place in the world's economy. All we need to do is, like the great Wayne Gretzky, anticipate where the puck is going to be and get there before it does.

Chapter 12

Summary of Key Forecasts

Coming Up NEXT presents a current snapshot of the western Canadian economy, but more importantly it offers suggestions as to where things are going—the transformations. Below is a summary of the key predictions for what we can expect over the next 10–20 years.

International Trade

Trade disputes with the US (such as those over softwood lumber, live cattle, and wheat) are likely to intensify in the coming years, particularly if the US adopts more protectionist policies. Canadian exporters and policy-makers will continue pursuing trade agreements with countries other than the US (such as South Korea, Japan and China), striving as much as possible to diversify export markets. The rapidly expanding Chinese and Indian economies show promise as growing markets for western Canada's exports of goods and services, although trade with these countries will still remain dwarfed by trade with the US. In order to press for freer global trade within the WTO, Canada may be forced to abandon its systems of supply management in certain agricultural products, and possibly accept major changes to the monopoly position of the Canadian Wheat Board. Western Canada's ocean ports will lose business to competing ports in the US if capacity is not expanded.

Interprovincial Trade

The vast majority of trade between provinces takes place without barriers or other inhibiting factors; nonetheless, the situation could be greatly improved. Specific stubborn barriers to interprovincial trade and commerce will remain problematic,

despite the decade-old Agreement on Internal Trade (AIT). Economically, the most serious barriers to interprovincial trade and commerce will continue to stem from differences in occupational and professional licensing, regulatory standards, and local procurement policies of provincial and municipal governments. In the short-term, change will be slow and many interprovincial trade obstacles will remain in place. The political pressure to remove barriers will remain weak; substantial progress in reducing barriers may be limited to bilateral agreements between individual provinces. There is more optimism for change in the long-term as governments struggle with ways to boost Canada's flagging productivity and international competitiveness.

The Labour Force

Employees and employers in western Canada will increase their ability to adapt to changing labour market circumstances, and this will continue to improve labour market dynamics in the future. While job tenure has increased somewhat over the past few decades, the concept of loyalty to any one employer has weakened—and will continue to weaken—as a value held by workers. Demographics will continue to drive up the average age of workers in western Canada. The eventual elimination of mandatory retirement legislation in BC and Saskatchewan (and possibly some changes to the CPP and other pension programs) will also increase the average age of the labour force. The disparity in wages and benefits is likely to widen between high-skilled, highly educated workers and those with fewer skills and less training. Both employees and employers will continue to emphasize the importance of continual training and education.

Post-Secondary Education and Skills Development

Shortages of skilled labour are posing threats to some segments of western Canada's economy. Demand for trade certificates, technical training, and vocational programs will increase at a faster rate than demand for traditional university degrees and enrollment in technical colleges will rise. There will be increased involvement by the business sector in funding and designing programs in an effort to create a customized crop of graduates from which to recruit. Tuition costs may continue to increase—although at a slower pace than they increased over the past decade—as

schools struggle to maintain capital infrastructure and attract faculty. The federal government will become increasingly involved in post-secondary education by enriching scholarships, funding research chairs, and directing more money to skills training.

Energy Resources

Western Canada will continue to reap the benefits and wealth of its abundant energy resources. Oil and natural gas prices are not likely to stay at the record highs reached in 2005; however, the global energy market has moved into a period of generally higher prices. Crude oil extraction in Alberta will continue to shift away from drilling operations to mining operations. The environmental implications of oil sands development—emissions, water use, and impact on the land and forest—will become major economic factors in the future. Hydroelectricity will continue to generate significant power for BC and Manitoba, although there may be some risk to long-term generating capacity due to a trend of warmer and dryer conditions in North America. Western Canada has the opportunity to be the world leader in the research and development of alternative energy. Wind, solar, biomass, hydrogen cell technology, and even tidal power in the West all hold promise for meeting the world's growing energy demand.

Non-Energy Resources

While most non-energy commodity prices were very strong in 2005, prices are cyclical and are likely to continue their long-term downward trend over the next few years. Employment in non-energy resources will not be an area of significant growth for western Canada over the coming years. These sectors will become more capital-intensive, relying on fewer, but more highly trained, workers. Because of the mountain pine beetle infestation, the lumber sector will face a short-term surge in production followed by a period of severe under-production around 2008-10. The softwood trade dispute with the US will remain an irritant for Canada. In agriculture, the model of the traditional family farm will continue to suffer and decline in the West. More optimism prevails for specialty crop farms, vegetable processing, and large livestock operations. Supply management in agriculture—including the Canadian Wheat Board and

various marketing boards—may eventually be altered in order for Canada to more forcefully advocate for free global trade in agriculture.

The Knowledge Economy

Companies involved in bio-tech/life sciences, information and communications technology (ICT), and alternative energy research are all part of the growing knowledge economy. The West's advantage lies in its highly educated workers, but it is dangerous to take that advantage for granted. Other parts of the world are rapidly closing the gap. Over the coming years, governments will want to continue their support and encouragement of the knowledge-based industries. Extreme care must be taken to avoid "picking winners" whereby public money is spent to artificially attract and prop-up certain activities—often with little success. One of the most significant barriers to the expansion of knowledge-based industries will continue to be the commercialization stage. Public policy and government assistance will focus on appropriate ways to help knowledge-based companies take their research from the development stage to a commercially viable business.

The Service Sector

The service sector will continue to dominate total economic activity and employment in the West. Exportable service industries—such as legal, advertising, and business services—present the greatest opportunities for growth, but are also the most vulnerable sectors in the economy. They have an almost limitless international market in which to expand; however, they also face fierce international competition. Because of this, public policy attention should focus on boosting productivity and the competitive position of these exportable service industries. For wages in the service sector to continue to rise, it will be essential for western Canada to maintain a competitive advantage over service providers in other countries. Education, skills development, language training, and communication technology will be critical.

Manufacturing

The future of manufacturing in western Canada will be limited by a few key factors: continued out-sourcing to low-cost, low-wage countries like China, geographic distance from major markets, and the lack of the large-scale capital investment required to achieve competitive economies of scale. If the Canadian dollar continues to rise against the US dollar, this will be an additional constraint. Despite these limiting factors, there is still a positive outlook for niche and specialized manufacturing, manufacturing specific to the location of natural resources (e.g., upgrading and refining of oil sands), and high-skill, value-added activities related to manufacturing (e.g., design, engineering, and marketing).

Venture Capital

The lack of available venture capital financing for western Canada's small start-up companies is a serious problem that must be addressed quickly. Without an adequate and accessible pool of venture capital, much of the entrepreneurial and risk-taking talent in the West will leave and find capital elsewhere. This issue is growing in urgency and is attracting serious attention. Some of the practical solutions that are likely to evolve over the next several years include increased government incentives, decreased costs of investing (e.g., lower capital gains taxes), streamlining the reporting and filing requirements (e.g., one national securities regulator), and expanding the venture capital base that is already present by cultivating new sources (e.g., pension funds).

The Canada West Foundation is pleased to announce the launch of the Philanthropy Club—an innovative fundraising initiative for philanthropists and corporations, designed to pit the investment expertise of some of Canada's leading investors and their investment advisors against one another in a spirited competition for charitable purposes.

CANADA WEST FOUNDATION PHILANTHROPY CLUB

THE GOAL

The goal is to raise about \$1.5 million to support the non-partisan public policy research and citizen engagement activities of the Canada West Foundation.

THE TEAMS

Ten teams, made up of investors and investment advisors/dealers, will commit \$1 million each.

THE SPIRIT

In the spirit of philanthropy, a total of \$10 million will be invested with the return on investment donated to the Canada West Foundation Founders' Endowment Fund.

THE RETURN

Quarterly reports in the *Calgary Herald* will feature the top three teams. The team with the highest return on investment will be presented with the Philanthropy Club trophy in December 2006.

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Western Canada's economy is currently the envy of the nation: natural resource prices are booming, provincial government finances are in relatively good shape, and the region's cities are growing.

But what will happen tomorrow? What challenges lie ahead? What forces and trends will influence the future development of western Canada's economy?

Coming Up NEXT helps answer these questions by examining the transformations underway within major segments of the western Canadian economy.

With chapters on international trade, interprovincial trade, the labour force, post-secondary education and skills training, energy resources, non-energy resources, the knowledge economy, the service sector, manufacturing, and venture capital, **Coming Up NEXT** provides an invaluable overview of western Canada's economy and the transformative forces that will shape it over the next 10-20 years.

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