

INDUSTRIAL CONCENTRATION AND CROWN CORPORATIONS

IN

BRITISH COLUMBIA

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BY

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Part One: B.C. Industrial Concentration

Table of Contents

1. Introduction and Summary
 - 1.1 Objective of Study
 - 1.2 Scope of Study
 - 1.3 Industrial Concentration
 - 1.4 Vertical Integration
 - 1.5 Economies of Scale and efficient Plant Size
 - 1.6 Tariffs and Industrial Organization
 - 1.7 Competition Police / Provincial Scope
2. Industry Sectors / Concentration
 - 2.1 Industry Description
 - 2.2 Industry Concentration Ratios
 - 2.3 Twelve Largest Firms by Industry
 - 2.4 Mineral and Metal Mines
 - 2.5 Oil and Natural Gas
 - 2.6 Fish Products Industry
 - 2.7 Industry Performance and Productivity
 - 2.8 Trade Through B.C. Ports
3. Crown Corporations / Concentration Regulation
 - 3.1 Crown Corporations and Industrial Concentration
 - 3.2 Ports
 - 3.3 Rail
 - 3.4 Natural Gas Pipelines
 - 3.5 Crude Oil Refineries
 - 3.6 Public and Private Investment Projections
 - 3.7 Regulatory Agencies / Regulations
4. Conclusions
 - 4.1 Industry Concentration
 - 4.2 Crown Corporations
5. Alternatives
 - 5.1 Policy Options
 - 5.2 Recommendations

Chapter One: Introduction and Summary

1.1 Objective of Study

This research will look at mergers, corporate concentration, and associated policy concerns in British Columbia. These problems cover a wide range of topics. The concentration of ownership in the manufacturing and primary resource industries is one of the concerns in this study that B.C. is particularly concerned about. Crown corporations are another factor in British Columbia's industrial concentration. In the crucial industries of ports, rail, pipelines, and crude oil refineries, some non-B.C. crown enterprises hold important positions.

I do not mean to imply that corporate concentration is inherently harmful. Economists have different opinions about this. In this study, I try to quantify the level of concentration for specific industries in British Columbia. In order to assess whether a certain industry may be overly concentrated, I take into account additional structural components of each business, such as exports, imports, entrance obstacles (such as capital/labor ratios), and tariff protection, after measuring the degree of concentration.

What precisely is the issue of corporate concentration? Certain issues may arise if ownership and control of the productive capacity of a given industry's goods are consolidated. May is the crucial word. Reduced output, larger import and export volumes, lower employment rates, higher pricing, lower taxes and royalties, and lower rates of technological innovation are all possible outcomes of the incentive for higher profits.

What are the possible benefits of mergers and ownership concentration? Increased economy of scale efficiency, the benefits of diversification, and the transfer of ownership of productive assets to more competent and successful managers are all possible outcomes of mergers. The long-term growth and potential of the British Columbian economy could be diminished by a flawed merger policy that prevents such rationalization from occurring.

Are the problems with corporate concentration provincial or national in nature? The Federal Combines Investigation Act now governs competition policy, including merger restrictions. Because this Act's legislation is centered on criminal sanctions rather than civil fines, it has received a lot of criticism. Considering the general discontent with this legislation's implementation, it makes sense to look at how concentrated British Columbia's industries are to determine if the B.C. Government needs to take further action.

Concentration in commodity or product markets is the main topic of this study. Concentration in factor markets, like labor markets, is outside the purview of this study. Concentration on one market (let's say a commodity) as opposed to another market (let's say a factor) in the resource sectors may have significantly different consequences in British Columbia and necessitate action.

This study offers industry-by-industry concentration data to give an estimate of competitive circumstances. The proportion of industry shipments accounted for by the four largest, eight largest, and twelve largest enterprises is the basic metric of Industrial Organization theory. There are other ways to gauge concentration.

The Lerner measure of monopoly (price minus marginal cost) is a concentration metric that "looks" directly at profits. Examining annual reports and other firm data is necessary to get such information. Since this process can take a lot of time, it makes more sense to do more research on industrial concentration once the overly concentrated sectors have been identified.

The so-called Herfindahl-Hirshman Index is the other statistic that is most commonly utilized. The sum of the squares of each company's market share equals this index. This indicator rises with growing inequality in the market shares of firms and falls with an increase in the number of firms.

Before drawing any firm conclusions about any of these concentration measurements, additional industry characteristics must be examined. The volume of exports, the degree of vertical integration, economies of scale, and the existence of entry obstacles are further significant factors.

Other problems about concentration can be addressed once a suitable measure has been selected. In this case, we will begin with the four firm concentration ratios. Has the level of concentration been rising? Why is the level of concentration rising? How has concentration been affected by competitive policies? What specifically have been the detrimental effects from industries that are too concentrated?

One factor that determines an industry's structure is the size distribution of businesses, or what is sometimes referred to as concentration. The value of shipments, unit labor expenses, unit energy costs, capital stock per unit of labor engaged, level of vertical integration, and degree of product specialization are further structural factors for an industry.

The structure of an industry has an important influence on the conduct of industry participants on such matters as pricing and production policies, investment in plant, machinery and equipment, and research and technological progress. The size distribution of firms is but one of these structural variables. Research by other economists indicate that concentration indicate that concentration has an important influence on the conduct of firms in an industry, particularly on research and innovation.

When it comes to issues like pricing and production, investments in plant, machinery, and equipment, and research and technical advancement, an industry's structure has a significant impact on how its members behave. Among these structural characteristics is the distribution of business sizes. According to studies conducted by other economists, concentration has a

significant impact on how businesses behave within an industry, especially when it comes to innovation and research.

Given the importance of concentration as a structural variable, information on the trends in concentration by industry would be of value. Unfortunately, data limitation prevents one from saying much about such trends at this time. Trends are provided for a few industries such as fish processing and retail gasoline outlets. To adequately discuss this issue would require similar concentration data over a period of twenty years in the manufacturing and primary resource sectors. I have already discussed why concentration might be increasing in the paragraph on the potential advantages of mergers.

Information on the trends in concentration by industry would be useful given the significance of concentration as a structural variable. Unfortunately, it is currently unable to say anything about such developments due to data limitations. Trend data is available for a few businesses, such as fish processing and retail gas stations. Similar concentration data over a 20-year period in the manufacturing and natural resource sectors would be necessary to properly address this issue. In the paragraph above on the possible benefits of mergers, I previously covered the reasons why concentration might be rising.

Prior research by Gideon Rosenbluth and R. S. Khemani highlighted the high level of concentration in Canadian manufacturing and the fact that it is typically higher than in comparable U.S.A. businesses.

I provide specific proof of concentration in British Columbia's manufacturing sectors in my paper. I also estimate both governmental and private investment (capital and repair) for the next ten years.

The residency of directors and officers of federal companies incorporated in British Columbia was investigated in the related study on Crown Corporations. It is astonishing that almost all of these directors and officials live outside of British Columbia, given that they are the main decision-makers for these businesses. The underrepresentation of British Columbian interests on the boards of such important national enterprises is especially concerning when there is significant ownership concentration.

1.2 Scope of the Study

The following should not be considered the final analysis of British Columbia's industries, due to time constraints, the availability of reasonably priced data, and analytical capabilities. Numerous significant factors will be omitted, including the minimum efficient company size for each industry, intertemporal shifts in concentration, and a gauge of the level of vertical integration.

One of the study's most important contributions is the release of concentration ratios by industry for the manufacturing industries at the two-, three-, and four-digit S.I.C. level by the B.C. Central Statistics Bureau. The majority of Canada's economic sectors were covered by the data collected from multiple censuses and surveys that resulted in the development of Statistics Canada's Standard Industrial Classification system, or S.I.C. One advantage of the S.I.C. categorization structure is that it makes it possible to compare statistics across countries and regions and provide the continuity required for time series data analysis.

The industrial organization of British Columbia's major industries has already been examined through Royal Commissions and inquiries commissioned by various Ministries of the B.C. government. The Forest Industry and the Fishing Industry have been examined by Royal Commissions chaired by Dr. Peter Pearse, and the food industry by the study entitled Concentration and Integration in the British Columbia Food Industry commissioned by the Standing Committee on Agriculture, and the salmon industry by the study entitled the Structure of the British Columbia Salmon Industry authored by Marvin Shaffer.

More recently, the Economic Analysis and Research Bureau (E.A.R.B.) conducted the study titled, Corporate Concentration in British Columbia's Forest Industry, which provided proof of the industry's significant concentration. The present study supplies evidence that B.C.'s manufacturing industries are also highly concentrated, perhaps even more than the wood industries, with many at the same level of concentration as the paper and allied industries.

Another important contribution of this research is the supply of a complete list of the twelve largest firms for each three digit and four-digit S.I.C. manufacturing category. This list could be very useful in the implementation of any provincial competition policy.

The Cabinet Committee on Economic Development (C.C.E.D.) directive, which motivated this study, called for an examination of industrial concentration, crown corporations and projections of private and public investment intensions. Tables 3.6.1 to 3.6.4 provide historical information of capital and repair expenditure by industry and combined private and public investment with government department expenditures broken down by Federal, Provincial and Municipal Governments.

The magnitude and scope of the activities of federally owned or controlled corporations was examined by an E.A.R.B. paper entitled, Government Owned and Controlled Corporations: A Description of Their Function, Organization and Regional Nature of their Activities, July, 1977.

Chapter three of the present paper expands on the E.A.R.B. study, particularly with respect to the activities of the National Harbours Board, Pipelines, Petro-Canada, Westcoast Transmission, and the proposed crown corporations – The National Trading Corporation and Canagrex. Chapter three seeks to answer such questions such as:

To what extent do Crown Corporations contribute to industrial concentration in B.C.?

Do the activities of Crown Corporations inhibit industrial expansion in B.C.?

The three issues, industrial concentration, non-B.C. Crown Corporations, and projected investments are tied together in the chapters which provide conclusions and alternatives. The rest of this introductory chapter summarizes the results on industrial concentration, and presents a brief discussion of vertical integration, economies of scale, efficient plant size, and export shares and tariffs. It attempts to show how these variables must be used in conjunction with the industrial concentration statistics. Otherwise, the use of these statistics could be misleading.

1.3 Industry Concentration

Increases in corporate size and industrial concentration may have contributed significantly to current economic and social problems. The general belief among economists and practitioners of political economy is that economic power, in the sense that a few individuals or firms control a substantial portion of a given industry, can lead to a misallocation of resources. The prices of an industry's products tend to go higher for domestic consumers.

Importantly, political power may well go hand-in-hand with economic power.

Because those in positions of political authority can influence economic outcomes in ways that strengthen their position, and because those who control wealth generally gain influence over political decisions, political power and economic power are frequently closely related.

Politics is influenced by economic leverage. Through lobbying, campaign funding, and control over important resources, wealthy people, businesses, and financial institutions can influence legislation. They have a disproportionate amount of influence over political outcomes as a result.

Political authority shapes economic structures. Governments create laws, regulations, and institutions that determine who gains or retains economic advantages. Political leaders can use this authority to protect or reward certain economic actors.

Incentives change when the same individuals have both powers. According to research, political incentives predominate when economic and political power are concentrated in the same hands. This frequently results in stagnation since individuals in positions of power place a high priority on preserving the status quo.

Economic power may spur innovation when it exists on its own. Economic actors typically use their ability to generate value if they can become wealthy without requiring political authority, which promotes growth and "creative destruction."

Economists describe competition as the number of businesses that manufacture and market a particular good in a specific region. A "shared monopoly" occurs when a small number of businesses control a substantial portion of an industry's output. The potential for cooperation implies that the number of businesses in a certain industry is positively correlated with the level of competitiveness. The degree of competition in an industry is determined by both the number of businesses and their size in relation to one another.

Concentration data on an industry-by-industry basis provides an indication of competitive conditions in the many separate markets. In this study, I use the standard measure of Industrial Organization theory, namely – the percentage of industry shipments accounted for by the four largest, eight largest, and twelve largest B.C. firms.

Using criteria explained in section 2.3, I find that, at the two-digit S.I.C. level, most industries are either competitive or reasonably competitive. This is not surprising since this industrial classification is rather broad. Primary Metals, Petroleum, and Coal Products fall into the concentrated category at the two-digit level. Forestry, Clothing, Paper and Allied Mineral Products, and Chemical and Chemical Products are reasonably competitive at this level.

At the three-digit level, all Food and Beverage sectors, that appeared very competitive at the two-digit level, are actually either relatively concentrated or concentrated. Other industries which are concentrated at the three-digit level are Venner and Plywood Mills, Paper Box and Bag Manufacturers, Publishing and Printing, Smelting and Refining, fabricated structural Metals, Wire and Wire Products, Petroleum refineries, and Manufacturers of Industrial Chemicals.

Regretfully, I am unable to examine the patterns in industrial concentration to ascertain whether concentration is rising or falling over time due to data restrictions.

In 1948, however, seven industries—Distilleries, Tobacco Products, Thread Mills, Aircraft and Parts, Motor Vehicles, and Petroleum Refining—had four-firm concentration ratios ranging from 80 to 100 percent, according to a Canadian study by R. S. Khemani. The four-firm ratios for Petroleum Refining, Aircraft and Parts, and Distilleries had dropped to between 60 and 80 percent by 1958. By 1972, Cement had fallen to that level.

For a large number of industries, the four-firm concentration ratios did not change appreciably over the period of study. However, Khemani discovered that forty industries saw increases in concentration levels between 1948 and 1972, while just seventeen industries saw declines.

There are undoubtedly factors in the Canadian economy that support and/or facilitate industry concentration.

Among the forces that increase concentration are:

1. Strive for efficiency in production or take technology into account,
2. Strive for market efficiency or take sales promotion into account,
3. Attempts to limit competition by lowering the number of businesses or by taking mergers and monopolies into account,
4. Considerations related to entry barriers, such as economies of scale,
5. Financial considerations, or benefit from a merger with businesses whose profits are not distributed.

Concentration deterring forces include:

1. Anti-trust laws / legal considerations,
2. Enterprise sovereignty considerations,
3. Market growth consideration.

According to the Khemani study, the deterrent factors seem to be outweighed by the concentration-increasing forces. As a result, concentration will often be higher than what is necessary for industry efficiency.

The current investigation should ideally identify the factors that influence concentration. This means that every factor that affects concentration should be measured, together with the weight that each factor contributes to concentration.

Such a list of variables could include:

- Concentration: four-firm ratios,
- Capital intensity: capital / labor ratios,
- Minimum efficient firm scale size,
- Specialization ratios,
- Value added per worker,
- Canadian nominal tariff rates,
- Canadian effective rate of tariff protection,
- Wages of production workers,
- Cost of fuel and electricity / worker,
- Cost of materials and supplies used / worker,
- Salaries of production managers,
- Transportation costs,
- Output per worker.

1.4 Vertical Integration

When a company owns productive assets and participates in productive activities across many industry stages, this is known as vertical integration. For example, the major stages of the oil

industry are exploration, production, the transportation of crude oil, refining, and the transportation and marketing of refined products. In the forest industry, the major stages forest management, logging, log transportation, sawmill or pulp / paper mills, product transportation and distribution.

The E.A.R. B. study on Corporate Concentration in B.C. Forest industry concluded that “significant technological economies of scale arise from the integration of mechanical pulp and paper production processes. Coordination of output economies may result from the integration of log transportation with pulp mill operations. With these two exceptions, the evidence indicates that any cost savings achieved by large scale integrated firms are not due to the technological economies of integrating different stages of production.”

Technological economies of scale occur when a firm reduces its average costs and improves efficiency by using advanced technology and specialized equipment as production increases.

Elmer G. Wiens illustrates the benefits of downstream integration for a monopolist or oligopolistic corporation in his 1978 Carleton Economic Papers paper, "Government Firm Regulation of a Vertical Industry" (egwald.ca/wiens/elmerwiensgovregvertintindustry.pdf).

Suppose a monopolist in a factor market sells its product to a competitive group of firms. To capture rents, it restricts output and prices the factor above its competitive or efficient price. This has two effects. First, if the competitive industry maintains the efficient factor proportions (as if it was buying the factor input at a competitive price), then its cost schedule shifts upward with the increase in the price of the factor resulting in an increase in the price of the competitive industry's product. Second, given variable proportions in factor inputs in production, the competitive industry will substitute away from the monopolized factor partially shifting down the relevant cost schedule. Here inefficient factor proportions prevail.

The monopolist can do better than selling its product to the competitive firms by integrating into this stage of the industry. It can increase its profits by integrating forward and substituting efficient factor proportions for the competitive firms' inefficient proportions. With the monopolist's increased economic power, integration might result in a further reduction of the industry's output, but not necessarily. Whether the end customers of the industry's product benefit from vertical integration depends on the trade-off between attaining efficient factor proportions and the potential for further restricted output.

There are more justifications for vertical integration. Long-term investments are made in sawmills, refineries, pipelines, and pulp and paper mills. In other words, these investments are capitalized over a long period of time. Once established, these productive facilities have few other uses because they are highly specialized. These businesses frequently decide to integrate upstream by buying their suppliers' assets in order to guarantee supply continuity and to make

sure independent suppliers do try to usurp the quasi-rents connected with these large-scale investments.

The suppliers could decrease shipments at a higher selling price in order to appropriate quasi-rents.

Where data permits, this study will trace the pattern of vertical integration across industries.

1.5 Economies of Scale and Efficient Plant Size

I said in section 1.3 certain industries in British Columbia are comparatively concentrated based on the concentration statistics. In this part, I contend economies of large-scale production and distribution in respect to the local and export markets can account for such high levels of concentration.

The term "economies of large-scale production" refers to the tendency for unit costs to drop when a manufacturing plant produces more units. It can be concluded that concentration is required to attain low production costs if the range of least-cost production is large in comparison to the market these producers service.

By raising production costs, policies that reduce the degree of concentration in these industries may actually lead to higher pricing.

In his study of efficient plant size in Canadian manufacturing industries, P.K. Gorecki outlined two methods of estimating efficient plant size, namely the survivor and engineering techniques. According to Gorecki, "efficiency, in the survivor sense, reflects the ability of the enterprise to deal successfully with the total economic environment. In contrast, the engineering techniques uses estimates made by engineers of the most efficient plant size, given factor prices and technology, excluding outbound transport costs".

Gorecki's engineering data suggests that for a number of Canadian industries, the minimum efficient firm size relative to the domestic market is quite high.

These are list in the following table.

Refrigerators and Freezers	0.7
Cigarettes	1.3
Solid Detergent	1.7
Soap	4.8
Integrated Steel	2.6

Sulphuric Acid	2.7
Breweries	2.9
Automobile Storage Batteries	4.6
Anti-friction Bearings	5.9
Petroleum Refining	6.0
Paint and Varnish	6.3
Portland Cement	6.6
Glass Bottles	7.2
Bakeries	40.8

This table makes it clear that many industries cannot support more than eight enterprises due to solely technological factors.

To explain actual business size, other aspects must also be considered. Growth in market size, market stability, and the degree of geographic concentration of production and consumption are significant considerations.

The concentration ratios shown in Chapters Two through Four will be interpreted using Gorecki's result.

1.6 Tariffs and Industrial Organization

The kind and structure of manufacturing supported by the commercial policies that Canada and other nations have adopted over the years is one of the fundamental drivers of low productivity performance.

The direct goal of these actions was to change the conditions under which products and services may be imported and exported. These include the application of import levies (tariffs) and non-tariff trade obstacles including export and import licenses, subsidies for domestic businesses, and various quantitative restrictions.

Without free access to international markets, Canada will not be able to overcome its productivity or innovation challenges in high-tech and knowledge-intensive endeavors, nor will it be able to progress toward large-scale specialized production in the manufacturing industries.

Canada's total national output has been expanding quite rapidly, but the increase is based largely on a pace of labor force growth that is among the fastest in the world, rather than on rising productivity.

Increasing scale and specialization in secondary manufacturing through the removal of trade barriers and the growth of global marketplaces for our products is a particularly promising way to boost Canada's productivity.

A significant increase in productivity may be anticipated if access to wider markets enabled output expansion.

Canada's tariffs can be likened to taxes, which all Canadians pay when they buy either dutiable imported goods or domestically produced goods that are protected to keep their prices above world levels.

The Canadian tariff structure, by reducing imports, tends to raise the value of the Canadian dollar and consequently reduces the profitability of the resource industries in regions like British Columbia.

Freer trade would lower consumer prices, boost market access for resource sectors, and boost productivity throughout Canada's industries. The resource sectors' expanded markets would offer greater opportunities for productivity growth and rationalization.

A subsidy scheme could be used to encourage certain industries, including machinery or metal fabrication. Candidate industries could be selected based on employment, value added, and diversification.

In order to improve the organization and structure of industry promoted by Canada's commercial policies, competition or concentration policies must be developed given the existence of tariffs.

1.7 Competition Policy / Provincial Scope

Currently, the federal government is in charge of managing competition policy. The Combines Investigation Act is implemented by the Bureau of Competition Policy, which is housed within the Department of Consumer and Corporate Affairs. The Combines Investigation Act prohibits producers from engaging in abusive tactics. Mergers, monopolies, and conspiracies are examples of abusive behaviors that limit the supply of goods and the use of better manufacturing methods and technologies.

None of the Canadian provinces have any such laws.

Competition laws must be carefully drafted and administered because Canada is one of the world's most export-dependent countries. Such laws shouldn't be a barrier to the achievement of the advantages that come from a global industry like the forest sector in British Columbia. Legislation at the federal level that would restrict joint ventures, forbid specialization agreements, and hinder the formation of export consortia would not benefit British Columbian workers and producers.

Other governments have also recognized the benefits that coordinated activities on world markets may realize.

1. The U.S. Senate has been considering the "Export Trading Company Bill" whose purpose is to encourage companies to pool their knowledge, marketing efforts, product lines and financial capabilities to facilitate export efforts.
2. The American Plywood Association, aided by government funding, has increased its share of the world market, often at the expense of Canadian products, through an aggressive export promotion campaign.
3. Eastern bloc countries usually enter the world market with centrally coordinated price, volume and specification offerings.
4. The Scandinavian countries finance their export promotions in Europe through their world associations.
5. Japan uses product standards to hold down imports of Canadian plywood.
6. The U.S. International Trade Commission has conducted an inquiry into the competitiveness of the U.S. lumber industry versus the Canadian lumber industry to evaluate evidence of dumping Canadian firms.

The leading edge of competition policy acknowledges that international companies can now compete in large domestic markets that were formerly exclusive to domestic producers. In an international context, corporations or consortiums that were once viewed as oligopolies or monopolists are now viewed as much smaller.

The role of competition policy becomes to strengthen domestic corporations to enable them to compete against foreign companies. Concern about market structure, market shares, production shares, and practice is motivated towards achieving cost efficiency.

Combines legislation should still retain sanctions against price fixing and large-scale horizontal mergers, as well as distribution arrangements that allocate markets or boycott supplies or customers.

The potential for provincial competition legislation and enforcement is still an open question. The general question of constitutionality appears to depend on where or not Combines Legislation rests on the criminal law power.

If Combines legislation rests on the criminal law power, certain consequences follow. Conversely, if it does not, other consequences follow. These consequences are not consistent, generally. No opinion can presently be given as to whether combines legislation rests on the criminal law power. If, as seems likely, it rests on other powers as well, then the provincial scope of action is much smaller.

According to legal opinion received from the Ministry of the Attorney General, if the federal legislation rests on the criminal power, it is bounded by the *MacDonald versus Vapour Canada Ltd.*, and the *Margarine Case*. Substantive prohibitions, therefore, must be directed to a

public wrong, must punish it penally (which does not exclude other sanctions), and must abide by the principles of criminal due process in their imposition. In an offense involving conspiracy, damages can be given at common-law without any federal statutory authority in an action in Provincial Superior Courts of competent jurisdiction, but not in the Federal Court of Canada.

According to the A.G.'s analysis, there are historic reasons for belief that even divestiture could be applied as a post-conviction remedy so might forfeiture of the corporate charter or other corporate property used in the offense. The most likely zone of valid provincial legislation involving competition policy is industry-by-industry economic regulation within B.C. Schemes directed solely to the intra-provincial market are sustainable on the authority of the marketing board cases.

From the federal point of view, the most likely expansion of trade and commerce, falling under the head of peace, order and good government, is in respect of general legislation such as the proposed Federal Competition Legislation. If either head of power is recognize as supporting combines legislation, it is probable that the only tenable provincial presence will be created by omissions in the federal legislation. That is, the question will be federal paramountcy – not vires.

A constitutional mechanism used in Canada to settle disputes between federal and provincial laws is the doctrine of paramountcy. According to this theory, a provincial law that clashes with a federal statute will be rendered ineffective to the degree of the contradiction. This indicates that federal law supersedes provincial law. The part of the provincial legislation that clashes with federal law will no longer be applicable, even though the provincial statute itself will still be in effect. If the federal legislation is changed in the future to address the issue, this inapplicable part may become effective once more.

The constitutional division of legislative powers and the use of judicial review are at the heart of the vires dispute between provincial and federal authority. The separation of powers between the federal and provincial governments is outlined in the Canadian Constitution Act, 1867, with particular domains set aside for each level of government. To ascertain whether a piece of law is solely under the authority of the federal or provincial government, the doctrine of pith and substance is applied. A statute may nevertheless have incidental consequences outside of its principal jurisdiction if it is deemed legitimate under this concept, although the doctrine itself plays a crucial role in determining vires.

It should be noted that any perspective of enforceable provincial competition regulation will require a thorough analysis of the court's reasoning in the *K.V. Hoffman – La Roche Ltd.* Case.

Further analysis and reasoning on the constitutional legality of provincial competition legislation and enforcement appears in Chapter Five.

Chapter Two: Industry Sectors / Concentration

2.1 Industry Descriptions

I describe the industries that are the subject of this chapter in this part. Other British Columbia government publications, such as the Ministry of Industry and Small Business Development's Annual Economic Review and Outlook, offer more thorough explanations. The purpose of the descriptions that follow is to give the reader a sense of the operations of the industries that are being discussed.

Recall from Chapter One that the S.I.C. system is the Standard Industrial Classification system devised by Statistics Canada. In this system, an industry is a group of operating units – companies or establishments, that engage in the same or similar economic activity. Depending on the level of information, industries are classified into two-, three-, or four-digit categories. I will go over the following industries in great depth at the two-digit level.

Note: The S.I.C. system was revised in 1987, and was replaced by the North American Industry Classification System (NAICS) in 1997.

<u>S.I.C. Category</u>	<u>Industry</u>
03	Logging
05-09	Mineral Industries
10	Food and Beverage
16	Rubber and Plastics
24	Clothing Industries
25	Wood Industries
26	Furniture and Fixture
27	Paper and Allied
28	Printing, Publishing and Allied
29	Primary Metals
30	Metal Fabricating
31	Machinery
32	Transportation Equipment
33	Electrical Products
35	Non-Metallic Mineral Products
36	Petroleum and Coal Products
37	Chemical and Chemical Products
39	Miscellaneous Manufacturing

The aforementioned industries are primarily those involved in the mining, processing, and harvesting of British Columbia's resource base, all the way down to the manufacturing sectors.

Except in those instances where crown corporations play a significant role, I will not consider in as great detail, because of data availability, the following industries.

<u>S.I.C. Category</u>	<u>Industry</u>
40	Construction Industry
50	Transportation, Communication, and other Utilities
60	Wholesale Trade
	Retail Trade
70	Finance, Insurance and Real Estate
80	Community, Business and Personal Service Industries
90	Public Administration and Defence

The first industry that I consider is that of logging. Paper and related industries, as well as the wood industries, are downstream from logging.

The following descriptions are based on Appendix A.

03 Logging

Statistics Canada classifies the logging industry as establishments primarily engaged in felling and bucking, bunching, yarding, forwarding, decking and loading of round wood.

Establishments primarily engaged in transporting wood with specialized logging trucks and in driving, booming, sorting, rafting and towing of wood, if not licensed as public carriers, are included also.

In 1979, the logging industry shipped commodities valued at 3,175,170 thousand dollars. Of this, 2,259,963 thousand dollars came from coastal forests, with the remaining 634,388 thousand dollars from interior forests.

Over 1500 establishments are engaged in logging activities. Interior logging operations are generally smaller with 960 operations, while coastal operations totalled approximately 600. In terms of value of shipments, B.C. accounts for over 60% of all logging activity in Canada. The 24,474 people employed in the logging industries accounted for 1,167,215 thousand dollars of value added which amounts to approximately 48,000 dollars per worker.

Note: Value added is the difference between a product or service's market value and the price of the raw materials, energy, and intermediary items utilized in its production. It gauges a company's, industry's, or economy's productivity, efficiency, and economic impact. In essence, it encapsulates the improvement a business or manufacturing process makes to a good or service before it is delivered to a customer.

05-09 Mineral Industries

The mineral industries include metal mines: placer gold, mines, gold quartz mines, uranium mines, iron mines, and miscellaneous metal mines; mineral fuels: coal mines, crude petroleum and natural gas; non-metal mines: asbestos mines, peat extraction, gypsum mines, and miscellaneous metal mines; quarries and sand pits: stone quarries, and sand pits; and services incidental to mining.

The production figures for 1979 are: (in thousands)

Metal mining	1,367,866
Fuel industries	1,081,561
Structural materials	185,193

In 1979, the total salary plus wage bill for the mineral industries was 283,444 thousand dollars. Mining employed 8,557 male and 301 female employees as production and related workers. Other activities employed 145 male and 43 female workers. Non-production activities were accounted for by 2,500 male and 691 female employees.

Manufacturing Industry Descriptions

10 Food and Beverage Industries

This group of industries accounted for approximately 1.7% of GDP IN 1979. Its share of GDP has declined steadily from 3.0% in 1961. If fish products are included then the above numbers are 2.4% and 3.8%, respectively. Fish Products and Meat and Poultry Products are the largest subindustries. Fish Products establishments are primarily engaged in canning, filleting, freezing, curing or, otherwise processing fish, molluscs, or crustaceans. Businesses that specialize in buying and selling fresh fish, among other things, are categorized as either wholesale or retail under the Trade Industry. Establishments in the meat and poultry subindustries engage in a variety of operations, including the slaughtering, packing, and processing of beef, chicken, duck, and turkey.

Dairy products are the next biggest subindustry. Pasteurized, packaged fluid milk and cream, cheese, condensed milk, butter, ice cream, and sherbet are among the goods made from milk and cream.

Feed institutions that provide balanced feeds and premixes, or feed concentrates for poultry, hogs, cattle, fur-bearing animals, dogs, and cats, are other significant industries. Bakeries produce bread, cakes, crackers, biscuits, and other items. Beverage facilities produce wines, non-alcoholic carbonated drinks, and alcoholic beverages.

The Food and Beverage industry employed 4,493 females and 8,646 males in 1980.

16 Rubber and Plastics Products

This category has a wide range of products. Rubber automobile parts, belting, mats and matting, rubber packing, rubber cement, coating, hose, and thread are examples of rubber products. Plastic products include foamed plastics, laminated plastics, plastic sheets, fabricators, pipe and tubing, and fittings,

Over the previous 20 years, the Rubbers and Plastics category has consistently contributed 0.1% of GDP.

17 Leather Industries

Businesses in this category include leather tanneries, shoe makers, leather glove manufacturers, luggage manufacturers, and handbag manufacturers, however they are not very significant in terms of GDP. There were just 123 men and 138 women working here.

18 Textile Industries

In this category, 66 companies produced goods valued at 41.6 million dollars. Cordage and twine, canvas products, and various textile products were significant items. Wool and fabric mills, felt and fiber processing mills, and embroidery pleating and hemstitching facilities were of lesser significance.

In 1980, the textile industry employed 261 men and 492 women.

25 Wood Industries

42,138 men and 1,712 women worked in production and related fields for this significant collection of companies. The wood industry as a whole grew their GDP share from 5.7% in 1961 to 6.5% in 1969.

Sawmills, planing and shingle mills, which employ 33,134 men and 871 women; veneer and plywood mills, which employ 6,557 men and 673 women; and sash, door, and other millwork plants, which employ 2,612 men and 173 women, are the significant groupings.

In the E.A.R.B. research titled "Corporate Concentration in British Columbia's Forest Industry," this industrial group was examined in more detail from the perspective of industrial concentration.

26 Furniture and Fixtures Industries

There were 207 businesses producing different types of office, home, and other furniture. Manufacturers of kitchen, lighting, office, restaurant, and retail fixtures are among them. The industry employed 1,319 men and 270 women to create goods valued at 82.7 million dollars.

27 Paper and Allied Industries

Twenty-four pulp and paper factories employed 12,743 men and 469 women to create commodities valued at 2.32 billion dollars. The GDP share of the paper and related industries decreased from 4.7% to 3.8%. Pulp mills that produce chemical or mechanical wood pulp, combined pulp and paper mills, and paper mills that produce newspaper, book and writing papers, Kraft paper, paperboard, or building and insulation board account for the majority of this industry's revenue.

The 23 companies that produce shipping boxes or cases composed of corrugated or solid fiberboard, folding or set-up paper or paperboard boxes, paper bags, fire cans, etc. are also significant.

28 Printing, Publishing and Allied

These businesses, which numbered 414 in 1979, were mainly involved in the publication and printing of newspapers, magazines, books, almanacs, maps, guides, and the like, as well as the creation of commercial newspapers and/or job printing using flexographic, planographic, or lithographic methods.

3,820 men and 1,119 women worked in the sector to manufacture 309,769 million dollars' worth of goods. In 1979, value added was 199,844 million dollars, more than 64% of the value of shipments of domestically produced items.

29 Primary Metal Industries

Iron and steel mills, steel pipe and tube mills, iron foundries, smelting and refining, aluminum rolling, casting and extrusion, and metal rolling are the main metal industries. 41 businesses in British Columbia employed 6,247 men and 193 women to create goods worth 702,965 million dollars. The value added was \$375,298 million, or 53% of the exports' total value. Over the past 20 years, the primary metals share of GDP has been relatively stable at 1.5%.

30 Metal Fabricating

In 1979, there were more than 500 businesses engaged in the metal fabrication sector. In terms of GDP, metal fabrication reached its highest point in 1966 at 1.5%. Since then, it has decreased to about 1% of its 1961 level. 844 female and 7,655 male production and allied personnel produced shipments worth 688,241 million dollars in 1979.

The most important sub industries are fabricated structural metals, \$108,640 million; metal stamping, pressing and coating, \$149,207 million; wire and wire products, \$121,708 million; and hardware, tool and cutlery manufacture, \$83,467 million. The 153 machine shops in the province produced \$84,702 million.

31 Machinery Industries

The machinery industries include the agricultural implement industry, miscellaneous machinery and equipment manufacturers, commercial refrigeration and air conditioning equipment, and office and store machinery manufactures. The largest group consists of 138 firms in the miscellaneous machinery and equipment manufacturers. Included in this group are firms manufacturing machinery and equipment designed particularly for use in construction and mining operations, earth and rock boring and drilling equipment including rock bits, firms manufacturing pulp and paper machinery, printing machinery, and food processing machinery, and other general-purpose equipment.

This diverse group produced \$374,486 million worth of goods using 120 female and 3,985 male employees. The machinery industries have increased from 0.3% to 0.6% of GDP over the last twenty years.

32 Transportation Equipment Industries

The transportation equipment industries in B.C. have not increased their share of GDP past the 1.0% mark. Output in 1979 was 752,292 million dollars. The bulk of this output occurred with motor vehicle manufacturers, 325,458 million dollars produced by four firms; truck and body and trailer manufactures, 158,279 million dollars produced by 54 firms; and commercial trailer manufacturers, 110,591 million dollars produced by six firms.

The industry employs 304 female and 7,770 male employees accounting for 349,116 million dollars in value added. Value added was 46% of the value of shipments.

33 Electrical Products Industries

The electrical goods industry has only been able to keep its output at 0.2% of GDP in recent years, despite the vast amount of development and the fast population growth in British Columbia. The value of shipments of \$164,352 million produced by 532 female and 1,238 male employees in 87 establishments represented 1.12% of the Manufacturing Industries output.

In this group are manufacturers of major appliances, small electrical appliances, lighting fixtures, communication equipment, electrical industrial equipment and batteries. The most concentrated sub industry consists of three firms manufacturing electric wire and cable.

Phillips Cables Ltd., Canada Wire and Cable, and Pirelli Cables employed 29 females and 235 males to ship \$48,784 million of goods of own manufacture.

35 Non-Metallic Mineral Products

Cement, ready-mix concrete, glass and glass products, and various non-metallic mineral products are important subindustries. The industry produced goods of its own manufacturing

worth 340,298 million dollars, employing 2,765 men and 281 women. This amounts to 2.33% of the production of the manufacturing sector. Surprisingly, non-metallic mineral products' share of GDP has barely expanded from 0.4% to 0.5% over the past 30 years, despite its tight ties to the building sector.

36 Petroleum and Coal Products

The major refineries produced 1,069.37 million dollars of products while employing 4 female and 776 male employees. Value added was 145.815 million dollars, which is just 13.6% of the value of shipments.

37 Chemical and Chemical Products

The most significant products of these industries are synthetic resins, plastics, paint & varnish, and industrial chemicals. Acids, alkalis, salts, compressed gases, and other inorganic substances are examples of industrial chemicals. Businesses that make synthetic resins create liquids, flakes, granules, or powders.

Plastics-related businesses produce items including plastic sheet and film, extrusions, and molding.

The producers of pharmaceuticals and medicines, which accounted for 9.353 million dollars in products including patent and proprietary medications, veterinary medications, vitamin products, cod liver oil, and biological products like antitoxins, bacteria, serums, and vaccinations, are of lesser significance.

The chemical and chemical products industry accounted for 363,582 million dollars of manufacturing output employing 136 female and 1,297 male workers

39 Miscellaneous Manufacturing Industries

More than 340 companies produced goods in this residual category in 1979. The Scientific and Professional Equipment Industry was the most significant in terms of money. 322 women and 821 men were employed by the 151 companies to generate goods worth \$34,671 million. At 19,996 million dollars, or more than 58% of the shipments' value, value added was especially significant. Barometers, thermometers, drafting instruments, lenses, surveyors, navigational instruments, surgical, dental, and medical instruments, among other devices, were produced by these enterprises.

Other important industries are dental laboratories, signs and displays, jewellery and silverware, sporting goods and toy industries.

Total output of all firms classified under miscellaneous manufacturing was \$88,557 million with 588 female and 1,738 male workers.

Some of the content from the Introduction and Summary sections above is repeated in the following.

2.2 Industry Concentration Ratios (Source: B.C. Central Statistics Bureau: From Statistics Canada)

Economists describe competition as the number of businesses that manufacture and market a particular good in a specific region. In this part, we outline several aspects of the British Columbian economy using the standard measure of Industrial Organization theory. The percentage of total industry sales (or capacity, employment, value added, or physical output) listed according to market shares of that variable is known as the market concentration ratio.

First, I shall display the 4-firm, 8-firm, and 12-firm concentration ratios at the 2-digit SIC level and then at the 3-digit level. Section 4.2 displays concentration ratios at the 4-digit SIC level.

Concentration may result in reduced output, higher volumes of imports, lower volumes of exports (except possibly for raw materials), less control of the industry exercised by government, higher profits, higher prices, reduced taxes, and reduced levels of technological innovation.

There are several other ways to gauge concentration. The Herfindahl-Hirschman Index is the most often utilized metric. The total of the squares of each company's market share makes up this index. It lowers as the number of firms increases and increases as the number of firms declines. The Herfindahl Index and the traditional concentration ratios typically show a strong degree of connection.

To ascertain whether an industry is overly concentrated, more information must be analyzed. Important factors include the percentage of the product that is exported, the degree of vertical integration, economies of scale, and the existence of entry obstacles.

The Lerner measure of monopoly ($P-MC$) is a concentration metric that "looks" directly at profits. This metric, which is a "performance" gauge, necessitates looking at annual reports and other company-specific data. Traditional concentration studies would often come before this approach because it takes a lot of time. If a merger between businesses were to be examined under "competition legislation," this would be the situation.

Concentration data on an industry-by-industry basis provide an indication of the competitive conditions in the many separate markets within Canada's or B.C.'s economy. An industry has a reasonably competitive market if not single firm or small group of firms can exert a dominant influence on the market price of its product.

Unfortunately, the lack of comparable data for prior years makes it hard to analyze trends in concentration ratios.

The primary goal of the Statistics Canada SIC categories' industry boundaries was not to

examine industry competition. This is a significant disadvantage of using concentration ratios to demonstrate a lack of market competition.

Concentration Ratios by Industry (2-digit SIC level)

In the following analysis, an industry shall be classified as competitive, if the 4-firm concentration ratio is less than 40%, reasonably competitive if the 4-firm ratio is between 40% and 55%, relatively concentrated for 55% to 65%, and concentrated for industries above 65%.

Since their industrial classifications are rather broad, most firm are either competitive or reasonably competitive. Exceptions in the relative concentrated category are Paper and Allied, Non-Metallic Mineral; exceptions in the concentrated category are Primary Metal and Petroleum and Coal Products. Reasonably competitive firms are Forestry, Clothing, Transportation Equipment, Electrical Products, and Chemical and Chemical Products.

Table 2.2.1 Concentration Ratios by Industry (2-digit level)

Industry SIC Description	4-Firm Ratio	8-Firm Ratio	12-Firm Ratio	Number of Firms
03 Forestry	48.9	62.4	72.1	1603
10 Food and Beverage	23.6	37.1	46.5	585
16 Rubber and Plastics	22.6	40.1	52.9	97
24 Clothing Industries	47.2	67.9	80.2	57
25 Wood Industries	29.2	45.1	55.4	725
26 Furniture and Fixtures	32.0	51.4	63.5	209
27 Paper and Allied	55.5	77.5	90.8	88
28 Printing, Publishing and Allied	45.2	58.7	66.5	424
29 Primary Metal	86.0	93.2	96.7	44
30 Metal Fabricating	23.7	35.9	44.9	542
31 Machinery	27.2	43.8	56.4	182
32 Transportation Equipment	52.5	68.8	75.9	237
33 Electrical Products	53.4	70.7	82.3	136
35 Non-Metallic Mineral	60.6	73.4	78.6	195
36 Petroleum and Coal	87.6	100	100	13
37 Chemical and Products	46.8	65.9	78.0	130
39 Misc. Manufacturing	28.9	38.5	46.0	367

Concentration Ratios by Industry (3-digit SIC level)

At the 3-digit level Food and Beverage sectors are relatively concentrated or concentrated. At the 2-digit level, this industry appears very competitive with a 4-firm ratio of 23.6.

Other sectors concentrated at the 3-digit level are Veneer and Plywood Mills, Paper, Box and Bag Manufacturers, Publishing and Printing, Smelting and Refining, Fabricated Structural Metals, Wire and Wire Products, Petroleum Refineries, and Manufacturers of Chemicals.

Table 2.2.2 Concentration Ratios by Industry (3-digit level)

Industry SIC Description	4-Firm Ratio	8-Firm Ratio	12-Firm Ratio	Number of Firms
031 Logging	48.9	62.5	72.2	1559
<u>Manufacturing Industries</u>				
<u>Food and Beverage Industries</u>				
101 Meat and Poultry	56.7	79.7	82.5	57
102 Fish Products	65.5	79.8	87.9	61
103 Fruit and Vegetable	63.4	80.4	90.9	38
104 Dairy Products	60.5	88.8	96.5	44
106 Feed	72.3	91.3	98.3	27
107 Bakery Products	51.5	66.1	72.4	243
108 Misc. Food	61.8	85.9	91.7	72
109 Beverage	58.5	81.4	91.7	41
<u>Rubber and Plastics Products</u>				
165 Plastics Fabricating	25.9	45.9	60.5	81
<u>Wood Industries</u>				
251 Sawmills, Planing Mills and Shingle Mills	27.7	42.9	55.4	448
252 Veneer and Plywood Mills	61.5	86.4	95.6	28
254 Sash, Door, and Other Millwork Plants	27.4	40.4	50.3	193
259 Misc. Wood Industries	54.6	82.3	96.9	36

Paper and Allied Industries

271 Pulp and Paper Mills	57.1	80.8	93.6	36
273 Paper, Box and Bag	89.2	97.9	100	23

Printing, Publishing and Allied Industries

286 Commercial Printing	51.9	62.6	69.7	223
289 Publishing and Printing	69.1	89.8	95.5	85

Primary Metal Industries

291 Iron and Steel Mills	100			5
295 Smelting and Refining	99.8			7
296 Aluminum Rolling, Casting and Extruding	100			3

Metal Fabricating Industries

302 Fabricated Structural Metal	74.4	90.5	96.2	35
303 Ornamental & Architectural	44.0	59.7	70.6	89
304 Metal Stamping, Pressing and Coating	54.2	67.7	76.5	105
305 Wire and Wire Products	75.6	95.6	99.7	33
306 Hardware, Tool & Cutlery	83.6	96.2	98.9	37
308 Machine Shops	41.3	53.3	61.4	153
309 Misc. Metal Fabricating				72

Machinery Industries

315 Misc. Machinery & Transport Equipment	28.2	45.4	58.4	158
323 Motor Vehicle Manufacturers	100			10
324 Truck Body and Trailer Manuf.	52.4	77.7	88.8	57
327 Shipbuilding and Repair	75.4	92.8	98.4	24
328 Boatbuilding and Repair				99

Electrical Products Industries

335 Communication Equipment	84	95	98	43
336 Electrical and Industrial				37
338 Electric, Wire and Cable	100			6

<u>Non-Metallic Mineral Products</u>				
352 Cement Manufacturers	100			4
354 Concrete Products				56
355 Ready-Mix Concrete	50	64.5	74.5	78
356 Glass and Glass Products				11
359 Miscellaneous				19
<u>Petroleum and Coal Products</u>				
365 Petroleum Refineries	88.6	100		9
<u>Chemical and Chemical Products</u>				
375 Paint and Varnish	70.5	95.7	100	19
378 Industrial Chemical Manuf.	77.5	97.1	100	24
379 Miscellaneous				41

2.3 Twelve Largest Firms by Industry

The twelve biggest companies for each 3-digit or 2-digit SIC classification—whichever category applies—are listed in this section. These companies cannot be ranked according to production output due to statistics confidentiality regulations. A portion of the information used in this compilation came from Statistics Canada Enterprise Linkages, release 61-517.

I concluded in section 2.2 that the concentrated category included petroleum, coal products, and primary metals. In section 2.4, I go into further depth on the latter category. I observe that there are fewer than twelve companies in each of the major metals group's sub-industries at the three-digit level. The main metal companies produce a total of \$697,397,798. With an output of \$483,858,115, smelting and refining is the largest sector.

Alcan Smelting and Chemicals, Cominco, Afton Mines Ltd., Canada Tungsten Mining Corporation, and Delta Melting and Refining are the only five companies with facilities in the last category. Aluminum Rolling, Casting, and Extrusion is the second-largest category with a production of 49,293,483 USD. The Ardiem Industrial Corporation, Indal Ltd., and Alcan Canada Products are establishments.

The Iron and Steel Mill category produces 45,525,809 dollars, with contributions from Western Canada Steel, The Steel Co. of Canada, Reliance Foundry Co., The Ardiem Industrial Corp., and Highland Foundry. Keep in mind that just a small percentage of Ardiem's operations involve the production of aluminum casting.

Table 2.2.3

Twelve Largest Firms (2 Digit and 3 Digit SIC)03 Forestry

Whonnock Industries	Canadian Forest Products
Weyerhaeuser Canada	MacMillan Bloedel Ind
Northwood Pulp & Timber	Weldwood of Canada
Tahsis Company Ltd	Pacific Logging Co
Rayonier Canada	Eurocan Pulp & Paper
Crown Zellerbach	British Columbia Forest

Output: \$2,950,059,619

10 Food and Beverage

Intercontinental Packers	Cargill Grains
Fletcher's Ltd.	Hallmark Poultry
Canada Packers	Freybe Sausage
Vancouver Fancy Meats	Thomas J. Lipton
Meteor Meat	Maplewood Poultry
Pan Ready Poultry	West Coast Reduction

Output: \$400,187,876

101 Meat and Poultry Products

Pan Ready Poultry Ltd.	Carsill Grains (Canada) Ltd.
Freybe Sausage MFG	Intercontinental Packers Ltd.
Meteor Meat Co. Ltd.	Vancouver Fancy Meats
Hallmarle Poultry Processors	Maplewood Poultry Processors
Canada Packers	Kohlers European Sausage
West Coast Reduction	Fletcher's Limited

Output: \$412,092,000

102 Fish Products Industry

Canadian Fishing Co.	Westcan Fisheries
B.C. Packers	Ocean Fisheries
Central Native Fishermans Co-o	Cassiar Packing

Trans Pacific Fish
 Norpac Fisheries
 Prince Rupert Fishermen's

Seaford Products
 J.S. McMillan Fisheries
 Oakland Fisheries

Output: \$415,211,810

103 Fruit and Vegetable Processing

Empress Foods Ltd
 Sun-rype Products
 berryland Canning
 Westvale Foods
 Fraser Valley Frosted Foids
 Con-West Industries

Canada Packers Ltd
 Royal City Foods
 Canadian Cannerns Ltd
 William Robinson Ltd
 Snocrest Packers
 Abbotsford Growers Co-op

Output: \$156,685,269

104 Dairy Products Industry

Fraser Valley Milk Producers
 Lucerne Foods Ltd.
 Palm Dairies
 Formost Foods Ltd
 Fraser Maid Dairy Products

Silverwood Industries
 Island Farms Dairies
 Little Mtn Dairy Ltd

Output: \$307,022,218

106 Feed

East Chilliwack Fruit Growers
 Buckerfields Ltd
 Top Shelf Feeds Inc
 Ritchie Smith Ltd
 Arctic Grain Ltd
 Surrey Co-op Association

Purity Feeds Ltd
 Consumers Co-op Ltd
 Sure-Crop Feeds Ltd.
 Clearbrook Grain & Milling
 Standard Brands Canada
 Burgess Feeds Ltd.

Output: \$111,365,938

107 Bakery Products

McGavin Foods Ltd.
 Weston Bakeries Ltd
 Parc Foods Ltd
 Venice Bakery Ltd
 Mrs. William S. Baking
 May S Do-nuts (1964) Ltd

Canadian Pizza Crust(Western)
 Rotary Pie Service Ltd
 Empress Foods Ltd
 Prince George Bakery
 The Cookie Jar Ltd
 Terry Lynn Bakeries

Output: \$93,244,669

108 Miscellaneous Food

Nabob Foods
 B.C. Sugar Ref.

RC Purdy Chocolates
 Brooke Bond Foods

Dicksons Food Services
Lowneys Ltd
Nalleys Ltd
Monarch Fine Foods

Goodhost Foods Ltd
Kraft Ltd
Empress Foods Ltd
The Snackery Foods Ltd

Output: \$289,040,307

109 Beverage

Molson Brewery B.C.
Labatt Breweries
Wometro (BC) Ltd
Potter Distilleries
Calona Wines
Carling O'Keefe

B.C. Distilleries
Andres Wines (BC) Ltd.
Gray Beverage Co Ltd
Hiram Walker & Sons
Jordan-Ste Michelle Cellars
Park & Tilford Canada

Output: \$235,704,976

16 Rubber and Plastics Products

165 Plastics Fabricating

ICL Engineering
Pacific Plastics Ltd
Canplas Industries
Bestpipe Ltd
Grandview Industries
Listo Products Ltd

Pacific Auto-Plas Ind
Columbia Plastics Ltd
Highland Mfg Co
Sander Industries Ltd
Canadian Keyes Fibre
Capilano Plastics Ltd

Output: \$76,492,700

24 Clothing Industries

Aero Garment Ltd
Regency Mfg Ltd
Jones Tent & Awnings Ltd
Surrey Classics Mfg Ltd
North American Leather Mfg
Drapshire Clothes Ltd

Koret of California
Marquis of London Mfg
Aljean of Canada Ltd
Marjnie Hamilton Ltd
Lamer of Canada Ltd
Townline Sportswear Ltd

Output: \$80,259,517

25 Wood Industries

251 Sawmills, Planing & Shingle Mills

MacMillan Bloedel Ind
Rayonier Canada (BC) Ltd
B.C. Forest Products
Weyerhaeuser Canada Ltd
Whonnock Industries Ltd
Tahsis Company Ltd

Sooke Forest Products
Northwood, Pulp & Timber
Doman Forest Products
Canadian Cellulose Co
Weldwood of Canada
Crown Zellerbach

Output: \$3,870,618,286

252 Veneer and Plywood Mills

MacMillan Bloedel Industries
 Weldwood of Canada Ltd
 Crown Zellerbach Canada
 U.K. Lumber Co.
 Canadian Forest Products
 Victoria Plywood

B.C. Forest Products
 Cavin Lake Sawmills
 Richmond Plywood
 Evans Products Co
 Kootenay Forest Products
 North Central Plywood

Output: \$590,658,471

254 Sash, Door and Other Millwork Plants

Sander Industries
 Merit Industries
 Guenther Doors Ltd
 Crestwood Kitchens
 Van Isle Moulding
 Citation Industries

Gregory Industries
 National Homes Ltd
 Windsor Mfg Ltd
 Artisan Manufacturing
 Orchardson Forest Products
 B.C. Millwork Products Ltd

Output: \$237,044,149

259 Miscellaneous Wood Industries

Domtar Inc
 MacMillan Bloedel
 Parta Industries
 Allright Ladder Co
 Canada Cedar Pole Preservers
 B.C. Clea Wood Preservers

Spindalea Wood Products
 Prince George Wood
 Bell Pole Co Ltd
 BW Creative Wood Industries
 Allmac Lumber Ltd
 Koopers International Canada

Output: \$55,913,892

26 Furniture and Fixture

Universal Furniture Ind
 Van Dyke Holdings Ltd
 Segal Furniture Co
 Stork Craft Ltd
 Scali & Durante Furn
 Landmark Cabinets Ltd

Bel-Par Industries
 Simmons Ltd
 Girard Wood Prod
 Western Sleep Prod
 Sealy (Western) Ltd
 Palethorpe & Dowling Ltd

Output: \$69,613,270

27 Paper and Allied Industries271 Pulp and Paper Mills

MacMillan Bloedel Industries
 MacMillan Bloedel Ltd
 B.C. Forest Products
 Tahsis Company Ltd

Intercontinental Paper
 Crown Zellerbach Canada
 Northwood Pulp & Timber
 Prince George Pulp & Paper

Rayonier Canada (BC) Ltd
Eurocan Pulp & Paper Co Ltd

Weyerhaeuser Canada
Canadian Cellulose Co

Output: \$2,324,218,700

273 Paper Box and Bag Manufacturers

Belkin Packaging
Crown Zellerbach Can
Crown Zellerbach Flexpole
Western Cancord Manufact
Capital Enterprises Ltd
Martin Paper Bage Ltd

Bulldog Bag Ltd
Consolidated-Bathurst
Somerville Belkin Ind
Great West Paper Box
Capital Bag Co Ltd
MacMillan Bloedel Co Logging

Output: \$168,516,178

28 Printing, Publishing, and Allied Industries

286 Commercial Printing

Lawson Graphics
Evergreen Press
Royal Printers & Stationers
Moore Corporation
Southern Farwest Printing
Keycrop Industries ltd

Broadway Printers Ltd
Hazeldine Press Ltd
College Printers Ltd
Bank Cheque Supply Ltd
Benwell-Ackins Ltd
Volleyweb Graphics Ltd

Output: \$109,218,502

289 Publishing and Printing

Pacific Press Ltd
FP Publications Ltd
Mitchell Press Ltd
BASP Buy & Sell Press
The Chilliwack Progress
Hacker Press Ltd

FP Publications
Southam Inc
Thomson (BC) Newspapers
Horizons Publications
The Columbian Co
Sterling Publications

Output: \$116,648,536

29 Primary Metal Industries

291 Iron and Steel Mills

Western Canada Steel
ESCO Ltd.
Reliance Foundary Co

The Ardiem Industrial Corp
Highland Foundary

Output:

292 Steel Pipe and Tube Mills

Interprovincial Steel & Pipe
Alloy Piping Ltd
National Shield Welding

Output:294 Iron Foundries

Associated Foundry Ltd
McLean & Powell Iron Works
Terminal City Iron Works
Victoria Foundries
Alberni Foundry

Century Pacific Found
NYE S Foundry
Thompson Foundry
Peach City Foundry
Bow Valley Resource

Output:295 Smelting and Refining

Afton Mines Ltd
Canada Tungsten Mining Corp
Delta Smelting & Refining

Cominco Ltd
Alcan Smelting and Chemicals

Output: \$483,858,115296 Aluminum Rolling, Casting and Extruding

Alcan Canada Products
Indal Ltd
The Ardiem Industrial Corp

Output:297 Copper and Copper Alloy Rolling, Casting and Extruding

Noranda Metal Industries
Seymour Industries
Vancouver Island Brass
Pacific Bronze Co Ltd

Output:298 Metal Rolling, Casting and Extruding

Kennametal
The Canada Metal Co
Carbction EDM Corp
Mako Foundry
Advance Foundry
Arkwel Industries

General Metals
Simalex Manufacturing
Metal Distributors
Madal Industries
Metalex Products

Output:

30 Metal Fabricating Industries302 Fabricated Structural Metal Industry

Brittan Steel Ltd	Canron Inc
Alliance Engineering Works	Coast Steel Fabricators
Pearson Iron Works Ltd	Surrey Ironworks Ltd
Tidy Steel Fabricating	Zenith Steel Fabricators
Solid Rock Steel Fabricating	RB Steel Fabricators
Northwest Joist Ltd	Great West Steel Industries

Output: \$100,651,830

303 Ornamental and Architectural Metal

National Aluminum Products	Alcan Canada Products
National Windows Ltd	Wescraft Manufacturers
Synkoloid Metal Products	Canax Industries
Alpine Steel Ltd	Indal Ltd
XL Ironworks 1973 Ltd	Ever-brite Aluminum Prod
Sheppard's Aluminum Ltd	Debonair Industries

Output: \$72,418,730

304 Metal Stamping, Pressing and Coating

Westeel-Rosco Ltd	American Can of Canada
Rheem Canada Ltd	Spir-1-Ok Industries
Tri-Metal Fabricators	Armco Canada
The Continental Group	Ecco Heating Prod
Coldfarm Industries	Lincoln Steel Products
D Tidy Welders Ltd	Westland Metals

Output: \$132,982,808

305 Wire and Wire Product Manufacturers

Tree Island Steel	Titan Steel & Wire Co
Morrison Steel & Wire	Wire Rope Industries
Wrights Canadian Ropes	Adanac Wire Rope & Supply
Fraser Fasteners Ltd	Stoody Uniweld Ltd
Western Canada Steel	Scan Industries Ltd
No-Sag Spring Co Ltd	Davis Wire Industries

Output: \$108,429,389

306 Hardware, Tool and Cutlery Manufacturers

Windsor Machine Co Ltd	Weiser Lock Co Ltd
Stollco Industries Ltd	Igersoll-Rand Canada
Paul Mame Welding	Spear & Jackson (Canada) Ltd
Valley Tool (1977) Ltd	AW Screw Machine Product

Wallace Murray Canada Ltd
Disston Canada Ltd

Kennametal Ltd
Cascade Saw & Tool Ltd

Output: \$76,286,716

308 Machine Shops

Ebco Industries Ltd
EIF Industries
Earl S Machine Shops
Argyle Machine Works
Derrick Machinery
Nielsen Machine Works

Vulcan Automotive Equip
Johnson Fabricators
Columbia Chrome Grinders
Curtis Hoover (BC) Ltd
Tristar Industries Ltd
Wallace Machine & Manuf

Output: \$67,455,175

31 Machinery Industries

315 Miscellaneous Machinery and Equipment

Hawker Siddeley Canada
Ellett Copper & Brass Co
Paccar Du Canada Ltee
Newness Machine & Ironworks
Kockums Industries Ltd
Moore Dry Kiln Co of Can

S Madill Ltd
Esco Ltd
Bingham Willamette Ltd
CAE Machinery Ltd
Linden Alimak Inc
Demand Machine Co

Output: \$341,618,213

32 Transportation Equipment Industries

323 Motor Vehicle Manufacturers

Freight Liner of Canada
Pacific Truck & Trailer

White Motor Car Corporation
Paccar Du Canada Ltee

Output: \$325,457,991

324 Truck Body and Trailer Manufacturers

Jim Pattison Industries
Reliance Truck and Equipment
Manco Home Systems Ltd
Glen River Industries
Peerless Page Industries
Moduline Industries

Frontier Manufacturing Ltd.
L. Knight & Co Ltd
General Home Systems
Okanagan Manufacturers
Collins Manufacturing
Columbia Trailer Co

Output: \$152,128,992

327 Shipbuilding and Repair

Burrard Yarrows Corporation
Wagner Engineering & Shipyard

Vancouver Shipyards Co
West Coast Salvage &
Contracting

Alberni Engineering & Shipyard
 RSL Shipyards Ltd
 Allied Shipbuilders
 Benson Brothers Shipbuilding

Bel-Aire Shipyard Ltd
 BC Packers Ltd
 Canadian Fishing Co Ltd
 McKenzie Barge & Marine

Output: \$187,403,037

33 Electrical Products Industries

335 Communications Equipment Manufacturers

Anatek Electronics
 Glenayre Electronics
 Spilsbury & Tindall
 Mesotech Systems
 CRC Industries
 Universal Technology

AEL Microtel Ltd
 Century III Electronics Inc
 Dynequip Engineering
 Sinclair Radio Laboratories
 Daniels Electronics
 Challenger Equipment

Output: \$48,103,149

338 Manufacturers of Electric Wire and Cable

Phillips Cables Ltd
 Pirelli Cables

Canada Wire & Cable

Output:

35 Non-Metallic Minerals Products Industries

352 Cement Manufacturers

Genstar Ltd
 Canada Cement Lafarge

B.C. Cement Company

Output: \$88,117,117

355 Ready-Mix Concrete

Lafarge Concrete
 Rempel Bros Concrete
 McGauley Ready-Mix
 Kask Bros Ready-Mix
 Econo Mix Ltd
 Revelstoke Home Improv

Ocean Construction
 Butler Bros Supplies
 Valley Rite-Mix Ltd
 Pacific Rim Ready-Mix
 O.K. Builders

Output: \$95,276,387

356 Glass and Glass Products

Consumers Glass Co
 Garibaldi Glass & Alum
 Turk-Can International

Domglas Inc
 Sams Art Glass
 Garibaldi Temper Glass

Aqua Glass Ltd
Orillia Glass

Canada Stained Glass
The Glass Center

Output:

359 Miscellaneous Non-Metallic Mineral Products

Output:

36 Petroleum and Coal Products Industries

365 Petroleum Refineries

Chevron Canada Ltd
Gulf Canada Ltd
Husky Oil Operations
Axis Oil Corporation

Imperial Oil Ltd
Pacific Petroleum Ltd
Shell Canada Ltd

Output: \$1,056,107,482

37 Chemical and Chemical Products Industries

373 Manufacturers of Plastics and Synthetic Resins

Hercules (Canada) Ltd
Reichhold Ltd
Bate Chemical Co Ltd
Crystal Sheen Manufacturing

The Borden Co Ltd
Premo Plastics Eng Ltd
Canadian Roadcoat Ltd

Output:

375 Paint and Varnish Manufacturers

Tonecraft Ltd
Walker Bros Ltd
Benjamin Moore & Co Ltd
Cloverdale Paint & Chemicals
Flecto Coatings Ltd

The Synkoloid Co of Can
International Paints
Shannon Paint Formulators
Reliance Universal (BC) Ltd
Reed Decorative Prod Ltd

Output: \$62,559,922

378 Manufacturers of Industrial Chemicals

Cominco Ltd
FMC of Canada Ltd
Canadian Liquid Air Ltd
Liquid Carbonic Canada
Imperial Oil Ltd
Union Texas of Canada

Canadian Occidental Petroleum
Hooker Chemicals (Nanaimo)
Ltd
BC Chemicals Ltd
Inland Chemicals Ltd
Dow Chemical of Canada
Erco Industries Ltd

Output: \$202,350,760

39 Miscellaneous Manufacturing (Scientific, Professional,
Jewellery, Silverware, Sporting Goods, Toy Industries)

Imperial Optical Company Ltd
Shaw Laboratories (BC) Ltd
Sign-o-Lite Plastics Ltd
Jacoby Bros Ltd
Trayling & Waters Ltd
Westcan Industries Ltd

Neon Products Ltd
Frye Copysystems Ltd
Wallace Sign-Craftus
Luhr Jensen & Sons Ltd
Ando Laboratories Ltd
Superior Stamp & Serial

Output: \$59,550,497

2.4 Mineral and Metal Mines

The Mining Industry of British Columbia employs about 20 thousand employees directly. The largest proportion of these - almost ten thousand - are employed in the Kootenay region, followed by the Cariboo-Fort George and Lillooet-Thompson regions. Net sales revenues of the mining industry exceeded \$2 billion in 1980.

The top five revenue earners (1980) by type of mineral are:

Copper	516,328,000	25%
Coal	404,787,000	20%
Molybdenum	297,959,000	15%
Silver	259,444,000	13%
Zinc	189,923,000	9%

Including income taxes, sales taxes, employee income tax deductions and all other forms of payments to governments, the industry and its employees contributed \$414,762,000 to the various levels of government.

Production data by company and by metal appear in Table 2.4.1 for copper, molybdenum, zinc, gold, silver and lead. Notice that while copper and silver are the least concentrated the four largest companies account for 62% and 75% of production; respectively.

Table 2.4.4 displays coal production by company and by region. B.C. Coal, Fording Coal, and Coleman Collieries account for most of the metallurgical coal production. Byron Creek Collieries accounts for most of the thermal coal production.

Table 2.4.2 displays the inter corporate ownership inter linkages while Table 2.4.3 displays Noranda Mines ownership table for August, 1981.

Table 2.4.1

<u>Largest Metal Mines and Mills (1980)</u>			<u>Total 1980</u>
<u>Metal</u>	<u>Company</u>	<u>Production</u>	<u>Revenue</u>
Copper		(kg)	
	Lornex/Highland Valley	63,431,872	
	Utah Mines/Island Copper	50,033,433	
	Gibraltar/Mclease Lake	32,672,960	
	Newmont/Kimilkameen	26,258,573	
	Afton/Kamloops	24,221,282	
	Bethlehem/Highland	22,715,445	
	Noranda/Babine Lk-Bell	17,532,042	
	Noranda/Babine Lk-Granisle	13,258,799	
	Craigmont/Merritt	10,794,185	
	Brenda/Brenda Lake	9,152,418	
	Falconbridge/Tasu	2,225,590	
	Western/Buttle Lake	1,880,636	
			516,328,000
Molybdenum		(kg)	
	Placer/Endako	4,651,559	
	Lornex/Highland Valley	2,168,136	
	Brenda/Peachland	1,855,166	
	Utah/Island Copper	1,113,074	
	Noranda/Boss Mtn	769,806	
	Gibraltar/Mclease Lk	528,461	
	Bethlehem/Highland Valley	93,299	
			297,959,000
Zinc		(kg)	
	Cominco/Kimberley	51,804,218	
	Western/Buttle Lk	17,918,936	
	Northair/Callagan	1,246,617	
	Dickensen/Slocan	726,989	
	Teck/Beaverdell	145,325	
	David Minerals/Utica	141,958	
			59,876,000
Gold		(kg)	
	Utah/Island Copper	1,747,704	
	Afton/Kamloops	1,431,195	
	Newmont/Similkameen	1,168,495	
	Noranda/Babine Lk-Bell	848,347	

	Northair/Callagan Creek	564,131	
	Erickson/McDane Lk	484,662	
	Western/Buttle Lk	444,126	
	Noranda/Babine Lk-Granisle	387,083	
	Mosquito Creek/Wells	136,869	
			140,311,000
Silver		(kg)	
	Cominco/Kimberley	86,394,417	
	Western/Buttle Lk	20,453,988	
	Lornex/Highland	18,372,886	
	Utah/Island Copper	13,456,484	
	Tech/Beaverdell	10,757,821	
	Afton/Kamloops	8,859,577	
	Dickinson/Slocan	7,687,934	
	Bethlehem/Highland	6,503,270	
	Newmont/Similkameen	4,860,882	
	Brenda/Brenda Lake	4,816,579	
	Falconbridge/Tasu	2,225,590	
			166,956,000
			(259,444,000)
Lead		(kg)	
	Cominco/Kimberley	76,095,523	
		1,568,857	
		871,219	
		791,327	
		93,278	
			94,407
			(131,740,000)

Source: Ministry of Energy, Mines and Petroleum Resources Mineral Economics Branch.

Table 2.4.2
BRITISH COLUMBIA MINERAL INDUSTRY OWNERSHIP - NOVEMBER 1981

CITY	LOCATION	PRODUCT	OWNER/AGENT
1. Afton	Kamloops	Copper	Teck Corporation 73%
2. Bell	Babine Lake	Copper	Metallgesellschaft Canada Ltd. 27%
3. Bethlehem	Highland Valley	Copper & Molybdenum	Noranda Mines Ltd. (see attached table)
4. Boss Mtn.	Big Timothy Mtn.	Molybdenum	Cominco Ltd. 97%
5. Brenda	Peachland	Copper, Molybdenum	Noranda Mines Ltd. (see attached table)
6. Ladner Creek	Hope	Gold	Branda Mines Ltd. (Noranda 50.86%, Nippon M.L. 7.51%, Mitsui .28%) 50% Carolin Mines Ltd., 50% Aquarius Group (Ocelot Industries L, Great Basins Petroleum L, Aquarius Resources L, Canadian Obas Oil L).
7. Cassiar	Cassiar	Asbestos	Cassiar Resources Ltd. (Newturn Holdings 23.4%, Newmont Mining Corp. 12.9%, James Hardie Asbestos Ltd. 12%, Raybestos Manhattan Inc. 10%)
8. Klitsault	Alice Arm	Molybdenum	Climax Molybdenum Corp. (Amax Inc. 100%)
9. Cragmont	Merritt	Copper, Iron	Cragmont Mines Ltd. (Placer 44.59%, Noranda 19.71%)
10. Endako	Endako	Molybdenum	Placer Development Ltd. (Noranda Mines Ltd. 33.2%)
11. Sam Goosly	Houston	Copper, Gold, Silver	Equity Silver Mines Ltd. 100% (Placer Development Ltd. 70%)
12. Granduc	Stewart	Copper	Canada Wide Minerals Ltd. 100% sub. of Esso Minerals Canada, 100% sub. of Imperial Oil, 69.6% sub. of Exxon Corp.
13. Fording	Elkford	Coal	Fording Coal Ltd. - Canpac Minerals Ltd. (C.P.I. 60%, Cominco Ltd. 40%)
14. Gibraltar	McLeese Lake	Copper, Molybdenum	Gibraltar Mines Ltd. (Placer Dev. 71.9%)
15. Granisle	Babine Lake	Copper	Noranda Mines Ltd. (see attached table)
16. Highland Bell	Beaverdell	Silver, Lead, Zinc	Teck Corporation (Copperfields Mining 51%, Metallgesellschaft Canada Ltd. 21%)
17. Highmont	Highland Valley	Copper, Molybdenum	Teck Corporation 80% (Copperfields Mining 51%, Metallgesellschaft Can. 21%) Metallgesellschaft 20%
18. Island Copper	Rupert Inlet	Copper, Moly, Rhenium	Utah Int. Inc. (General Electric 100%)
19. Kaiser	Sparwood	Coal	B.C. Coal Ltd. (B.C.R.I.C.) 66%, Mitsubishi (Japanese consortium) 33%
20. Lornex	Highland Valley	Copper, Molybdenum	Lornex Mining Corp. Ltd. (Rio Algom 68.1%, Teck Corporation 21.1%)
21. Lynx & Myra	Buttle Lake	Copper, Lead, Zinc	Westmin Resources Ltd. (see Noranda table)
22. Northair	Alta Lake	Lead, Zinc, Silver, Gold	Northair Mines Ltd.
23. Simonac	Sandon	Silver, Lead, Zinc	Silvana Mines Ltd. (Kam-Kotia 39%, Dickenson Mines Ltd. 4.8%)
24. Simlikameen	Princeton	Silver, Lead, Zinc	Newmont Mines Ltd. (Newmont Mining Corp., U.S., 100%)
25. Sullivan	Kimberley	Silver, Lead, Zinc, Tin	Cominco Ltd (C.P.I. 54%)
26. Tasu	Tasu Sound	Iron, Copper	Westrob Mining Division of Falconbridge Nickel Mines Ltd.
27. Horn Silver	Keremeos	Silver, Gold, Lead, Zinc	Dankoe Mines Ltd. (Rita Black 31.5%)
28. Western Gypsum	Windermere	Gypsum	Westroc Industries Ltd.
29. Corbin Mine	Fernie	Coal	Byron Creek Collieries Ltd.*
30. Erickson Creek	Cassiar	Gold	Nu-Energy Development Corp. (Agnes & Jennie Mining Co. Ltd. 24.8%)
31. Tent Mountain	Fernie	Coal	Coleman Collieries Ltd. (Norcen Energy Resources Ltd. 82%)
32. Bulkley Valley	Telkwa	Coal	Bulkley Valley Coal Ltd.

*Esso Minerals Canada 100%

Source: Ministry of Energy, Mines and Petroleum Resources Mineral Economics Branch

Table 2.4.3

	Raw Coal Production		Production		Coal Used		Coal Production Company by Region					Coal Sales		Total Coal Sold and Used		
	Surface tonnes	Underground tonnes	Total Tonnes	Total tonnes	Plant use & M.I.S., tonnes	Making Coke tonnes	Canada		U.S.	Japan	Others	Total tonnes	Quantity tonnes	Value \$	Average Value	
							B.C.	Other Provinces								
Fort Steele Mining Division																
B.C. Coal (formerly Nelser)	5,766,578	700,221	6,467,099	5,050,005	1,257	131,856	191	271	462	—	3,887,335	1,470,273	5,398,570	5,491,685	243,851,022	44.40
Metallurgical	198,103	1,703	199,806	153,872	—	—	—	—	—	—	—	252,171	252,171	252,171	11,781,915	46.72
Thermal	1,061,703	—	1,061,703	902,018	—	—	50,000	611,381	661,461	1,282	219,137	35,002	946,882	946,882	25,578,000	28.99
Byron Creek Coalfield Ltd.																
Thermal	861,642	—	861,642	561,739	—	—	85	121	204	—	678,465	—	678,669	678,669	29,795,457	44.03
Coleman Coalfield Ltd.																
Metallurgical	5,573,103	—	5,573,103	3,476,431	—	—	6,232	—	6,232	—	2,885,138	594,795	3,485,965	3,485,965	149,481,529	42.88
Fording Coal Ltd.																
Metallurgical	13,461,129	702,224	14,163,395	10,156,065	1,257	131,856	56,396	611,775	668,599	1,282	7,668,275	2,952,341	10,690,237	10,690,237	461,487,988	42.64
TOTAL																
Onitona Mining Division																
Bulkley Valley Coalfield Ltd.																
Thermal	160	—	160	160	11	—	149	—	149	—	—	—	149	149	4,874	30.46
Totals 1980																
Metallurgical	12,201,325	700,221	12,901,844	9,088,175	1,257	131,856	6,506	392	6,898	—	7,449,138	2,055,888	9,291,204	9,654,317	423,128,088	43.85
Percent of 1980 totals	91%	100%	91%	90%	9%	100%	11%	0%	1%	—	97%	8%	8%	8%	90%	—
Thermal	1,239,566	1,703	1,261,669	1,098,000	11	—	50,229	611,381	661,610	1,282	219,137	267,173	1,469,202	1,469,213	38,364,789	32.81
Percent of 1980 totals	9%	0%	9%	10%	1%	—	8%	100%	9%	100%	3%	12%	11%	11%	8%	—
TOTALS 1980	13,461,289	702,224	14,163,513	10,156,225	1,268	131,856	56,795	611,775	668,598	1,282	7,668,275	2,952,341	10,690,406	10,690,530	461,492,877	42.64

Source: Ministry of Energy, Mines and Petroleum Resources/Mineral Economics Branch

Table 2.4.5
Figure 1-2
Principal Western Canadian Coal Producers

	Location	Type	Estimate	
			Production ¹ (1978) (thousand tonnes)	Principal Markets
Saskatchewan:				
Kilmax Mine	Blenfald	Lignite	685	Power generation, some industrial uses
Utility Coals Ltd.	Estevan	Lignite	1,850	Power generation
Boundary Dam Mine	Estevan	Lignite	1,600	Power generation
M&S Coal Company	Blenfald	Lignite	500	Power generation, some industrial uses
SFC-Souris Valley Mine	Souris Valley	Lignite	340	Power generation
Sub-Total			4,975	
Alberta:				
Roselyn Mine	Sheerness	Subbituminous	450	Power generation
Vesta Mine	Helkirk	Subbituminous	515	Power generation some industrial uses
Forestburg Collieries Ltd.	Forestburg	Subbituminous	900	Power generation, some industrial uses
Whitewood Mine	Webster	Subbituminous	1,250	Power generation
Highvale Mine	Sundance	Subbituminous	4,750	
Luscar Sterco	Coal Valley	Subbituminous	575	Thermal coal exports, Ontario
Sub-Total			8,440	
Vicary Creek Mine	Coleman	Bituminous (Mv)	950	Japan for coke making
Terr Mountain Mine	Coleman	Bituminous (Mv)		Japan for coke making
Cannore Mines Ltd.	Cannore	Bituminous (Lv and An)	90	Japan for coke making (Expected to close in 1979.)
Cardinal River Mine	Luscar	Bituminous (Mv)	1,900	Japan for coke making
McIntyre Mines (Stokey River Mines)	Grande Cache	Bituminous (Lv)	1,600	Japan for coke making
Sub-Total			4,540	
TOTAL			12,980	
British Columbia:				
Michel Colliery	Natal	Bituminous (Mv)		Japan for coke making
Hamm Ridge	Spanwood	Bituminous (Mv)	5,600	Japan for coke making
Fording Mine	Elkford	Bituminous (Mv)	2,800	Japan for coke making
Byron Creek Collieries Ltd.	Corbin	Bituminous (Mv)	500	Ontario for power generation, Japan for coke making
Sub-Total			8,900	
Yukon:				
Tantalus Butte Coal Mine	Carneville	Bituminous (Mv)	20	Cyprus-Anvil for industrial use

¹ Tonnes of clean coal or as shipped.

Lv - Low volatile bituminous, Mv - medium volatile bituminous, Hv - High bituminous, An - Semi-anthracite.

Source: Aylesworth, J., "Coal," Canadian Mining Journal, February, 1979.

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M&S Coal Company	Blenfald	Lignite	500	Power generation, some industrial uses
SFC-Souris Valley Mine	Souris Valley	Lignite	340	Power generation
Sub-Total			4,975	
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Vesta Mine	Helkirk	Subbituminous	515	Power generation some industrial uses
Forestburg Collieries Ltd.	Forestburg	Subbituminous	900	Power generation, some industrial uses
Whitewood Mine	Webster	Subbituminous	1,250	Power generation
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McIntyre Mines (Stokey River Mines)	Grande Cache	Bituminous (Lv)	1,600	Japan for coke making
Sub-Total			4,540	
TOTAL			12,980	
British Columbia:				
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¹ Tonnes of clean coal or as shipped.

Lv - Low volatile bituminous, Mv - medium volatile bituminous, Hv - High bituminous, An - Semi-anthracite.

Source: Aylesworth, J., "Coal," Canadian Mining Journal, February, 1979.

2.5 Oil and Natural Gas

The subject of concentration of market power in the B.C. petroleum industry was examined in a previous E.A.R.B. study authored by Bruce Duncan. This study concluded (Chapter 7) that the concentration of market power in B.C.'s petroleum industry is relatively low despite the apparent dominance of production by certain majors. In 1977, the top major oil producers accounted for 34.1% of total provincial production and the top eight only 50.4%. The ten largest independent oil producers accounted for only a further 16.7%. In 1977, Pacific Petroleums dominated natural gas production in B.C.

Pacific Petroleum has since been acquired by Petro Canada. In 1980, Petro-Canada accounted for 36.4 percent, while the top four producers accounted for 56.3 percent. Oil production in B.C. is less concentrated. The top four produced approximately 33% of the oil.

Westcoast pipelines is the dominant supplier of natural gas. It's daily capacity in excess of 80,000 10³ cubic meters overshadows all other pipeline companies. Note that B.C. Hydro, who serves the lower mainland with capacity of approximately 7,000 10³ cu. metres, uses West Coast as its source of natural gas.

Referring to Table 2.5.4 it is readily apparent that Gulf, Imperial, Chevron and Shell own the bulk of crude oil refinery capacity in British Columbia. They also account for a substantial portion of storage capacity. The four largest refineries own 85.7% of refinery capacity and 83% of capacity.

The Ministry of Energy, Mines and Petroleum Resources has established a program of Policy Objectives and Lease Guidelines for the retail marketing of gasoline. These are based in part on the 1975 report of the B.C. Energy Commission entitled, "Report on Matters Concerning Gasoline Marketing in British Columbia".

According to material originated by Rick Hopp of Energy, Mines and Petroleum Resources, the two main purposes behind the policy objectives and lease guidelines are:

- a) To increase the economic efficiency of the retail gasoline market with the intention of lowering or stabilizing consumer prices, and
- b) To increase the security of the service station operator who is in a vastly inferior position when bargaining with a major oil company.

Table 2.5.5 and 2.5.6 show a very clear trend of an increase in company operated outlets. Energy, Mines and Petroleum Resources lease guidelines have commented on this development.

"These market adjustments have caused considerable uncertainty among the lessee and independent service station operators of the province.

Firstly, they are concerned over the growing company control of the retail market, in that the independent or lessee branded dealer frequently finds himself in direct competition with his supplier-landlord. The service station dealer is in no position to compete with his supplier, partly because he is dependent for his supply and his wholesale price, but more importantly he cannot match the financial resources."

The problem of concentration in gasoline marketing in Canada is the subject of an inquiry by the Federal Bureau of Competition Policy. In its report entitled "The State of Competition in the Canadian Petroleum Industry", the Bureau had the following to say:

"The Pacific market resembled the Atlantic market in that the four major brands together with one regional - Standard Oil of British Columbia accounted for 80 percent of the market throughout the period (under investigation). Up until 1963, their market share was generally about 90 percent. Starting from a high of 99 percent in 1955, their market share declined to approximately 90 percent in 1959 and 1961, and then increased 93 percent in 1963. Between 1963 and 1971, the share of these five firms declined steadily but was still at 84 percent in 1971. The reason for this decline was two-fold. First, several smaller integrated refiners - Husky, Pacific, and Union - had grown to 5 percent of the market by 1971. Secondly, the independent segment expanded by about 4 percent - from 7 percent in 1963 to 11 percent in 1971. As in the other Canadian markets, Imperial Oil gave up market share throughout the period. Together with its subsidiary Home Oil it gave up about 10 percent of the market between 1955 and 1971 - about the same amount that was captured by the independent sector".

Market share statistics are not sufficient to imply that the performance of the majors is to the disadvantage of consumers. Such concentration of market shares does facilitate agreements by the majors at the production and refining stages. Such agreements, along with the dominance of these vertically integrated firms, can shape the performance of the retail sector. According to allegations made by the Bureau of Competition Policy, what emerged from the market structure was the major oil companies acting together as a tightly-knit oligopoly during the late nineteen fifties and much of the nineteen sixties. More this in Chapter 4 and 5.

Table 2.5.2
Natural Gas Pipelines, 1980

<u>Company</u>	<u>Source of Natural Gas</u>	<u>Daily Capacity 10³m³</u>	<u>Areas Served by Distributors</u>
B.C. Hydro	Westcoast	6,938.4	Lower Mainland
Columbia		2,428	South Eastern B.C.
Inland Natural Gas	Westcoast Alberta & Southern	5,240	Peace River, Prince George Cariboo, Thomson, Okanagan and Kootenay
Northland Utilities	Peace River	282	Dawson Creek, Pouce Coupe, Rolla
Pacific Northern Gas	Westcoast	1,521	
Plans Western Gas	Westcoast	338	
West Coast		76,158	

Source: Petroleum Research Branch
 Annual Summary of Operations (1980)

Table 2.5.3
Disposition of Natural Gas, 1980
 (Volumes in 10³m³)

<u>B.C. Production</u>	<u>Totals</u>
Non-associated Gas	8,577,591.6
Associated Gas	421,273.4
Less Injected	31,916.0
<u>Net B.C. Production</u>	8,966,949.0
<u>Imports</u>	
Alberta	1,271,233.6
Northwest Territories	421,542.3
Total Imports	1,692,775.9
<u>Total Supply</u>	10,659,724.9

B.C. Transporters Supply

Available Marketable Gas in Northeastern B.C.	8,931,833.1
Imports to Southeastern B.C. Alberta	10,239,107.8
<u>Total Supply</u>	19,170,940.9

Disposition

Fuel	373,712.5
Losses and Adjustments	104,029.8
Line Pack Changes	594.7

Deliveries to B.C. Distributors

North	112,999.2
Interior	1,872,842.1
Lower Mainland	2,532,805.4
<u>Totals</u>	4,518,646.7

Deliveries Export

From Northeastern B.C.	4,376,313.9
From Southeastern B.C.	9,860,283.2
<u>Totals</u>	14,236,597.1

Table 2.5.4

Crude Oil Refineries

<u>Name</u>	<u>Capacity (Bbl. per Calendar Day)</u>	<u>Storage Capacity (Bbl.)</u>	<u>Cracking Capacity (Bbl. per Calendar Day)</u>
1. Chevron	35,000	1,946,000	8,500
2. Gulf	9,300 37,200	627,000 1,763,000	2,790 11,400
3. Husky	10,000	900,000	3,000
4. Imperial	41,200	3,055,000	11,800
5. Petro-Canada	14,300	1,100,000	4,650
6. Shell	22,000	2,455,300	6,000

- Note: 1. Only Husky and Petro Canada use only B.C. crude.
2. B.C. as a source of crude has declined from 52.8% in 1970 to 25.9% in 1980.

Note: While the nominal tariff on Petroleum and coal products is 7.90%, the effective tariff is 44.41%. The effective tariff is even higher if N.E.B. pricing of crude (domestic and offshore) is taken into consideration. (Source Looking Outward, Economic Council).

Table 2.5.5

Retail Gasoline Percentage Sales
By Type of Outlets

<u>No. of Outlets</u>	<u>1963</u>	<u>1973</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Major Brand Independent and Lease	92.6	79.4	66.3	63.7	63.8	62.1
Major Brand Company Operated	2.1	10.7	18.6	21.2	19.4	20.9
Private Brand Distributors	5.3	9.8	15.1	15.1	16.8	17.0

Source: 1963 and 1973 data from British Columbia Energy Commission; Report Of Matters Concerning Gasoline Marketing in British Columbia, British Columbia Energy Commission, December 1975, p. 16; 1977 date from British Columbia Energy Commission; 1979-80 data from Energy Branch.

Table 2.5.6

Major Branch Gasoline Outlets

<u>No. of Outlets</u>	<u>1963</u>	<u>1973</u>	<u>1977</u>	<u>1980</u>
Leasee and Independent	3200	2741	2067	1668
Company Operated and Commission Agents	27	124	178	238
TOTAL	3227	2865	2245	1906

Source: Energy Resources Branch, Energy, Mines and Petroleum Resources.

Table 2.5.8
Ownership: Oil and Natural Gas

1. Petro-Canada	100%	Government of Canada
2. Imperial Oil Limited	69.5% 76.5%	Exxon Corp. USA Ultimate
3. Mobil Oil Canada Ltd.	100% 100%	Mobil Oil Corp. USA
4. Union Oil Co. of Canada	86.3% 87.8%	Union Oil Co. of Calif. USA
5. Dome Petroleum	25.7% 64%	Dome Mines Ltd. USA
6. HBOG	53.0 19.0 59%	CONOCO INC. The K.R. Thompson Group USA
7. Texaco	70.5 90.8	Texaco Inc. USA
8. Gulf	60.2% 76.6%	Gulf Oil Corp. USA

Source: Statistics Canada: Intercorporate Ownership, 1980.

Table 2.5.9
 PROPORTION OF NON RESIDENTIAL
 OWNERSHIP IN B.C.
 1978

Ten Most Active Majors	% of Total B.C. Production		UNRO (2)	Weighted UNRO Share	
	OIL	GAS		OIL	GAS
1. Petro Can	10.5	36.4	0.0	0	0
2. Mobil	3.9	8.9	99.9	3.9	8.9
3. Imperial	12.6	7.2	77.5	9.3	5.6
4. Dome	3.9	3.8	59.1	2.3	2.2
5. Union	5.7	3.8	77.5	4.4	2.9
6. HBOG ⁽¹⁾	3.3	2.6	66.3	2.2	1.7
7. Chevron	--	2.1	100.0	--	2.1
8. Texaco	5.3	--	100.0	5.3	--
9. Samy Rainbow	4.3	--	10.0	0	--
10. Gulf	3.6	--	65.2	2.3	--
TOTAL	53.1	64.8			
Proportion of Non Resident Ownership in B.C.				<u>29.7</u>	<u>23.4</u>

(1) Hudsons Bay Oil and Gas

(2) Ultimate Non Resident Ownership

Note: Derived Non Resident Ownership figures are moderately underestimated.

2.6 Fish Processing Industry

The structure of the B.C. salmon industry has been the topic of an in depth study authored by Marvin Shaffer. That study was a joint federal/provincial undertaking, initiated by the Salmonid Enhancement Program Economics Working Groups of the federal Department of Fisheries and Oceans and the British Columbia Marine Resources Branch of the Ministry of Environment. This study concluded that the B.C. salmon industry was not competitive in the economic structure sense. According to Shaffer the key structural characteristics are:

1. A large number of fishermen (over 5,000 licenced salmon vessels) selling to a small number of buyers,
2. The number of buyers of net landings is less than the number of buyers for troll landings,
3. Entry is more difficult and vertical integration and other buyer-seller ties more extensive in the buying of net landing and the canned species than in the buying of troll landings,
4. Although structure is important, the key factor governing performance according to Shaffer are government regulation and controls, particularly in relation to the common property problem in the harvesting sector. Also according to Shaffer, the structure of the industry contributes to too much canned relative to fresh/frozen output. "There is too much canned output relative to frozen because of the large firms' market power in the purchase of the net-caught canned species and in the sale of canned salmon, and their consequent bias to canning over freezing".

Table 2.6.1 displays four firm and eight firm concentration ratios for the years 1960 to 1980. Table 2.6.2 provides additional detail for Salmon and Herring Roe production for the years 1975, 79, and 80.

Table 2.6.1

	Fish Production Concentration Ratios				
	1960	1965	Four Firm		1980
			1970	1975	
Fish Production	76.2	72.3	74	56.8	59.1
Salmon Production	77.4	69.7	76.3	59.3	64.3
Canned Salmon Production	84.9	75.6	87.6	74.4	75.8
			Eight Firm		
Fish Production	84.9	80.9	85	69.4	73.1
Salmon Production	89.8	80.3	81.7	75.2	79.8
Canned Salmon Production	95.8	88.3	97.5	94.4	89.2

Source: Ministry of Environment, Marine Resources Branch

Table 2.6.2

Concentration in Processing: Salmon & Herring Roe
1975 - 1980
(Percent)

	Salmon All	Fresh	Frozen	Can	Herring Roe
<u>1975</u>					
single largest	29	21	27	36	25
two largest	42	40	38	56	41
four largest	59	57	55	73	63
<u>1979</u>					
single largest	31	15	29	41	20
two largest	45	30	38	68	34
four largest	59	54	49	84	50
<u>1980</u>					
single largest	41	15	42	57	50
two largest	49	23	54	68	70
four largest	62	39	63	82	84

Source: Fisheries and Oceans Canada, Unpublished production schedules.

2.7 Industry Performance and Productivity

In this section we provide a brief description of the industrial structure of B.C. industries based on the Provincial Economic Accounts. With these accounts we can examine structural changes and sectoral and industrial performance over time. One objective will be to determine whether there is any discernable relation between industrial concentration and sectoral changes and performance.

Table 2.7.1 depicts the structure of Gross Domestic Product by industry. This table shows the relative contribution of each individual industry to GDP in percentage terms.

The primary stages of the resource related industries, agriculture, forestry, fishing and trapping, and mining have remained relatively constant. In aggregate this sector has grown from 9% to 9.5%. Agriculture and forestry have declined from 2.5% and 3.4% to 1.3% and 3.0% respectively. The slack has been picked up by mining which grew from 2.5% to 4.5%.

The Manufacturing Industries, which include the wood industries, paper and allied, and primary metals (smelting and refining, aluminum rolling, casting and extruding, copper and copper alloy rolling, metal rolling, casting and extruding) declined slightly from 22% of GDP to less than 20% of GDP. Discernable shifts in the importance of the individual industries also took place with the wood industries, transportation equipment, and non-metallic minerals increasing as a percentage of GDP.

The nonmanufacturing and nonresource related industries posted the largest increase. Construction and community, business and personal service industries grew from 5.6 to 7.1% and from 15.7 to 20.4% respectively. This sector as a whole grew from 69% to 70.7%.

In terms of employment the manufacturing industries fare even worse accounting for 15.6% of B.C. employment. The primary resource industries account for 6.6%, while all other industries account for 77.6%. Since 1971 the manufacturing industries have grown from 130 thousand employees to 161.9 thousand employees. As a percentage of the workforce this represents a decline from 18.2% to 15.6%. Over the same time period the primary resource industries have declined from 8.7% to 6.6%.

What are the factors that caused this relative decline in the manufacturing industries? With B.C.'s abundant raw materials and low cost energy, why didn't the manufacturing sector increase at least at the rate of G.N.P.? Are there any economic policies that the B.C. government can implement to achieve more rapid development of its manufacturing sector?

To understand the observed would require an understanding of the process of price and wage determination and productivity growth both between the manufacturing sector and other sectors, and within the manufacturing sector itself.

From the evidence of table 2.7.1 its very easy to wonder if the lack of growth in the manufacturing sector is the result of a decrease in the rate of advance in the productivity and technological capabilities of certain manufacturing industries. Has concentration inhibited the achievement of higher rates of growth? If so, why are the incentives in such industries not attractive enough to warrant increased investment in plant and equipment and investment in means to improve productivity? Or is the relative decline of these industries simply attributable to a relative decline in demand for the industries products?

Table 2.7.4 depicts real output per worker by industry for the years 1968 to 1980. An analysis of output per worker in conjunction with capital stock per worker is necessary to determine growth in productivity by industry. Table 2.7.3 displays an index of the quantity of capital per worker for the years 1961-1980 using 1961 as the base year. From this table it is readily evident that capital stock has grown most rapidly in mining followed by finance, insurance, and real estate and then by agriculture and fishing, forestry, and certain manufacturing industries. Notice that the rate of capital formation for all manufacturing industries together is surprisingly low. The chemical industry, food and beverage, and the wood industries show better than average rates of capital formation among the manufacturing industries.

These last three industries at the three digit S.I.C. level are relatively concentrated. However, Paper and Allied and petroleum and coal products industries with very low rates of capital formation are even more concentrated. So an "eye-ball" test does not reveal any systematic relationship between concentration and rate of capital formation.

Table 2.3.4 shows the actual amount of capital available per worker. Note that the capital labour ratio among utilities is approximate one half million dollars. Other industries which employ a relatively highlevel of capital per worker include mining, petroleum and coal products. At a much lesser magnitude are chemical, paper and allied, forestry, and agriculture and fishing.

Table 2.7.2 showing the structure of gross domestic product at factor cost by activity is also of interest. This table incorporates the primary processing industries into their respective resource category, forestry, fishing and trapping, and mining. In total, the mining sector has done very well, spurred by the petroleum and coal sector. Secondary (other) manufacturing has declined rather substantially since 1973, perhaps because of

the increase in energy and fuel costs. Comparing Tables 2.7.1 and 2.7.3 we see that while metal mining has maintained a relatively constant share of G.P.P., metal mining and metal related manufacturing activity has declined rather substantially from its peak in 1973 perhaps also because of rising energy costs.

Table 2.7.1

STRUCTURE OF GROSS DOMESTIC PRODUCT AT FACTOR COST, BY INDUSTRY

YEAR	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
	PERCENT																		
AGRICULTURE	2.5	2.5	2.3	2.2	2.0	2.0	1.9	2.0	1.6	1.7	1.4	1.3	1.5	1.4	1.1	1.2	1.3	1.2	1.3
FORESTRY (PRIMARY)	3.4	3.6	3.4	3.5	3.7	3.1	2.9	3.2	3.1	2.9	2.6	2.3	3.1	3.1	2.3	2.8	2.9	2.9	3.0
FISHING AND TRAPPING	.6	.7	.5	.6	.5	.7	.5	.5	.3	.4	.4	.4	.6	.4	.3	.5	.5	.6	.7
MINING (SITE):	2.5	2.8	2.9	2.9	3.1	3.2	3.2	3.3	3.3	3.3	3.0	3.1	4.4	3.8	3.5	3.5	3.7	3.5	4.5
METALS	1.6	1.6	1.7	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.5	1.6	2.9	2.2	1.4	1.2	1.3	1.2	1.6
COAL	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.4	.5	.5	.6	1.2	.7	.8	.9	1.3
PETROLEUM AND GAS	.4	.7	.7	.6	.8	.9	1.0	1.1	1.0	1.0	.9	.8	.7	.8	.7	1.3	1.3	1.2	1.4
NON-METALS (EXCL. FUELS)	.4	.4	.4	.3	.4	.4	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.3	.2	.2
MANUFACTURING INDUSTRIES:	22.1	22.7	23.0	22.9	22.1	21.5	20.6	20.7	20.0	18.9	19.1	19.4	19.9	19.5	18.2	18.5	18.1	18.8	19.7
FOOD AND BEVERAGE (EX. FISH)	3.0	2.9	3.0	2.7	2.6	2.7	2.7	2.5	2.4	2.5	2.3	2.2	1.9	2.0	2.0	1.7	1.7	1.7	1.7
FISH PRODUCTS	.8	.8	.6	.7	.5	.5	.4	.4	.4	.3	.4	.4	.6	.5	.4	.5	.5	.5	.6
RUBBER AND PLASTIC PRODUCTS	.1	.1	.0	.1	.1	.1	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
CLOTHING RELATED* LEATHER	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2
WOOD INDUSTRIES	5.7	6.2	6.7	6.6	6.1	5.7	5.5	6.5	5.7	4.3	5.3	6.5	7.1	4.7	4.1	5.3	6.0	6.5	6.5
FURNITURE AND FIXTURES	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1
PAPER AND ALLIED	4.7	4.5	4.6	4.8	4.4	3.9	3.6	3.5	3.7	4.1	3.5	3.2	3.5	4.9	4.3	4.5	3.5	3.5	3.8
PRINTING AND PUBLISHING	1.0	1.0	.9	.9	.9	.9	.9	.9	.9	.9	.9	.8	.7	.7	.8	.7	.7	.7	.6
PRIMARY METALS	1.6	1.7	1.7	1.5	1.8	1.8	1.7	1.6	1.5	1.2	1.2	1.1	.9	1.1	1.1	.9	1.2	1.2	1.4
METAL FABRICATING	1.1	1.2	1.2	1.3	1.3	1.5	1.4	1.2	1.3	1.5	1.4	1.2	1.1	1.3	1.1	1.0	.9	.9	1.0
MACHINERY INDUSTRIES	.3	.3	.4	.5	.5	.5	.4	.4	.6	.5	.5	.5	.5	.6	.6	.5	.5	.6	.6
TRANSPORTATION EQUIPMENT	.8	1.0	1.0	.8	.8	.8	.9	.7	.8	.7	.7	.8	.8	1.0	.9	.9	.8	.9	1.0
ELECTRICAL PRODUCTS	.2	.3	.2	.3	.3	.4	.4	.4	.3	.4	.3	.3	.3	.3	.3	.3	.3	.2	.2
NON-METALLIC MINERALS	.4	.4	.4	.5	.5	.6	.6	.6	.6	.6	.7	.7	.6	.6	.6	.5	.5	.5	.5
PETROLEUM AND COAL PRODUCTS	.6	.5	.6	.6	.5	.5	.4	.4	.3	.4	.4	.3	.4	.4	.6	.4	.5	.5	.5
CHEMICAL	1.1	1.0	.9	.9	.9	.8	.9	.7	.7	.6	.6	.6	.5	.6	.7	.6	.6	.6	.6
MISCELLANEOUS MANUFACTURING	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2

Source: B.C. Central Statistics Bureau

YEAR	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
CONSTRUCTION	5.6	5.6	5.7	6.2	7.5	8.4	8.7	7.0	7.4	.68	8.0	7.8	8.1	8.2	8.9	7.9	7.6	7.1	7.1
TRANSPORT., COMMUN., & STORAGE	11.8	11.3	11.5	11.5	11.5	11.3	11.1	11.0	10.9	11.2	11.3	11.0	10.3	10.5	10.0	10.0	10.3	10.2	9.9
UTILITIES	3.5	3.2	3.3	3.3	3.1	3.1	3.2	3.3	3.2	3.4	3.1	3.1	2.9	2.8	2.6	3.2	3.7	3.6	3.5
WHOLESALE TRADE	5.5	5.4	5.3	5.5	5.3	5.1	5.2	4.9	5.3	5.4	5.1	5.3	4.8	5.6	5.4	5.1	4.6	4.4	4.8
RETAIL TRADE	7.9	8.0	8.1	8.2	7.8	7.6	7.9	7.9	8.0	8.2	7.8	7.9	7.7	7.6	7.8	7.3	6.9	7.0	6.9
FINANCE, INSURANCE, REAL ESTATE	11.9	11.7	11.8	11.2	11.4	10.8	11.0	11.9	12.1	11.7	12.3	12.6	11.9	10.9	11.2	11.6	12.1	12.6	11.4
COMM., BUS., AND PBRS. SERVICES	15.7	15.4	15.3	15.3	15.7	16.5	17.3	17.5	18.0	18.9	19.2	19.1	18.6	19.5	21.3	21.1	21.1	20.9	20.4
PUBLIC ADMIN AND DEFENCE	7.1	7.1	7.0	6.7	6.5	6.6	6.6	6.9	6.8	7.1	6.8	6.7	6.3	6.6	7.5	7.2	7.2	7.2	6.7
GRASS DOMESTIC PRODUCT AT FACTOR COST	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Includes clothing, textiles and knitting mills

Note: Totals may not add due to rounding

Source: B.C. Central Statistics Bureau

Table 2.7.2

STRUCTURE OF GROSS DOMESTIC PRODUCT AT FACTOR COST, BY ACTIVITY

YEAR	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
*AGRICULTURE	5.5	5.4	5.3	4.9	4.7	4.7	4.6	4.5	4.0	4.2	3.7	3.5	3.4	3.3	3.4	2.9	2.9	2.9	3.0
*FORESTRY	14.0	14.6	14.9	15.1	14.5	13.0	12.2	13.4	12.7	11.5	11.5	12.1	13.9	12.8	10.9	12.8	12.4	12.9	13.5
*FISHING AND TRAPPING	1.4	1.5	1.1	1.3	1.0	1.2	.9	.9	.7	.8	.8	.9	1.3	.9	.7	1.0	1.0	1.2	1.2
*MINING (SITE):	5.2	5.5	5.6	5.6	5.9	6.1	5.9	5.9	5.7	5.5	5.3	5.2	6.3	5.0	5.7	5.4	5.0	5.7	6.9
*PETROLEUM & COAL	1.1	1.4	1.4	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.7	1.6	1.6	1.8	2.5	2.5	2.6	2.6	3.3
*METALS	3.2	3.3	3.3	3.4	3.6	3.6	3.5	3.4	3.4	3.1	2.7	2.8	3.8	3.3	2.4	2.2	2.5	2.4	2.9
*NON-METALLICS (EXC. FUELS)	.8	.8	.8	.8	.9	1.0	.9	.9	.9	.9	1.0	.9	.0	.0	.8	.7	.7	.7	.7
OTHER MANUFACTURING	5.0	5.3	5.2	5.3	5.3	5.5	5.5	5.0	5.2	5.2	5.1	4.9	4.7	5.1	4.9	4.5	4.2	4.2	4.6
CONSTRUCTION	5.6	5.6	5.7	6.2	7.5	8.4	8.7	7.0	7.4	6.8	8.0	7.8	8.1	8.2	8.9	7.9	7.6	7.1	7.1
UTILITIES	3.5	3.2	3.3	3.3	3.1	3.1	3.1	3.3	3.2	3.4	3.1	3.1	2.9	2.8	2.5	3.2	3.7	3.6	3.5
TRANSPORT., COMMUN. & STORAGE	11.8	11.3	11.5	11.5	11.5	11.3	11.1	11.0	10.9	11.2	11.3	11.0	10.3	10.5	10.0	10.0	10.3	10.2	9.9
WHOLESALE TRADE	5.5	5.4	5.3	5.5	5.3	5.1	5.2	4.9	5.3	5.4	5.1	5.3	4.8	5.6	5.4	5.1	4.6	4.4	4.8
RETAIL TRADE	7.9	8.0	8.1	8.2	7.8	7.6	7.9	7.9	8.0	8.2	7.8	7.9	7.7	7.6	7.8	7.5	6.9	7.0	6.9
FINANCE, INSURANCE, REAL ESTATE	11.9	11.7	11.8	11.2	11.4	10.8	11.0	11.9	12.1	11.7	12.3	12.6	11.9	10.9	11.2	11.6	12.1	12.6	11.4
PUBLIC ADMIN. & DEFENCE	7.1	7.1	7.0	6.7	6.5	6.6	6.9	6.8	6.8	7.1	6.8	6.7	6.3	6.6	7.5	7.2	7.2	7.2	6.7
COMM., BUSINESS, PERS. SERVICES	15.7	15.4	15.3	15.3	15.7	16.5	17.3	17.5	18.0	18.9	19.2	19.1	18.6	19.5	21.3	21.1	21.1	20.0	20.4
GROSS DOMESTIC PRODUCT	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
AT FACTOR COST																			

*NOTE: STARRED ITEMS COMBINE PRIMARY ACTIVITY AND DEPENDENT (OR RELATED) MANUFACTURING ACTIVITY

NOTE: TOTALS MAY NOT ADD DUE TO ROUNDING

Table 2.7.3
B.C. UNIT LABOUR COSTS* BY INDUSTRY, 1961-1980

YEAR	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
AGRICULTURE	.21	.19	.18	.17	.21	.18	.19	.18	.21	.21	.24	.24	.21	.23	.32	.31	.28	.27	.22	.23
FORESTRY (PRIMARY)	.76	.75	.79	.73	.81	.82	.77	.80	.79	.91	.91	.91	.76	.73	.83	.86	.83	.84	.75	.70
FISHING AND TRAPPING	.37	.40	.42	.38	.41	.36	.35	.35	.40	.37	.38	.36	.34	.35	.34	.33	.33	.31	.28	.26
MINING (SITE):	.52	.45	.39	.37	.39	.41	.41	.41	.40	.45	.51	.48	.33	.40	.47	.42	.42	.41	.31	.35
METALS	.52	.54	.49	.40	.46	.51	.54	.56	.52	.56	.71	.60	.34	.48	.75	.77	.74	.58	.38	.39
NON-METALS (INCL. STRUCTURAL)	.60	.51	.44	.56	.48	.57	.61	.66	.68	.70	.67	.63	.65	.70	.67	.72	.53	.88	.69	.84
FUELS	.44	.25	.18	.24	.19	.17	.15	.12	.13	.24	.25	.30	.26	.24	.24	.18	.21	.25	.21	.27
MANUFACTURING INDUSTRIES:	.64	.63	.62	.62	.64	.66	.67	.65	.65	.69	.70	.69	.63	.63	.66	.68	.70	.68	.62	.62
FOOD AND BEVERAGE (EX. FISH)	.58	.57	.53	.56	.55	.53	.53	.56	.54	.52	.56	.59	.59	.57	.58	.67	.68	.67	.61	.59
FISH PRODUCTS	.49	.50	.60	.55	.69	.69	.69	.77	.65	.72	.52	.61	.39	.48	.71	.63	.62	.59	.54	.51
WOOD INDUSTRIES	.84	.75	.73	.72	.75	.77	.76	.65	.71	.91	.81	.69	.61	.84	.85	.78	.75	.67	.60	.72
FURNITURE AND FIXTURES	.77	.78	.76	.79	.75	.74	.75	.78	.81	.75	.75	.79	.71	.74	.74	.84	.89	.87	.81	.74
PAPER AND ALLIED	.41	.42	.42	.42	.47	.57	.65	.66	.60	.54	.66	.70	.59	.45	.46	.50	.63	.64	.55	.48
PRINTING AND PUBLISHING	.73	.68	.69	.68	.68	.67	.68	.71	.72	.73	.72	.75	.76	.74	.75	.80	.81	.84	.89	.76
PRIMARY METALS	.69	.62	.64	.70	.60	.58	.60	.61	.61	.70	.73	.73	.82	.60	.75	.82	.64	.65	.58	.49
METAL FABRICATING	.71	.71	.71	.68	.73	.69	.69	.73	.73	.64	.68	.73	.69	.64	.69	.74	.80	.75	.72	.65
MACHINERY INDUSTRIES	.98	.98	1.00	.84	.92	.82	.90	1.01	.88	.99	.81	.81	.87	.80	.90	.89	.85	.81	.72	.72
TRANSPORTATION EQUIPMENT	.81	.85	.81	.88	.94	.86	.84	.84	.80	.84	.82	.75	.84	.75	.84	.75	.74	.74	.73	.87
ELECTRICAL PRODUCTS	.94	.67	.78	.71	.67	.69	.70	.79	.78	.77	.93	.94	.81	.80	.87	1.02	1.05	1.04	.98	.88
NON-METALLIC MINERALS	.74	.73	.69	.60	.61	.54	.56	.55	.54	.61	.55	.63	.67	.64	.64	.69	.67	.66	.64	.55
PETROLEUM AND COAL PRODUCTS	.37	.40	.37	.33	.24	.29	.37	.31	.41	.37	.31	.38	.27	.27	.20	.26	.24	.27	.24	.21
CHEMICAL	.40	.40	.42	.42	.43	.49	.41	.47	.45	.62	.49	.50	.48	.40	.36	.38	.38	.42	.41	.38
CONSTRUCTION	.67	.69	.70	.72	.72	.74	.73	.68	.71	.69	.72	.73	.72	.68	.71	.66	.72	.71	.68	.67
TRANSPORT., COMMUN., & STORAGE	.66	.64	.63	.62	.64	.63	.66	.66	.63	.65	.65	.66	.66	.66	.67	.71	.72	.69	.67	.66
UTILITIES	.27	.27	.27	.27	.28	.30	.29	.29	.30	.29	.30	.30	.31	.35	.49	.39	.35	.32	.33	.36
WHOLESALE TRADE	.66	.67	.68	.65	.67	.66	.65	.69	.67	.68	.69	.67	.65	.62	.68	.68	.73	.69	.63	.66
RETAIL TRADE	.63	.63	.62	.60	.62	.62	.62	.62	.63	.65	.65	.67	.67	.68	.68	.70	.72	.69	.68	.70
FINANCE, INSURANCE, REAL ESTATE	.22	.22	.23	.25	.25	.26	.26	.26	.26	.27	.25	.27	.28	.30	.32	.31	.33	.33	.38	.40
COMM., BUS., AND PERS. SERVICES	.66	.68	.67	.67	.67	.68	.69	.71	.71	.72	.73	.74	.73	.73	.74	.74	.74	.74	.74	.73
PUBLIC ADMINISTRATION	.60	.61	.60	.61	.60	.62	.62	.64	.67	.66	.68	.68	.68	.70	.72	.73	.73	.74	.74	.73
ALL INDUSTRIES	.57	.57	.57	.57	.58	.59	.60	.59	.60	.61	.62	.62	.60	.61	.64	.64	.64	.63	.60	.62

*LABOUR COST PER CURRENT DOLLAR VALUE OF OUTPUT.

NOTE: NUMBERS GREATER THAN ONE ARE ANOMALIES, THE RESULT OF THE METHODS USED TO BREAKDOWN LABOUR INCOME AND GROSS DOMESTIC PRODUCT FOR MANUFACTURING INTO SUB-INDUSTRIES.

Source: B.C. Statistics Bureau

Table 2.7.4
BRITISH COLUMBIA REAL OUTPUT PER WORKER BY INDUSTRY, 1968-1980
(CONSTANT 1971 DOLLARS)

YEAR	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
AGRICULTURE	5632	5307	6201	5325	5561	6490	6195	6728	7542	8213	6694	9103	9023
FORESTRY (PRIMARY)	10984	10380	12234	10905	10508	10975	15372	15143	15542	14030	12406	11392	14734
FISHING AND TRAPPING	12188	10870	9444	9714	12414	15714	6471	7105	12424	13438	14706	14722	7451
MINING (SITE):	21538	22233	21966	23083	25000	29291	22158	18993	20985	20213	19021	20867	18284
METALS	14615	15132	16076	16667	20000	28125	19681	16932	18000	18068	20370	19067	17968
NON-METALS (INCL. STRUCTURAL)	14000	14000	15000	16000	19231	16000	19167	18462	16667	20000	11250	17279	14279
FUELS	80909	77500	48182	49167	43214	39667	30303	23947	29714	25128	19348	25284	20234
MANUFACTURING INDUSTRIES:	12184	12608	13076	13297	13350	13594	13837	13694	14695	14222	14360	14482	15645
FOOD AND BEVERAGE (EX. FISH)	12500	12993	14571	14467	13746	12337	13253	13518	13050	13313	12809	13694	14924
FISH PRODUCTS	10882	12222	10827	14532	11311	14195	14459	12870	10833	9695	9109	8616	12001
WOOD INDUSTRIES	11563	10888	10852	11430	11638	11766	10534	11961	13768	13512	13300	13872	14856
FURNITURE AND FIXTURES	7727	7826	9483	9890	9932	10431	9774	9866	9076	9022	9022	9395	10046
PAPER AND ALLIED	15301	17126	19343	17192	17818	19647	20974	16891	20713	16754	18701	18031	19764
PRINTING AND PUBLISHING	10862	11475	12016	12627	13042	12731	13006	13549	13460	13435	11979	10178	11868
PRIMARY METALS	15000	15122	13347	13364	13784	11510	12594	11427	11792	14926	16021	15758	19239
METAL FABRICATING	11111	12088	14051	13653	13110	13756	14280	13597	13144	12245	13220	12939	14790
MACHINERY INDUSTRIES	8611	10227	9585	12124	13006	12881	14094	12247	12694	14115	15454	16620	16993
TRANSPORTATION EQUIPMENT	9444	10984	11246	11215	12911	13161	14356	14107	17621	17595	17270	17248	14676
ELECTRICAL PRODUCTS	10370	11154	11928	9663	10361	12218	11796	11305	10436	10274	10156	11495	11367
NON-METALLIC MINERALS	15333	16061	14212	17045	15687	15654	16710	16404	15518	16604	16575	17492	20113
PETROLEUM AND COAL PRODUCTS	36667	32222	34126	37679	34407	43977	36872	53114	37720	36781	33619	36054	36521
CHEMICAL	15806	17097	13636	17396	18871	19441	20911	23351	25948	27649	24419	23555	24883

YEAR	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
	(CONSTANT 1971 DOLLARS)												
CONSTRUCTION	15844	16243	16857	17511	16982	16970	17554	16571	16523	15990	17269	15887	16258
TRANSPORT., COMMUN., + STORAGE	12550	13708	13186	13620	14365	15599	16052	15575	16695	18002	18266	18720	17665
UTILITIES	23060	24502	25359	24277	28201	30578	30556	24634	31783	33211	34761	34941	33067
WHOLESALE TRADE	9650	10254	10492	10451	10280	9613	10969	10264	10812	10045	10069	11209	10481
RETAIL TRADE	9039	9604	9921	9865	10000	10603	10276	10372	10906	9986	9986	10226	9644
FINANCE, INSURANCE, REAL ESTATE	32814	34509	32122	34888	35014	33563	31102	28940	30792	28577	29146	26915	23674
COMM., BUS., AND PERS. SERVICE	8236	8364	8410	8932	9131	9731	10312	10420	10812	10689	10808	11072	10798
PUBLIC ADMINISTRATION	14228	14121	14087	14093	14047	13432	13362	12309	12595	12570	12612	12853	12478
ALL INDUSTRIES	11981	12377	12524	12842	13175	13649	13796	13367	14182	13903	13965	14079	13752

Source: B.C. Central Statistics Bureau

Table 2.7.5
B.C. INDEXED CAPITAL* - LABOUR RATIO, 1961-1980

YEAR	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
	100.0	101.6	151.9	132.2	134.2	123.2	130.1	131.3	158.7	153.0	144.3	162.7	179.3	172.4	229.1	230.1	221.2	200.7	236.5	247.6
	100.0	97.6	99.5	110.7	118.0	131.0	149.3	148.1	141.6	163.6	158.0	198.5	174.1	195.5	244.8	216.4	210.9	215.5	210.0	211.4
	100.0	101.9	123.4	131.3	138.3	145.2	174.9	194.8	233.9	243.8	289.8	309.4	289.3	300.2	305.7	327.9	318.7	329.2	337.8	341.5
	100.0	96.9	94.5	97.1	98.9	102.5	113.2	117.6	116.4	124.6	126.0	125.4	118.8	117.4	129.1	123.9	121.3	119.8	116.3	123.8
	100.0	102.4	107.0	107.2	110.6	108.2	118.2	122.5	130.9	145.8	164.7	163.4	166.7	169.9	184.7	185.3	180.6	181.6	182.1	187.7
	100.0	100.2	96.0	98.7	101.9	107.2	116.2	116.7	123.3	144.1	145.7	144.9	143.5	163.6	202.5	174.7	163.5	168.8	176.3	189.5
	100.0	96.8	96.8	99.5	104.8	108.8	118.2	124.3	120.8	127.3	123.7	128.1	120.1	107.3	111.9	107.0	104.3	107.9	104.2	109.3
	100.0	85.4	76.8	70.5	65.0	61.3	68.9	76.3	71.0	74.1	73.3	79.2	76.0	73.4	86.3	91.9	88.1	84.2	75.9	79.5
	100.0	79.5	82.5	97.2	83.3	93.5	102.0	118.0	105.4	127.5	136.1	117.1	96.8	95.6	114.6	134.8	152.8	128.1	115.9	137.4
	100.0	97.9	95.	93.1	121.4	107.1	121.2	126.6	131.1	119.6	120.7	124.2	119.3	105.7	120.5	117.4	112.1	115.2	117.7	121.0
	100.0	97.8	107.1	128.0	142.9	149.9	161.4	171.0	167.6	148.0	148.3	161.3	161.8	166.8	174.7	192.4	196.2	193.3	181.9	214.6
	100.0	85.3	76.7	70.5	73.6	78.8	80.3	91.5	84.2	94.7	82.7	79.1	71.2	73.7	68.1	76.3	80.6	95.3	86.8	81.8
	100.0	103.2	103.7	102.8	99.9	97.6	99.3	104.8	106.7	106.0	106.5	111.2	114.1	110.9	118.8	121.3	127.9	127.8	125.2	122.2
	100.0	105.5	107.3	104.7	108.5	117.5	130.6	142.0	147.3	153.9	154.9	154.0	152.3	150.3	143.3	155.1	161.6	164.8	171.4	172.2
	100.0	64.2	104.6	68.4	112.5	74.1	123.8	82.2	136.4	89.0	145.2	95.4	159.4	105.3	173.2	112.9	184.4	119.4	194.6	127.2
	100.0	99.9	99.2	100.4	102.5	105.4	106.9	114.1	126.6	134.0	146.5	149.8	155.7	169.0	187.4	205.4	200.6	216.2	244.3	258.6
	100.0	102.3	104.6	104.3	101.4	101.7	104.2	105.4	103.0	107.3	112.1	115.3	117.9	118.7	119.5	123.8	122.7	123.9	125.0	124.7
	100.0	101.4	104.8	107.1	108.3	107.8	104.8	100.7	97.6	98.5	101.2	100.9	95.0	93.1	83.0	83.4	85.0	83.3	86.3	87.6
	100.0	99.8	101.4	100.4	99.2	100.3	105.1	108.0	108.0	112.4	114.2	115.4	112.8	112.3	115.8	118.8	118.3	119.1	119.2	119.1

* MID-YEAR NET CAPITAL STOCK
Source: B.C. Statistics Bureau

Table 2.7.6
B.C. CAPITAL - LABOUR RATIO BY INDUSTRY
1968-1979 IN 1971 DOLLARS

YEAR	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
AGRICULTURE AND FISHING	15773	19073	18381	17333	19545	21545	20709	27529	27653	26578	24115	28412
FORESTRY	21619	20674	23886	23107	29132	25446	28719	35795	31642	30789	31559	30684
MINING	86395	103772	108135	128547	137246	128331	133173	135611	145451	141367	146030	149854
MANUFACTURING INDUSTRIES:	25363	25091	26853	27157	27033	25601	25309	27823	26711	26141	25827	25068
FOOD AND BEVERAGE	13447	14375	15995	18148	17940	18346	18645	20248	20312	19909	18731	10004
WOOD INDUSTRIES	13028	13763	16111	16273	16190	16017	18251	22591	19494	18266	17900	18243
PAPER AND ALLIED	85256	82855	86831	85035	88259	82565	73518	76762	73189	71562	63927	60166
METAL FABRICATING	7817	7274	7623	7541	8080	7742	7537	8805	9362	9038	10230	9359
TRANSPORTATION EQUIPMENT	5574	4976	6048	6474	5485	4558	4434	5427	6405	7219	6365	5785
PETROLEUM AND COAL PRODUCTS	188714	195464	177675	176768	177665	178038	163155	189457	181437	166573	153298	153541
CHEMICAL	43520	42753	38272	37742	40888	41802	43237	44727	48926	49769	45775	44469
CONSTRUCTION	6095	5611	6297	5512	5271	4743	4912	4537	5081	5376	6360	5788
TRANSPORT., COMMUN., + STORAGE	41330	43273	43111	43304	44999	46201	45270	48335	49604	52372	52031	51353
UTILITIES	405994	441988	462458	474973	486160	471994	441522	406017	429478	438749	461401	460006
TRADE	6536	6464	6559	6500	6095	5946	5798	5866	6290	6251	6165	6054
FINANCE, INSURANCE, REAL ESTATE	13011	14443	15283	16716	17088	17764	19263	21355	23416	22875	24650	27872
COMM., BUS., AND PERS. SERVICE	9485	9280	9652	10100	10381	10607	10687	10765	11153	11056	11154	11254
PUBLIC ADMIN. AND DEFENCE	91286	88499	89393	91709	91549	86069	84416	75390	75721	77106	75615	78204
ALL INDUSTRIES	27551	27551	28676	29116	29439	28761	28661	29547	30308	30178	30377	80399

2.8 Trade Through B.C. Ports

The following information is derived from the 1980 External Trade Report produced by MISBD. B.C. sells approximately 55-60 percent of the value of its commodity production in foreign markets. Statistics on trade through B.C. customs ports provide data on all Canadian products cleared through customs ports in B.C. regardless of where in Canada the product was laden for export or where in Canada the product originated. Imports cleared through B.C. customs ports are not necessarily consumed in B.C. and may be forwarded to other Canadian provinces.

Table 2.8.1 shows the value of exports for three broad product groupings along with average nominal Canadian tariffs and an estimate of the effective tariff (Canadian). The next table, 2.8.2 shows imports and exports in greater detail, by commodity.

The international dimension is correlated with the concentration dimension in Chapter Four.

Table 2.8.1

Exports of B.C. Products (1979)

	Value Millions of Dollars	Per Cent	Ave. Tariff (Can)	
			Nominal	Effective
(Metal Ores & Concentrates, Coal, Crude Petroleum, Wood Chips, Waste Materials Grain and Live Animals)	1,960	20.6%	1%	-1%
<u>Partially Manufactured Goods</u> (Fabricated Materials, & Lumber, Pulp & Paper, Aluminum, Chemicals, Petroleum Products)	6,668	70.1%	6.1%	9.5% (Ex. Petroleum Products)
<u>Manufactured End- Products and Food</u> (Processed Food, Machinery, Tools, Electrical & Communication Equipment, Personal & Household Goods)	884	9.3%	16%	25%

Note: These are very rough estimates

Table 2.8.2

Imports and Exports by Major Commodity Division (1980)

<u>Commodities</u>	<u>Imports</u>	<u>Exports</u>
<u>Food, Feed, Beverages and Tobacco</u>		
Meat and Meat Preparation	50,793,784	46,994,208
Fish and Marine Animals	128,236,742	228,310,797
Dairy Produce, Eggs and Honey	9,553,060	7,790,884
Grain, Flour, Meal and Cereal	39,266,007	1,564,345,581
Fruits and Fruit Preparations	171,086,305	39,441,246
Nuts, except Oil Nuts	14,458,594	55,836
Vegetable & Vegetable Preparations	100,805,792	19,554,265
Sugar and Sugar Preparations	103,022,556	1,918,318
Cocoa, Coffee, Tea & Spices	142,415,290	1,052,186
Margarine, Shortening & Lard	462,534	76,478
Misc. Foods, Food Materials and Food Preparations	22,649,584	5,228,164
Fodder and Feed	25,475,378	77,740,286
Beverages	62,913,196	16,346,233
Tobacco	1,627,610	806,440
<u>Crude Materials, Inedible</u>		
Crude Animal Products, Inedible	4,311,059	35,976,780
Crude Vegetable Products, Inedible	87,297,024	451,733,099
Crude Wood Materials	2,935,700	145,465,216
Textile and Related Fibres	2,397,180	13,425,461
Metals in Ores, Concentrates and Scrap	251,019,750	1,027,247,350
Coal, Crude Petroleum and Related Crude Materials	529,792	3,670,629,380
Crude Non-Metallic Minerals	74,210,408	591,435,726
Other Waste and Scrap Materials	15,546,569	8,839,157
<u>Fabricated Materials, Inedible</u>		
Leather	5,429,716	1,788,149
Furs, Dressed & Fur Fabricated	870,079	217,276
Rubber Fabricated Materials	12,518,789	736,119
Wood Fabricated Materials	132,553,140	2,000,870,756
Wood Pulp and Similar Pulp	3,639,506	1,576,211,482
Paper and Paperboard	40,516,785	793,763,792
Textile Fabricated Materials	46,606,366	4,162,119
Oils, Fats, Waxes, Extracts and Derivatives	10,530,177	151,624,939
Chemicals and Related Products	122,306,787	626,949,002
Petroleum and Coal Products	80,015,117	204,709,286
Iron and Steel and Alloys	387,425,335	44,881,832

- 70 -

<u>Commodities</u>	<u>Imports</u>	<u>Exports</u>
Non-Ferrous Metals	38,474,687	768,634,166
Metal Fabricated Basic Products	105,840,294	30,452,651
Non-metallic Mineral Basic Products	73,592,586	42,469,086
Miscellaneous Fabricated Materials	19,990,057	43,733,930
<u>End Products, Inedible</u>		
Machinery	788,898,775	220,103,690
Transportation & Communication Equipment	2,059,950,848	309,586,990
Other Equipment & Tools	307,977,515	46,367,815
Personal and Household Goods	260,955,963	27,849,954
Misc. End Products	332,291,749	52,763,984
<u>Live Animals</u>		
Live Animals	9,497,479	48,125,689
<u>Special Transactions, Trade</u>		
Special Transactions, Trade	69,130,172	15,860,711
<u>Total</u>	6,299,853,336	14,966,276,509

Source: MISBD External Trade Report

Table 2.8.3

Ten Leading Import Commodities 1979, 1980

<u>Commodity</u>	<u>Value</u> <u>1979</u>	<u>%</u>	<u>Value</u> <u>1980</u>	<u>%</u>
Cars, new, all types	469.5	39.1	75.7	47
Parts and accessories for motor vehicles	201.3	15.9	155	9.6
Alumina	88.5	7.0	111	6.9
Trucks and Chassis, commercial, new	166.6	13.1	106.4	6.6
Coffee, green	104.6	8.2	99.6	6.2
Civil aircraft, 2 engines	61.4	4.8	93.8	5.8
Raw sugar	22.0	1.7	86.2	5.3
Electronic computers and parts	46.3	3.6	69.2	4.3
Motorcycles	57.8	4.6	67.5	4.2
Precious metals in ores concentrates & scraps	24.1	1.9	66.4	4.1