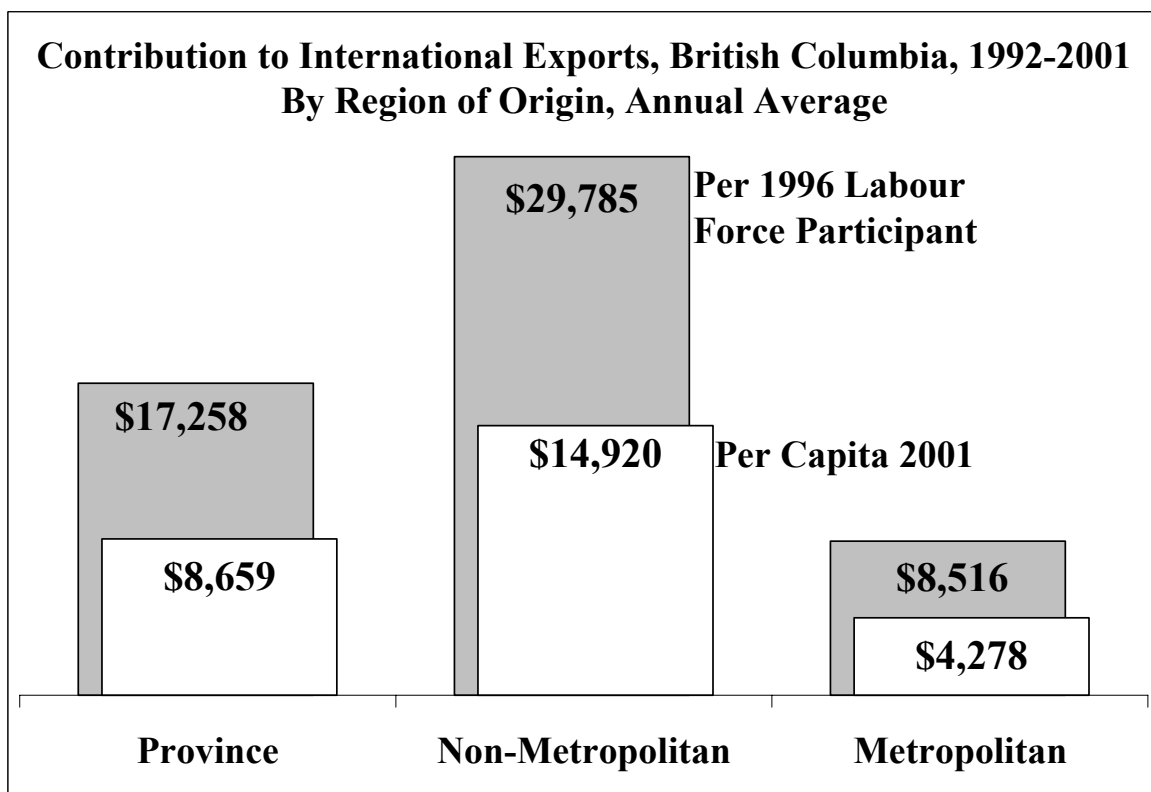

Resource Dependency: The Spatial Origins of British Columbia's Economic Base

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EXECUTIVE SUMMARY

The 2001 Census confirms that the population of British Columbia is predominantly metropolitan, with 1,986,965 people (51% of BC's population) living in the Vancouver Census Metropolitan Area and 311,902 (8%) living in the Victoria CMA, and that the metropolitan population is increasing faster than the rest of the province.

Accompanying metropolitan areas' increasing share of the province's population has been an increasing demand for a larger share of federal and provincial tax revenue for their governments. In the extreme, arguments are now made that these "cities states" and their "new economies" are the engines of economic growth.

Before accepting that they are either the engines of growth or deserving of a greater share of taxes, it is necessary to determine how much metropolitan regions actually contribute to the provincial and national economic base. Such analysis indicates that, in reality, metropolitan regions in British Columbia make a below average per capita contribution, and hence are dependent on international export revenue from commodities originating in non-metropolitan regions of the province.

Over the past decade, out of the total provincial annual average of \$33.8 billion in international exports, \$24.0 (71%) originated in non-metropolitan areas and \$9.8 billion (29%) originated in metropolitan areas. Of the average annual international exports of \$7.1 billion in services, \$4.4 billion (61%) originated in metropolitan areas and \$2.7 billion (39%) originated in non-metropolitan areas. Of the average annual international export of goods of \$26.7 billion, \$21.3 billion (80%) originated in non-metropolitan regions and \$5.5 billion (20%) originated in metropolitan regions.

Compared to the provincial average annual international exports of \$8,659 per capita, the average originating in non-metropolitan regions is \$14,290 per person, while that originating in metropolitan regions is only \$4,278 per person, half the provincial, and 30% of the non-metropolitan, averages. Non-metropolitan areas produce a \$6,261 per capita surplus from international exports while metropolitan areas have a \$4,176 per capita deficit.

In the "city state" context, if the metropolitan and non-metropolitan regions were "provinces", the non-metropolitan province would have \$14,920 in international

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export income per capita and the “city state” would have only \$4,278. The trading relationships between these two regions would acknowledge the reality that the non-metropolitan regions would start out having three times as much per capita to spend than the “city states”.

In conclusion, given the dependency of the metropolitan regions on the international export income generated by the work done outside the metropolitan regions, while metropolitan regions should work diligently to build strong metropolitan international exports, until they do, it is in their best interests to ensure that the non-metropolitan regions can attract and retain the people and investments that these resource need to produce the income that is to be shared.

The authors wish to take this opportunity to thank Dr. David Bond specifically for his review of this report, and generally for his on-going support and guidance, and for making economics, the dismal science, both less dismal and more scientific. Dr. Bond's comments are responsible for many of the strengths of this report: the weaknesses that may remain are in spite of his efforts, and are solely the responsibility of the authors.

I. PREFACE

Although often speculated about, little is actually known about the economic relationships between the metropolitan and non-metropolitan regions of the province of British Columbia. While there is much talk about the so-called "new" economy, generally equated with metropolitan areas, there is little evidence to indicate the extent to which it does and, more importantly, can support the provincial economy. Often in metropolitan regions issues such as US protectionism with respect to agricultural or forest products are given little attention, as they are seen as issues only affecting people living outside the Vancouver and Victoria telephone exchanges. In order to assess whether such indifference is warranted, it is necessary to first determine the extent to which metropolitan regions are economically independent of the province's resource regions.

The purpose of this report is to stimulate discussion and further research into the geographical and structural linkages between sectors and regions within the province. The report opens the discussion by focusing on the extent to which the province's international income originates in metropolitan and non-metropolitan regions of the province, thereby providing a preliminary estimate of the degree to which populations in metropolitan regions are dependent on export revenue originating in non-metropolitan regions. It is hoped that from this and other research, a better understanding of the extent to which metropolitan economies are linked to non-metropolitan economies will be developed. Through acknowledgement of the degree to which regions in the province are interdependent, British Columbians can articulate strategies that will be effective in responding to economic change that directly, and indirectly, affects them.

II. INTRODUCTION

The recent release of the 2001 Census population counts confirmed that Canada, and British Columbia, are urbanized. Eighty percent of Canada's population, and eighty-five percent of British Columbia's population, live in urban areas. More significantly, we are metropolitan, with two-thirds of Canada's and almost 60% of British Columbia's populations living in metropolitan areas. The Vancouver Census Metropolitan Area (CMA), with a 2001 census population of 1,986,965 (51% of BC's population) and the Victoria CMA, with a population of 311,902 region (8%), are home to 59% of the province's 2001 Census population of 3,907,738.

Accompanying the increasing dominance of metropolitan areas in the national and provincial landscape has been a re-evaluation of the role these regions play in their provincial and national economies, and an increasing demand for a larger share of federal and provincial tax revenue for the governments of metropolitan regions. In the extreme, arguments are now made that metropolitan regions have become **the** engines of economic growth, and that these "city states" and their "new economies" are **the** generators of income not only for themselves, but also for their provinces and country.

To this point, the extent of the economic engine argument has largely amounted to speculation. To move from hypothesis to evidence, it is necessary to determine what share of provincial and national income is produced by metropolitan regions before accepting that they are either the engines of growth or deserving of a greater share of tax revenue.

One way of doing this is through economic base analysis, as is done in this report for British Columbia and its metropolitan regions. While the specific circumstances for each province must be examined, for British Columbia at least economic base analysis indicates that its metropolitan regions are not carrying their per capita share of the provincial economy, and hence are, indirectly and directly, dependent on export revenue from commodities originating in non-metropolitan regions of the province.

The following pages present an initial analysis that attempts to measure these shares based on contributions to international export income. It indicates that people in the metropolitan areas should, at least in the current context, perhaps be more humble, and put aside the "city state" concept until they have made it a reality. While the province's metropolitan regions contribute to the provincial economy, they are not yet contributing their per capita share: they are engines of economic growth, but not **the** engines. The big engines of economic growth in the province remain its resource regions. The metropolitan regions would be well advised to be much more active in both developing their international exports and in supporting the province's resource regions which make a disproportionate contribution to the province's international export income.

III. THE ECONOMIC BASE

There are three components to a regional economy. The first, and most commonly experienced, component is the population serving sector, which includes all economic activity within the region that is directed towards meeting, directly or indirectly, the consumption demands of the region's residents. The second component is the importing sector, which includes all economic activities which drain money out of the region, whether as a result of the importing of goods (e.g., herbal teas) or of services (e.g., Vancouverites going to Maui for a week in the winter). The third component is the exporting or economic base sector, comprised of all economic activity which brings money into the region, including both the export of goods (e.g., softwood to the United States) and of services (e.g., tourists from the United States spending their money here). Exports are the economic base of economies because they are ultimately the only source of money a region has to pay for imports.

The analogy of a bathtub is useful in describing the economy in economic base terms. Our day to day experience in an economy is mainly with the transactions that make up the population serving component of the economy, as residents of the region buy and sell commodities amongst themselves. The volume of money used in these domestic transactions is analogous to the water level of the bathtub.

Population serving transactions within a region can continue indefinitely so long as nothing is imported from outside the economy. Imports mean money leaving the region in exchange for the imported goods or services. In the bathtub analogy, importing is the equivalent of pulling the plug out of the bath tub, as it drains money out of the economy – all other things equal, the longer and/or the more we import, the lower the water level in the tub.

To offset the loss of money from the economy that results from imports, there must be a source of income for the region, something which brings money into the economy to ensure, directly or indirectly, that there is sufficient money in the region to at least pay for imports, and at best to exceed them, thereby increasing the size of the economy. In the bathtub analogy, the tap (exports) must bring in the same amount of water as the drain (imports) takes out of it if the economy is to remain at a constant level. If the outflow (imports) exceeds the inflow (exports), the water level will fall (the economy will shrink) and at some point in the long run, the tub will be empty, which will mark the end of importing, and likely of inhabitation in the region. Conversely, if exports exceed imports, the water level will rise, and the economy will grow.

Imports define our standard of living: exports provide us with the ability to pay for them. The base of the economy is its ability to sell goods and services to residents of other regions, thereby providing the funds to support both population serving and import activities. All other economic activity, from brain surgery to day care, relies on the economic base as a source of revenue: both population serving and importing

activities are effectively parasites on the export sector. As parasites, they should have a strong interest in the health of their host, exporting.

It is important to note that in the short run, borrowing money from lenders outside the region (external debt) can be used to cover a deficit between imports and exports, as debt brings money into the economy. In the long run, however, external debt must be serviced, and ultimately, repaid. As the only source of money to make external debt payments is export income, borrowing outside the economy simply represents a claim (i.e., contracting to send money out of the region) against future export income.

3.1 The Province's Economic Base

In this report, the focus is on the economic base of the province of British Columbia, and the contribution of the province's two metropolitan regions to it. This level of analysis was selected for two reasons. First, the provincial level is where most of the redistribution of income between people and communities occurs, whether it is through direct and indirect taxation or through public sector spending on transfers such as education, welfare and health care. On a much more mundane level, the provincial level is also the finest level of detail for which import and export data are published. Data used in this section are all derived from Statistics Canada's Provincial Economic Accounts publications for the years indicated.

At the provincial level, there are two flows of imports and exports: the international flow, comprised of goods and services traded between British Columbia and foreign countries, and the inter-provincial flow between British Columbia and other provinces. These two flows have followed much different patterns over the past two decades.

Over the 1981 to 2001 period, British Columbia has always had a positive trade balance with foreign countries (Figure 1). Over the last decade (1992 to 2001), the dollar value of the province's international exports exceed the value of its international imports by an annual average of \$3.4 billion (current dollars); this compares to annual average surplus of exports over imports of \$5.0 billion in the preceding decade (1982 to 1991). The slower growth of exports compared to that of imports led to a decline in the ratio of international export to international imports to 11%, down from 39% during the 1982 to 1991 period.

Quite a different trade relationship exists between British Columbia and the rest of Canada (Figure 2). On an inter-provincial trade bases, the provincial economy has always run an enormous deficit, averaging \$6.9 billion per year in the 1982 to 1991 period and \$8.1 billion in the 1992 to 2001 period. In the early 1980s, imports from other provinces exceeded exports to them by a 90% margin; by the last half of the 1990s, this deficit margin had shrunk to 50%.

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Figure 1: British Columbia's International Trade, 1981 to 2001

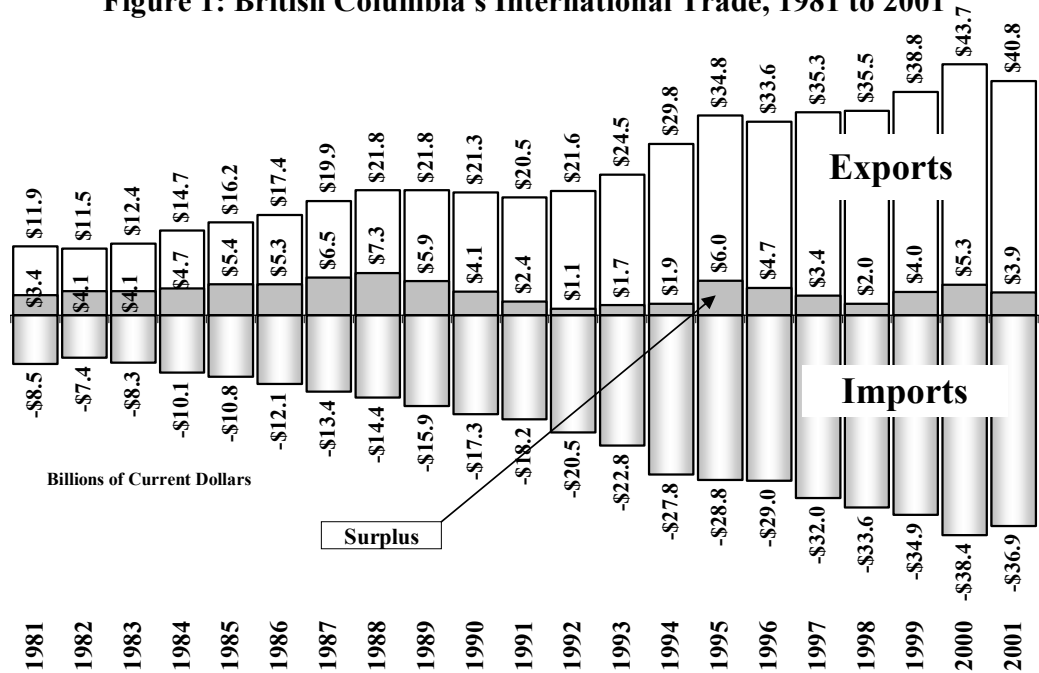
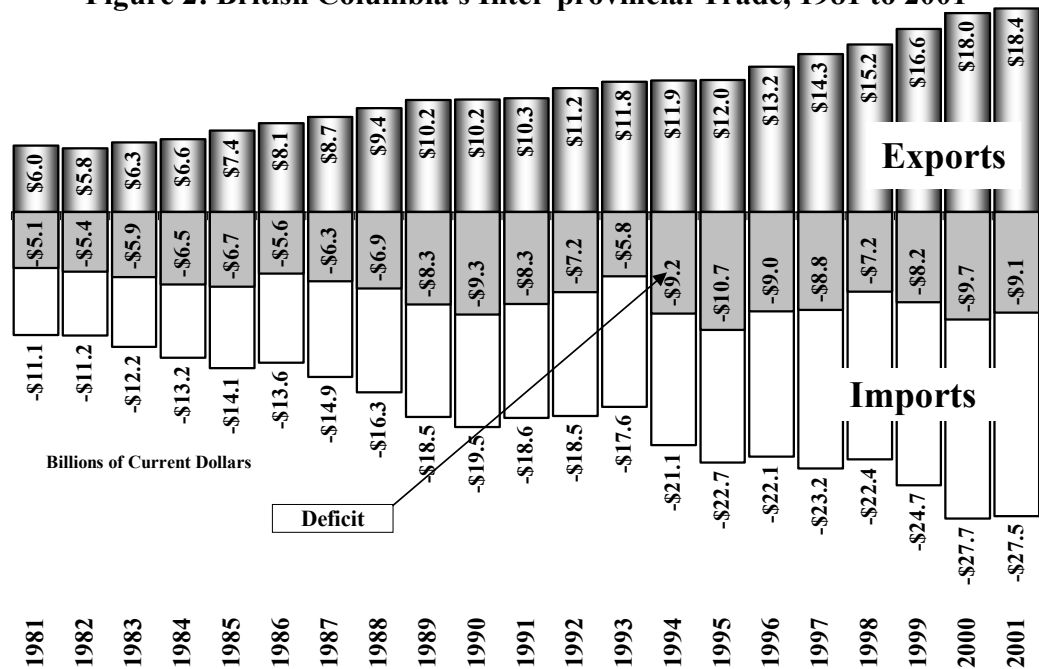
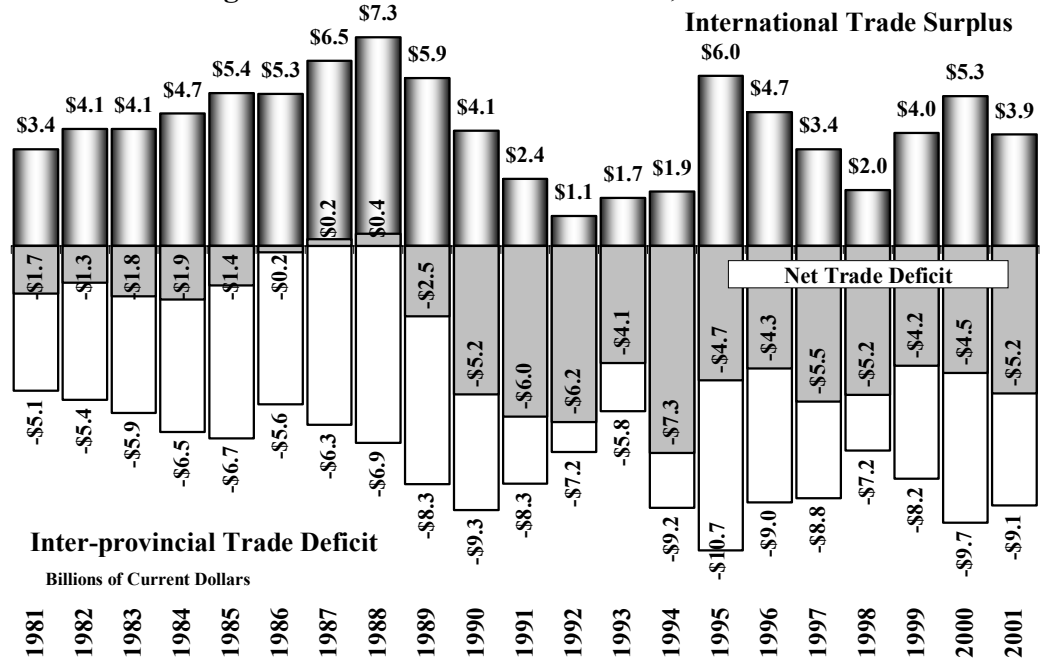


Figure 2: British Columbia's Inter-provincial Trade, 1981 to 2001



Since 1989 British Columbia's international trade surplus has not been sufficient to offset its inter-provincial trade deficit: a large overall trade deficit has been the result (Figure 3). With average annual total exports of \$48 Billion over the past decade, and average annual total imports of \$53 Billion, the province has averaged a net trade deficit of \$5 Billion per annum. Over this period, imports exceed exports by a margin of 10%, compared to the 7.5% margin that prevailed over the previous ten year period.

Figure 3: British Columbia's Trade, 1980 to 2000



The consequences of imports exceeding exports was postponed by borrowing money from outside, which does not show up in import or export data (as these include only production activities, be they of goods or services, not debt transactions). Over the past decade, not only has a significant portion of government spending been debt financed (Figure 4, data from BC Government Ministry of Finance website), but so has a significant portion of household expenditures on taxes and consumption (Figure 5, data from Statistics Canada's Provincial Economic Accounts for referenced years).

Over the 1981 to 2001 period the provincial debt generally increased, with decreases recorded only in the 1988 to 1990 period and in 2001: over the past two decades, a total of \$25.7 billion in tax-payer supported debt was accumulated. In the early 1990s, following national trends, personal savings in British Columbia declined: however from 1996 on, while personal savings in Canada stabilized, those in British Columbia continued to decline, reaching the point in 1997 where consumption spending exceeded personal disposable income, and continuing to decline thereafter to set a record shortfall of \$4.3 billion dollars in 2001. After 5 years of liquidating assets and/or incurring debt, many British Columbians had reached the point of bankruptcy, with 2001 bankruptcy rates being almost twice their 1991 levels.

3.2 Composition of British Columbia's International Exports

Within the economic base framework, the focus of this report is on the role played by international exports (hereafter, unless otherwise stated, exports refers only to international exports) in British Columbia's economy. Given current data availability, analysis of the destinations of international and inter-provincial imports and of the origins of inter-provincial exports must be left for consideration elsewhere.

Figure 4: Net Change In Provincial Debt, BC, 1980 to 2001

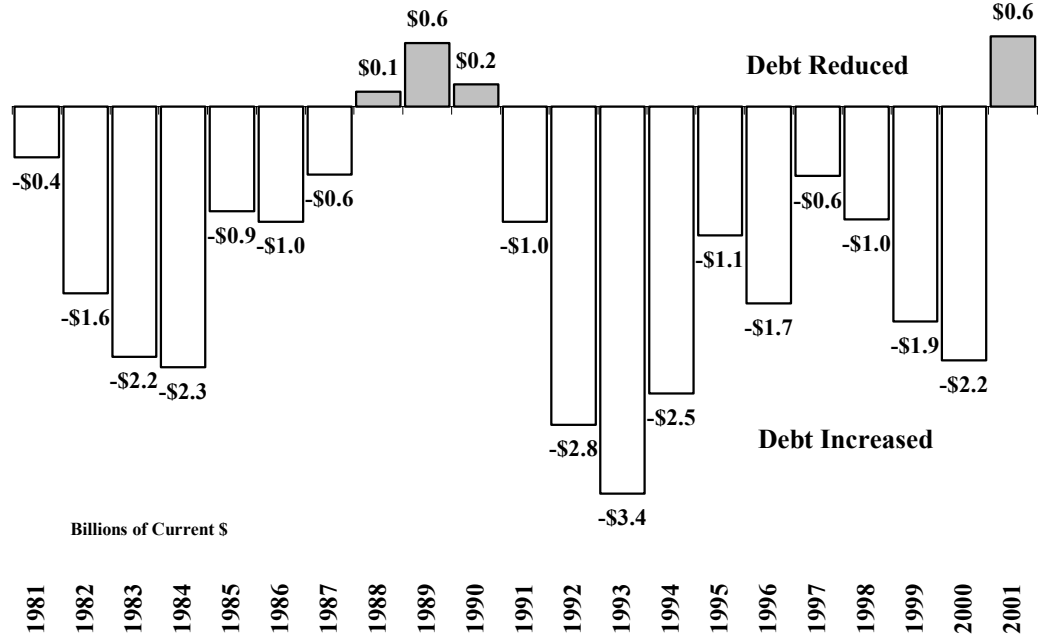
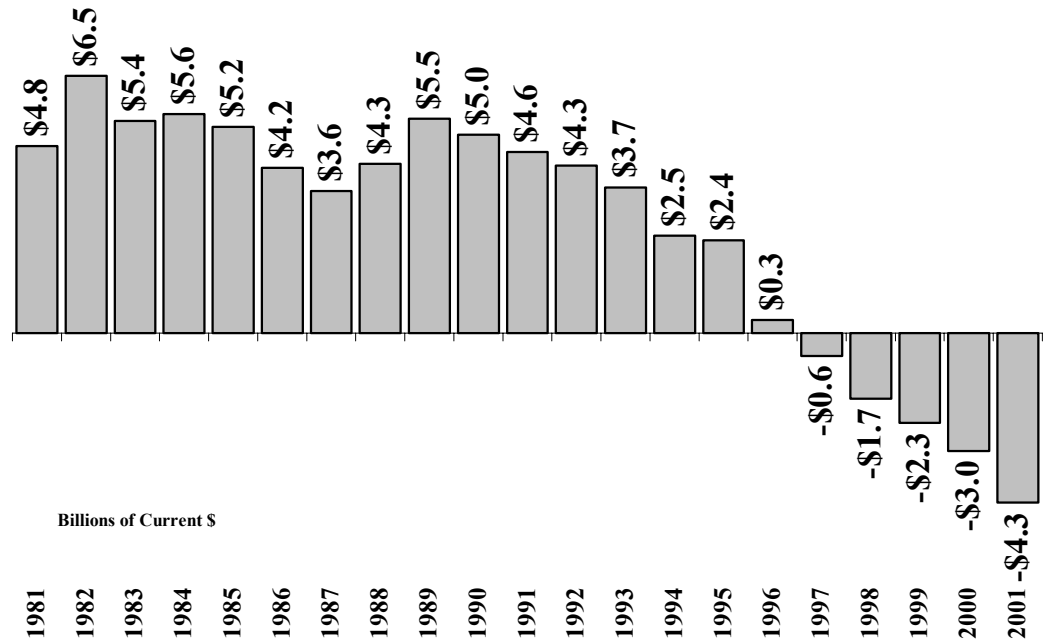


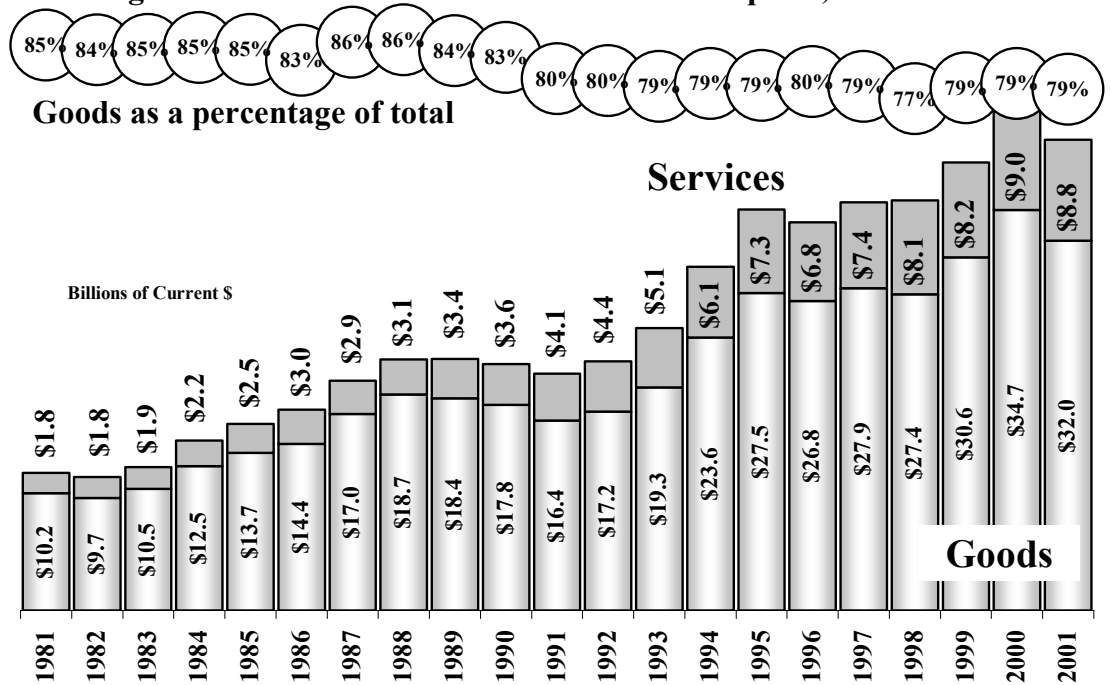
Figure 5: Personal Savings, British Columbia, 1981-2001



Regardless of either the growth or the attention focused on the service economy, the reality of international exporting for British Columbia is that the province is overwhelmingly an exporter of goods. During the past decade, 21% of the value of exports from this province to other countries came from the export of services, up from 16% in the previous decade: the remaining 79% of the province's international export

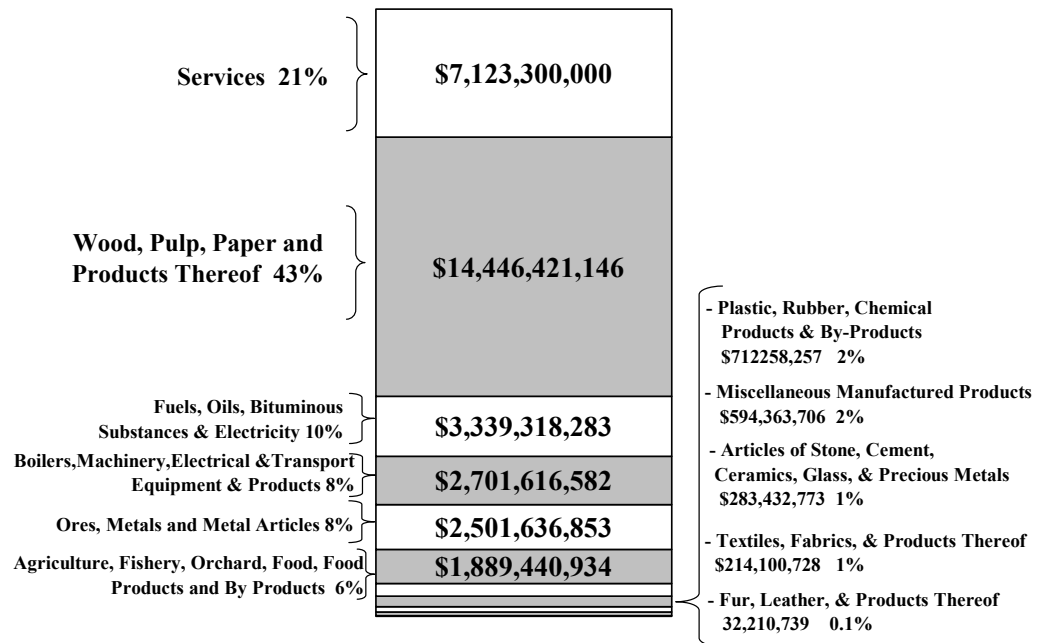
income was derived from the export of goods (Figure 6). For every dollar in international export income earned from the sales of services (tourism, consulting, etc.) almost four dollars are earned from the export of merchandise and goods. Note also that the increase in the service sector's share of exports was not the result of a steady transition, but rather resulted from a single rapid shift during the 1987 to 1991 period, when services' share went from 14% to 20%. During the 1990s there was no appreciable change in services' share relative to goods as a source of international export income for the province.

Figure 6: British Columbia's International Exports, 1981 to 2001



As a first step in the identification of the origins of British Columbia's exports, a more detailed breakdown of the components of the international export flow is required. The federal government's Industry Canada trade data website, www.strategis.ca, lists British Columbia's international merchandise exports over the past decade (1992 to 2001) by 99 major commodity classifications (no data is provided for the service sector). While the spatial allocation of exports presented in the following section was carried out at this detailed level, for purposes of presentation, exports have been aggregated to 11 major groups, shown with the average annual value of international exports on Figure 6. Note that the percentage distribution (rather than the dollar values) of exports by commodity type from this source is multiplied by the total export values from the Provincial Economic Accounts data discussed above, in order to maintain the balance between the export of goods and of services as listed in the Economic Accounts.

**Figure 6: Average Annual International Exports
by Major Commodity Type, British Columbia, 1992 to 2001**



Over the past decade, British Columbia's international exports averaged \$33.8 billion current dollars per year, 21% of which were exports of services and 79% of which were exports of goods. The single largest export group was forest products (including wood, pulp, paper, and other wood products) which brought in an average of \$14.4 billion per year, and accounted for 43% of the export income of the province. The second largest component of the province's international exports was services, averaging \$7.1 billion per year and accounting for an average of 21% of the province's international exports over the past decade. The third largest component of exports are from the energy sector (fuels, oils, bituminous substances and electricity) which averaged \$3.3 billion per year, and accounted for 10% of the dollar value of the province's exports.

The broad category of machinery and equipment (boilers, machinery, electrical and transportation equipment and products) ranks fourth in importance as a source of foreign exports, accounting for 8% of provincial export earnings over the past decade with average annual earnings from this source of \$2.7 billion. Fifth place is held by the ores, metals and metal articles sector, which also accounted for 8% of the province's international export income with average annual exports valued at \$2.5 billion. Following in sixth place with a 6% share was the agricultural and food processing industry (agriculture, fishery, orchard, food, food products, and food by-products), with average annual exports of \$1.9 billion per year over the past decade.

The remaining four commodity export groups averaged less than \$1 billion per year in exports, with exports of plastic, rubber and chemical products and by-products averaging \$712 million (2% of the total); miscellaneous manufactured products (from

watches through to appliances and toy trains) averaging \$595 million (2%); articles of stone, cement, ceramics, glass and precious metals averaging \$283 million (1%); textiles, fabrics and products thereof averaging \$214 million (1%); and fur, leather and associated products averaging exports of \$32 million per year.

3.3 Methodology for Estimating the Origins of International Exports.

There is no data available that directly identifies the place of origin within the province of international exports, as the port of departure from the country is all that is recorded on customs forms. As a result, an indirect approach must be utilized to determine where in the province exports originate. In this context, the distribution of the labour force by occupation and place of residence provides a useful, if not perfect, source of information. The conceptual basis for this approach is the assumption that if the location of the people who produce the exports can be identified, then the origins of the exports will be identified as well. It would be more useful to have data on occupation by place of work, rather than place of residence, in order to avoid situations where someone lived in one region but worked in another, however such data require a custom tabulation of Census data, the cost of which is not warranted for this preliminary analysis.

A more important point to note is that it is the occupation of the worker (the kind of work people do), not the industry in which they work, that is the basis of the allocation procedure. The reason for using occupation is that it more closely approximates where export production occurs, as industry data includes not only the people who produce the export, but head office functions such as accounting, human resources, marketing, and legal services, which may not be located in the region where the export originates.

Note also that allocating the value of the export to the region of origin is not the same as allocating it to regions where value is added to the export. All of the head office functions contribute to the final value of the export: as such functions, as well as transportation and the like, often occur in regions other than those where the resources originate, the allocation methodology used here will not capture such contributions. Allocations of value added to the production process would require very detailed and very expensive producer surveys.

Having acknowledged the issue of value being added to exports between their origin and their departure from the provincial economy, it is also necessary to acknowledge that the opportunity for value added is wholly dependent on having the product or service to add value to. Thus, while allocation of the value of exports to regions of origin will omit the head office contribution, the head office contribution would not exist without the initial production of the export. By allocating exports to their region of origin, the fundamental sources of the province's international export income can be identified, which is the object of this research.

The analysis presented here focuses at the most aggregate level, that of the metropolitan regions (the Vancouver and Victoria Census Metropolitan Areas) compared to the

remainder of the province. More detailed spatial analysis, perhaps using data on occupation by place of work by regional district from the 2001 Census results (when they become available), will permit a finer level of analysis than is presented here. As a first cut, the metropolitan/non-metropolitan dichotomy will suffice.

The first step in the allocation process was to identify the occupations involved in the production of each export commodity or service. The next step was to determine the percentage of the province's total labour force in each occupation that were in the metropolitan and in the non-metropolitan portions of the province: the most recently published data on detailed occupations by place of residence come from the 1996 Census and were used for this allocation. These proportions were then used to allocate the average annual provincial international exports by commodity type for the period 1992 to 2001 to metropolitan and non-metropolitan origins. These were then summed to major export categories to identify the total share of exports of each major type that originated in these two regions.

The methodology is demonstrated by consideration of two examples. The first is the export of wood and articles of wood (including wood charcoal), export category HS 44, which earned British Columbia an annual average of \$8.8 billion dollars over the past decade (Table 1).

Table 1: Allocation of Exports of Wood and Articles of Wood

	B.C. Total	Labour Force	
		Metropolitan	Non-Metropolitan
I216(8616) Logging and forestry labourers	6,705	1,020	5,685
I151(8241) Logging machinery operators	4,670	190	4,480
I161(8421) Chain-saw and skidder operators	6,410	230	6,180
I162(8422) Silviculture and forestry workers	3,530	325	3,205
I11(821) Supervisors, logging and forestry	3,040	240	2,800
Total	24,355	2,005	22,350
		8%	92%
HS 44 - Wood and Articles of Wood (Incl. Wood Charcoal)			
Average Annual Exports	\$ 8,823,715,209	\$ 726,403,161	\$ 8,097,312,048
		8%	92%

Logging and forestry occupations were identified as most closely corresponding to those associated with the origins of wood, and hence of wood and wood products: the Census indicated that there were 24,355 persons with these occupations resident in British Columbia in 1996 (the mid-point of the 1992 to 2001 export period), 2,005 (8%) of whom resided in the province's two metropolitan regions, and 22,350 (92%) of whom resided outside of these regions. On this basis, the non-metropolitan regions were the origins of 92% of the value of these exports, or an annual average of \$8.1 billion, while the metropolitan regions were the origin of \$726 million per annum.

There are two major comments that may be raised with respect to this methodology. The first might be that the contribution of metropolitan areas as origins of these exports is overstated: 8% of British Columbia's wood and articles of wood international exports do not originate in the forest of Vancouver and Victoria. While this is true, there is no empirical way to acknowledge this with the available data: the place of residence data will always involve some situations where people reside in one community and produce export output in another.

The other comment relates to the concept of value added discussed earlier. The occupations listed as being involved in the origin of wood and articles of wood exports do not include those value adding activities (such as saw mills and wood working establishments) which have a larger (albeit still minor) share of their labour force in metropolitan regions (23% of the labour force in wood working, wood product assembly, and wood processing occupations are in metropolitan areas). As discussed earlier, these labour force participants are not included, as the objective of this research is to identify the origins of the exports, which in this case are the forests in the non-metropolitan regions of the province: wood working, sawmill, and wood processing activities, while adding value to forest products, are nonetheless dependant on the forest resources outside of the metropolitan regions.

The second example of the use of labour force by occupation and place of residence data is the spatial allocation of the origins of international exports of services. The diversity of the services sector is both deep and wide, ranging from tourism (which includes everything from tour guides to hotel and restaurant employees to airline personnel) to consulting services, education, health care, the film industry, and the performing arts. As noted earlier, there are no published data on the composition of service exports from the province (Appendix I to this report lists all of the activities that may be involved in production of both merchandise and service exports).

For the purposes of this research, the labour force in the occupations that most closely correspond to the service exports listed were tabulated for the metropolitan and non-metropolitan areas, and the spatial totals were used to allocate the services exports to their origins within the province (Table 2). This methodology indicates that 62% of the international exports of services originate in metropolitan regions with the remaining 38% originating in non-metropolitan regions. Of the average annual exports of services during the 1992 to 2001 period of services of \$7.1 billion, \$4.4 billion is allocated to metropolitan areas, and \$2.7 billion to non-metropolitan areas.

Again it must be noted that this spatial allocation approach is indicative rather than exact. For example, the spending in Vancouver of a traveler passing through on their way to Alaska or the Okanagan, or of a Vancouver-bound tourist overnighing in Kamloops, should be allocated the region that generates the travel, not one that merely benefits from it. No data currently exist to carry out this level of analysis, and hence the existence of such situations can only be noted.

Figure 7 shows the percentage allocations for each of the 11 major export groupings. These values are built up from the individual sub-groups of these major groups (Appendix II shows the values for the 99 individual sub categories within these major groups). The range of geographical differences indicated is dramatic, from an estimate of 93% of the value of international energy exports originating in non-metropolitan areas and 7% in metropolitan areas, to an estimate of 84% of the value of all international exports of textiles, fabrics, and products thereof originating in metropolitan areas and 16% in non-metropolitan areas.

**Resource Dependency:
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Table 2: Allocation of Exports of Services

	B.C. Total	Labour Force	
		Metropolitan	Non-Metropolitan
A2 Managers in retail trade, food and accommodation services	63525	36330	27195
A12(021) Managers in engineering, architecture, science and information systems	5440	4365	1075
A30(012) Managers in financial and business services	16085	11705	4380
A34(051) Managers in art, culture, recreation and sport	2675	1850	825
B316(1226) Conference and event planners	1080	840	240
B01(111) Auditors, accountants and investment professionals	27185	20435	6750
B11(123) Finance and insurance administrative occupations	30385	16000	14385
C0 Professional occupations in natural and applied sciences	43765	33125	10640
C1 Technical occupations related to natural and applied sciences	47545	27755	19790
D012(3112) General practitioners and family physicians	5000	3230	1770
E1 Teachers and professors	71360	43585	27775
E031(4161) Natural & applied science policy researchers, consultants & program officers	1380	970	410
F02(512) Writing, translating and public relations professionals	8985	6845	2140
F03(513) Creative and performing artists	12685	9510	3175
F12(522) Photographers, graphic arts technicians and technical occupations in motion pictures, broadcasting and the performing arts	6590	5200	1390
F15(525) Athletes, coaches, referees and related occupations	9740	5750	3990
G01(621) Sales and service supervisors	11715	7335	4380
G71(643) Occupations in travel and accommodation	14180	10270	3910
G72(644) Tour and recreational guides and amusement occupations	2495	1235	1260
G73(667) Other attendants in travel, accommodation and recreation	4505	2480	2025
G93(666) Cleaners	60030	31170	28860
G96(664) Food counter attendants and kitchen helpers	43840	26275	17565
G2 Retail salespersons and sales clerks	80595	48705	31890
G4 Chefs and cooks	31975	17910	14065
G5 Occupations in food and beverage service	44475	25435	19040
H712(7412) Bus drivers and subway and other transit operators	6785	4200	2585
H713(7413) Taxi and limousine drivers and chauffeurs	4235	2890	1345
H832(7622) Railway and motor transport labourers	590	200	390
H73(743) Other transport equipment operators and related workers	6475	3640	2835
J183(9473) Binding and finishing machine operators	925	680	245
J184(9474) Photographic and film processors	1600	990	610
Total	667845	410910	256935
		62%	38%

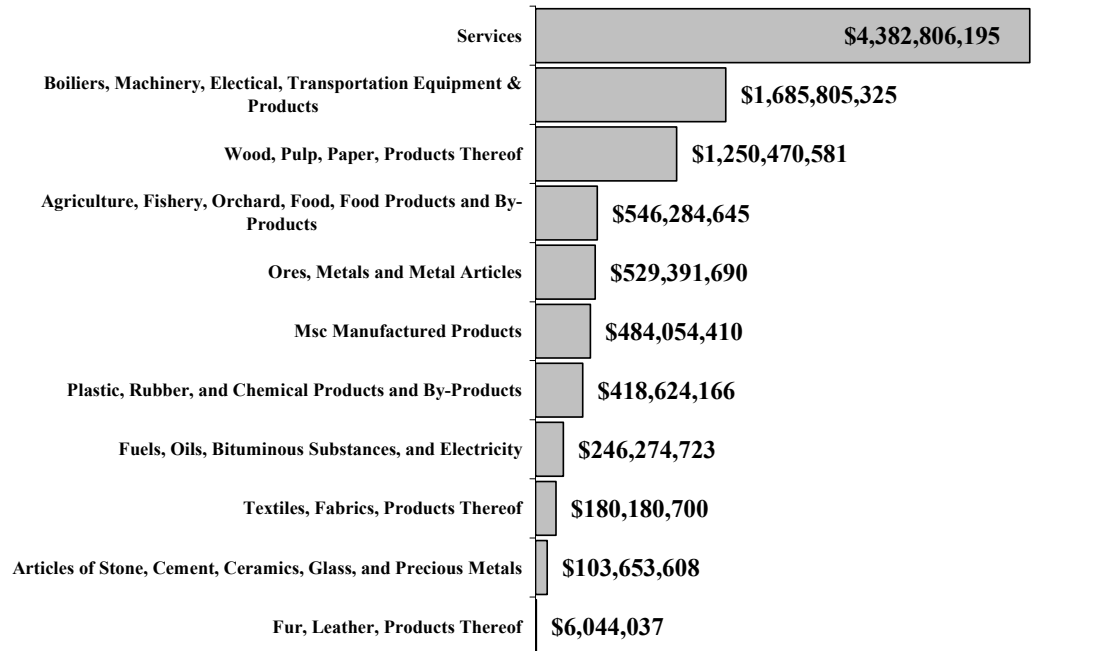
Annual Average Export of Services \$ 7,123,300,000 \$ 4,382,806,195 \$ 2,740,493,805

Figure 7: BC's International Exports, Region of Origin, 92-01 Average

Fuels, Oils, Bituminous Substances, and Electricity	7%	92.6%	Non-metro
Wood, Pulp, Paper and Products Thereof	8.7%	91.3%	
Fur, Leather, and Products Thereof	18.8%	81.2%	
Ores, Metals and Metal Articles	21.2%	78.8%	
Agriculture, Fishery, Orchard, Food, Food Products and By Products	28.9%	71.1%	
Articles of Stone, Cement, Ceramics, Glass, and Precious Metals	36.6%	63.4%	
Plastic, Rubber, and Chemical Products and By-Products	58.8%	41.2%	
Services	61.5%	38.5%	
Boilers, Machinery, Electrical, Transportation Equipment and Products	62.4%	37.6%	
Msc Manufactured Products	81.4%	18.6%	
Textiles, Fabrics, and Products Thereof	Metro	84.2%	15.8%

The final step in the allocation process was multiplication (at the detailed sub-group commodity level) of the average annual value of exports by sector over the 1992 to 2001 period by the percentage estimated to originate in metropolitan and non-metropolitan regions based on the distribution of the labour force by place of residence and occupation. When aggregated to the eleven major commodity groups, the result is an estimate of the average annual dollar value of international exports by region of origin and major commodity group, shown on Figures 8 and 9.

**Figure 8: Value of Average Annual International Exports of
BC Metropolitan Origin, 1992 to 2001**



The single largest component of international exports that originate in metropolitan region are services, which contributed an average of \$4.4 billion to the province's economic base each year over the 1992 to 2001 period, 45% of the total estimated international exports of metropolitan regions (Figure 8). Second in importance was the machinery and equipment category (boilers, machinery, electrical, and transportation equipment and products), which averaged exports of \$1.7 billion per year, 17% of the metropolitan area's total of \$9.8 billion.

Third place is held by forest products (wood, pulp, paper, products thereof), averaging \$1.3 billion per year, 13% of metropolitan areas' total. In the strictest sense of the objectives of this research, these exports are of non-metropolitan origin. They are allocated to metropolitan regions as a result of using the place of residence of people in forestry occupations who live in metropolitan regions but work elsewhere, of people with forestry occupations living in metropolitan areas who add value to forest products with non-metropolitan origins, and, in a very minor sense, the limited forestry activities that occur in metropolitan areas. As the current methodology does not provide any way to adjust for these factors, these exports are left as being of metropolitan origin – as the

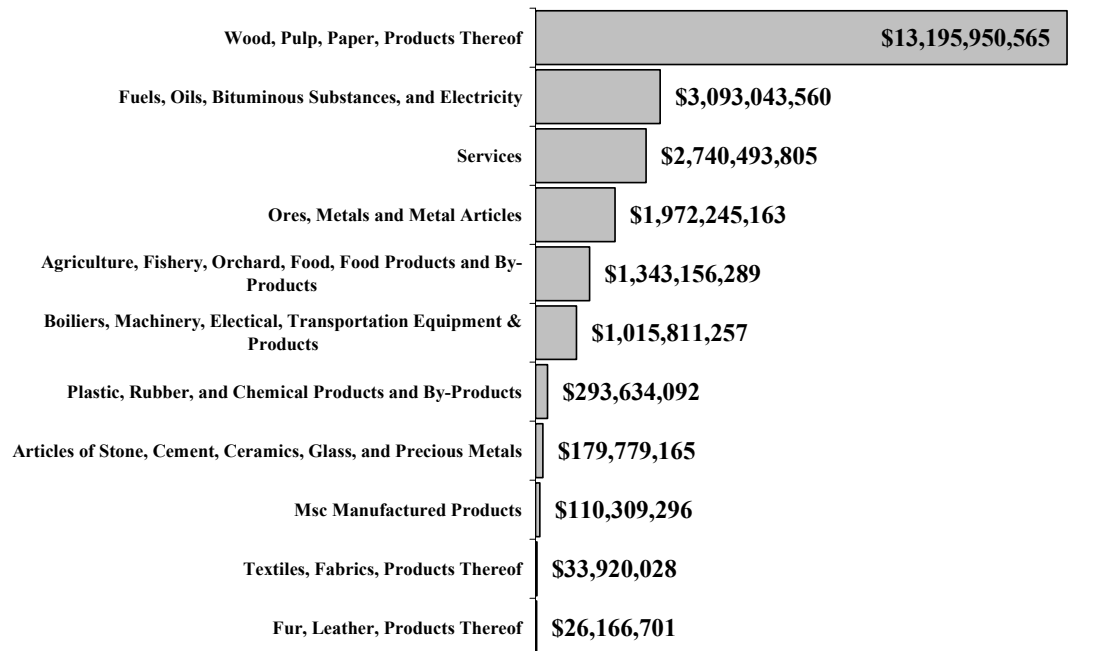
subsequent content of this report shows this overstatement of metropolitan exports does not change the conclusion of the analysis.

In the case of the food products group of international export (\$546 million average, 6% of metropolitan international exports), it is important to note that a significant portion of the province's agricultural exports come from metropolitan regions. For example, the 2001 Census of Agriculture indicated that 30% of the provincial farm revenue originated from farms in the Vancouver Census Metropolitan Area. Similarly, 33% of the people with occupations related to fisheries, aquaculture and marine harvest live in metropolitan regions: while their harvest may not occur in these regions, they are the only "places" that can be identified as the origin of their output.

The remaining 19% of international exports originating in metropolitan regions is comprised of various manufactured and processed products: again, it may be argued that all of the inputs to these processes do not originate in these regions. To be consistent with the occupation based methodology use here, these exports must be allocated to the metropolitan regions regardless of the source of their inputs.

The commodities which dominate non-metropolitan region's exports are quite different (Figure 9). The annual average value of exports of forest products originating outside of the province's two metropolitan regions, \$13.2 billion (55% of the total international exports from non-metropolitan areas of \$24.0 billion) is, in itself, 35% larger than the total exports of the province's metropolitan regions. The second largest component of non-metropolitan region's international exports are energy and fuels (\$3.1 billion, 13%), followed by services (\$2.8 billion, 11%) in third place.

**Figure 9: Value of Average Annual International Exports of
BC Non-metropolitan Origin, 1992 to 2001**

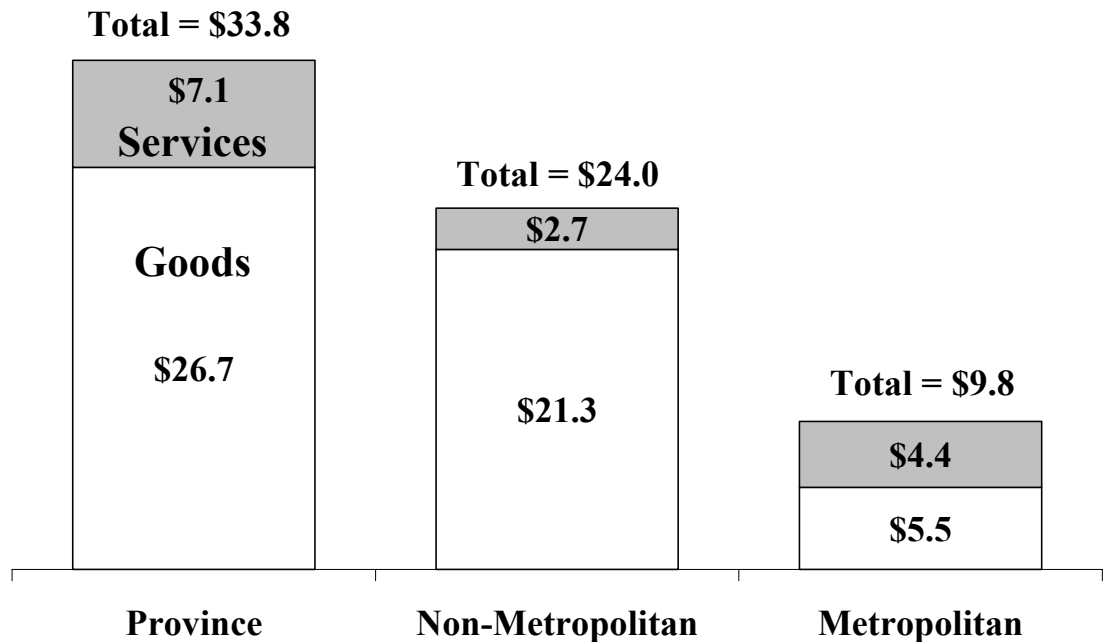


The fourth largest component of non-metropolitan international exports is the ores, metals and metal articles group (\$1.97 billion, 8%), followed by the food group (\$1.3 billion, 6%), and the machinery and equipment group (\$1.0 billion, 4%). These top six groups account for 97% of the value of international exports from non-metropolitan regions, with the remaining 3% accounted for by a range of other manufactured and processed products.

3.4 Conclusions

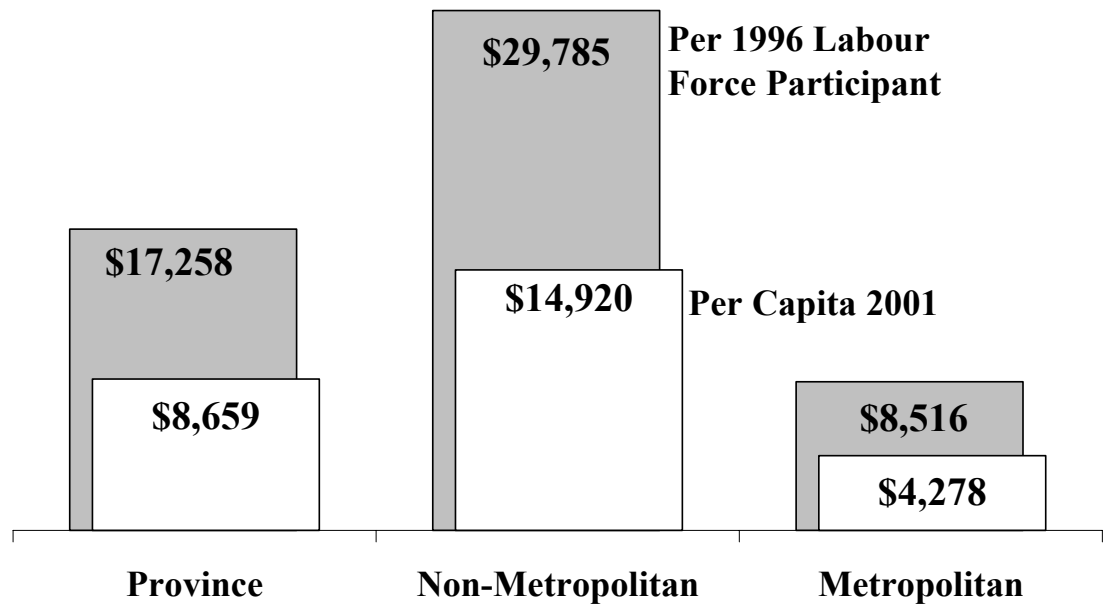
The preceding analysis indicates that, over the past decade, out of the total provincial annual average of \$33.8 billion in international exports, \$24.0 (71%) came from non-metropolitan areas and \$9.8 billion (29%) came from metropolitan areas (Figures 10). Of the average annual international exports of \$7.1 billion in services, \$4.4 billion (61%) came from metropolitan areas and \$2.7 billion (39%) came from non-metropolitan areas. Of the average annual international export of goods of \$26.7 billion, \$21.3 billion (80%) originated in non-metropolitan regions and \$5.5 billion (20%) came from metropolitan regions.

**Figure 10: International Exports, British Columbia, 1992-2001
by Regional of Origin, Annual Average (Billion Current\$)**



Metropolitan regions are home to the majority of the province's population. Figure 11 shows that they do not contribute their proportionate share to the international export component of the economic base. With provincial average annual international exports of \$8,659 per capita (2001 population), the value of exports from non-metropolitan regions was \$14,290 per person, while that of the metropolitan regions was only \$4,278, half the provincial, and 30% of the non-metropolitan, average. The non-metropolitan area's contribution to the international exports was \$29,789 per (1996) labour force participant, compared to the metropolitan region's \$8,513 per labour force participant and the provincial average of \$17,258.

**Figure 11: Contribution to Exports, British Columbia, 1992-2001
By Region of Origin, Annual Average**



Given the preceding analysis, it would appear that, relative to the provincial annual average of \$8,659 per capita in international export earnings, non-metropolitan areas produce a \$6,261 per capita surplus while metropolitan areas have a \$4,176 per capita deficit. While metropolitan regions most certainly contribute to the province's economic base, in order to match the contributions of non-metropolitan areas metropolitan regions would have to triple their per capita international exports.

It is useful to place the "city state" concept for metropolitan regions in the economic base context. If the metropolitan and non-metropolitan regions were "provinces", the non-metropolitan "province" would have \$14,920 in international export income per capita and the metropolitan "city states" would have only \$4,278 per capita. It would then be necessary to look at the trade between these two regions to determine the direction of the trade balance between them, as they sell both goods and services to each other. While this analysis would be interesting, fundamentally it would acknowledge the reality that the non-metropolitan regions would start out having three times as much per capita to spend than the "city states".

In conclusion, given the dependency of metropolitan regions on the income generated by the export-oriented work done outside these regions, at least until the reality of "city states" occurs, it is in the best interests of residents of metropolitan regions to ensure that the non-metropolitan regions can attract and retain the people and investment necessary to produce the export income that is shared amongst all British Columbians.

IV. FURTHER RESEARCH

The next major steps in the discussion of the origins of the province's economic base will involve consideration of international imports, inter-provincial exports and inter-provincial imports. While not prejudicing the conclusions of this future research, some brief consideration of these other aspects of the province's economic base is warranted.

The mirror image of international exports, international imports drain money out of the provincial economy. Matching data on international imports by commodity type are published: what they show is that the imports to the province are overwhelmingly of consumer products. The single largest component, accounting for 54% of the total value of international imports, is of machinery and equipment. Of this major category, the largest element is seen on the roads, rails, waterways, and skyways of the province: transportation equipment accounts for 19.1% of the province's international imports. These are overwhelmingly road based imports, with 17.2% of imports being in the category of motor vehicles, trailers, bicycles, motorcycles and other similar vehicles. There is a high correlation between population and the use of motor vehicles, whether it is transit or sports utility vehicles, and hence these imports can generally be allocated on a per capita basis to metropolitan and non-metropolitan areas.

A similar situation prevails with respect to the importation of food, which accounts for 9.1% of all of British Columbia's international imports. The same holds true of the remainder of imports to the province, from textiles and clothing (4.4% of international imports); the fuel to run those imported motor vehicles on (2.0%); boilers, machinery and mechanical appliances (12.6%); electrical or electronic equipment (8.6%); and on to the 18% of our imports that are made up of services. Considering the composition of the inflow of international imports, they are likely to have destinations in the province that follow a population distribution, and hence are not likely to significantly change the conclusions about the relative net contributions to international exports by regions within the province.

In terms of inter-provincial imports and exports, there are no published data on the commodity composition of flows beyond their breakdown into goods and services. Further research will be required to find data that will permit estimation of the allocation of these aspects of the provincial economic base. One may speculate that inter-provincial imports are also likely to be comprised of consumer goods and services, and hence allocated on a per capita basis, while exports are likely to involve forest products, agricultural goods, minerals, and tourism, and hence follow a pattern similar to that of international exports.

Appendix I:

**Description of Merchandise and Service
Categories for Export Classification
from Statistics Canada Provincial
Economic Accounts.**

**Resource Dependency:
The Spatial Origins of
BC's Economic Base.**

Code	Goods Commodity Title	Code	Goods Commodity Title	Code	Goods Commodity Title
1	Cattle & calves	75	Powder dairy products	149	Plastic film & sheet
2	Hogs	76	Other dairy products	150	Foamed & expanded plastics
3	Poultry	77	Mayonnaise, salad dressing & mustard	151	Other plastic products, incl. cups
4	Other live animals	78	Fish & seafood prod. fresh, chilled, frozen	152	Plastic building supplies
5	Wheat, unmilled, excl. imputed feed	79	Other fish & seafood products	153	Other rubber end products
6	Wheat, unmilled, imputed feed	80	Frozen fruit & juice	154	Plastic containers & closures
7	Grain corn, excl. imputed feed	81	Other fruit juice	155	Plastic pipe & pipe fittings
8	Corn fodder, imputed feed	82	Other fruit products	156	Leather & other leather goods
9	Barley, excl. imputed feed	83	Fruit & jam in airtight containers	157	Footwear, excl. waterproof
10	Other grains, excl. imputed feed	84	Frozen potatoes	158	Leather gloves
11	Other grains & fodder, imputed feed	85	Other frozen vegetables	159	Luggage, briefcases, etc.
12	Fluid milk, unprocessed	86	Other preserved vegetables	160	Handbags, wallets, etc.
13	Eggs in the shell	87	Vegetables & juice in airtight containers	161	Cotton yarn
14	Honey & beeswax	88	Soups in airtight containers	162	Cotton woven fabric
15	Fresh fruit, excl. tropical	89	Infant & junior foods, in airtight containers	163	Tire cord fabric
16	Potatoes, fresh or chilled	90	Sauces, pickles, etc.	164	Bedding
17	Other vegetables, fresh or chilled	91	Vinegar	165	Wool & wool mix yarn & thread
18	Hay & straw, excl. imputed feed	92	Mineral water, fruit drinks & ice	166	Wool & wool mix woven fabric
19	Hay & straw, imputed feed	93	Pasta products, excl. dry pasta	167	Felt
20	Seeds, excl. oil seeds	94	Prepared meals	168	Man-made staple fibres
21	Nursery stock, flowers, etc.	95	Feed supplements & premixes	169	Polyamide resins, incl. nylon
22	Canola	96	Complete feeds	170	Filament yarn
23	Soybeans & other oil seeds	97	Feeds from grain byproducts	171	Yarn of staple fibres
24	Raw tobacco	98	Feeds from vegetable byproducts	172	Tire yarn
25	Raw wool and mink skins	99	Pet feeds	173	Man-made fabric for clothing
28	Logs	100	Wheat flour	174	Man-made fabric for industrial use
29	Poles, piling, bolts, etc.	101	Starches	175	Pile fabric
30	Pulpwood	102	Breakfast cereal products	176	Cotton thread
31	Fuelwood & other crude wood	103	Biscuits	177	Man-made thread
32	Custom forestry	104	Bread & rolls	178	Rope & twine
33	Fish & seafood, fresh, chilled	105	Other bakery products	179	Narrow fabrics, incl. lace
34	Hunting & trapping products	106	Food snacks	180	Textile floor covering
35	Gold & alloys in primary forms	107	Cocoa & chocolate	182	Awnings, tarpaulins, etc.
36	Radioactive ores & concentrates	108	Nuts	183	Tents, sleeping bags, sails, etc.
37	Iron ores & concentrates	109	Chocolate confectionery	184	Other household textile products
38	Bauxite & alumina	110	Other confectionery	185	Textile medical products
39	Other metal ores & concentrates	111	Sugar	186	Other textile products
40	Coal	112	Oil-cake feeds	187	Hosiery
41	Crude mineral oils	113	Crude vegetable oils	188	Knitted fabrics
42	Natural gas, excl. liquefied	114	Nitrogen function compounds	189	Men's & boys' knitted clothing
43	Sulphur, crude & refined	115	Other flours & processed grains	190	Sweaters
44	Asbestos, crude & milled	116	Maple sugar & syrup	191	Women's knitted clothing
45	Gypsum	117	Other syrup	192	Children's knitted clothing
46	Salt	118	Prepared cake & other mixes	193	Men's & boys' clothing
47	Peat	119	Dehydrated soup mixes & bases	194	Women's underwear & sleepwear
48	Clays	120	Roasted coffee	195	Other women's clothing
49	Natural abrasives & industrial diamonds	121	Tea	196	Children's wear
50	Other crude minerals	122	Potato chips & flakes	197	Other clothing & accessories
51	Sand (excl. silica) & gravel	123	Spices	198	Dressed furs
52	Stone & silica sand for industrial use	124	Peanut butter	199	Fur apparel
53	Stone for construction	125	Food & drink powders	201	Wood chips
55	Beef, fresh, chilled, frozen	126	Other food products	202	Lumber
56	Pork, fresh, chilled, frozen	127	Infant & junior foods, excl. in airtight containers	203	Treated wood
57	Other meat, fresh, chilled, frozen	128	Dry pasta	204	Wood waste
58	Edible offal, fresh, chilled, frozen	129	Soft drink concentrates	206	Plywood & veneer
59	Cured meat	130	Carbonated soft drinks	207	Wooden doors & windows
60	Prepared meat products	131	Distilled alc. beverages, bought in stores	208	Kitchen cabinets
61	Animal fat & lard	133	Beer, incl. coolers, bought in stores	209	Other millwork
62	Margarine & shortening	135	Wine, incl. coolers, bought in stores	210	Wood structural products
63	Sausage casings	137	Unmanufactured tobacco	211	Wood prefabricated buildings
64	Feeds from animal byproducts	138	Cigarettes	212	Wood containers & pallets
65	Raw animal hides & skins	139	Other tobacco products	213	Caskets & coffins
66	Animal byproducts for ind. use	140	Waterproof footwear	214	Shingles & shakes
67	Custom work, meat & food	141	Passenger car tires	215	Particle & wafer board
68	Poultry, fresh, chilled, frozen	142	Truck, bus & off-highway tires	216	Other wood end products
69	Fluid milk, processed	143	Other tires & tubes	217	Household furniture
70	Fresh cream	144	Tire repair material & retreaded tires	218	Furniture parts
71	Butter	145	Conveyor & transmission belting	219	Office furniture
72	Cheese	146	Self-adhesive tape	220	Commercial & institutional furniture
73	Evaporated & condensed dairy products	147	Other rubber products for industrial use	221	Mattresses & other furniture
74	Ice cream	148	Hose & tubing, mainly rubber	222	Portable lighting fixtures

**Resource Dependency:
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Goods Commodity Title	Code	Goods Commodity Title	Code	Goods Commodity Title
Wood pulp	296	Soldering rods & wire	368	Off-highway trucks
Newsprint paper	297	Fabricated steel plate	369	Military motor vehicles
Other paper, containing wood	298	Metal tanks	370	Motor homes, motorcycles & atvs
Other paper, woodfree	299	Power boilers	371	Mobile homes
Tissue & sanitary paper stock	300	Iron & steel structural materials	372	Non-commercial trailers
Wrapping & sack paper, bag stock	301	Prefabricated metal buildings	373	Commercial trailers & semi-trailers
Paperboard, incl boxboard	302	Prefabricated metal structures	374	Truck & bus bodies & cargo containers
Building board & paper	303	Metal doors and windows	375	Motor vehicle engines & parts
Asphalt building products	304	Other metal building products	376	Motor vehicle electric equipment
Toilet paper, paper towel, tissue, etc.	305	Corrugated metal culvert pipe	377	Motor vehicle stampings
Paper waste & scrap	306	Iron & steel stampings	378	Motor vehicle steering & suspension
Vinyl floor & wall covering	307	Metal roofing, siding, ducts, etc.	379	Motor vehicle wheels & brakes
Paper bags & sacks	308	Metal kitchen utensils	380	Motor vehicle plastic parts & trim
Paper boxes, cartons & drums	309	Other kitchen utensils	381	Motor vehicle fabric accessories
Plastic bags	310	Other metal containers & closures	382	Other motor vehicle parts & accessories
Corrugated paper & board	311	Food, beverage and other cans	383	Locomotive, railway & urban trans. rolling stock
Wallpaper	312	Iron & steel wire & cable	384	Parts for loc., railway & urban trans. rolling stock
Other coated paper & products	313	Iron & steel wire fencing & screen	385	Ships, boats & parts, excl. pleasure
Aluminum foil	314	Chain, excl motor vehicle & power transmission	387	Snowmobiles
Paper diapers & sanitary napkins	315	Welding rods & wire electrodes	388	Pleasure boats & sporting craft
Textile hygiene products	316	Wire products, incl. springs	389	Microwave ovens
Paper containers for commercial use	317	Fastener hardware	390	Small household appliances
Paper stationery	318	Builders' hardware	391	Electric furnace & other electric heating equip
Other stationery supplies	319	Other hardware	392	Household refrigerators & freezers
Photographic paper	320	Machine tools	393	Hhhold cooking equipment, excl. microwave ovens
Other paper end products	321	Tool accessories	394	Radio, stereo, cassette & CD players, & access.
Newspapers	322	Hand & measuring tools	395	TV, VCR, accessories, & unrecorded tape
Magazines & periodicals	323	Scissors, razor blades, industrial cutlery, etc.	396	Telephone & related equipment, incl. facsimile
Books	324	Household clothes washers & dryers	397	Broadcasting & radio communications equipment
Greeting & post cards, maps, etc.	325	Household dishwashers	398	Radar & radio navigation equipment
Banknotes, cheques & stamps, etc.	326	Mowers, snowblowers, sprinklers, etc.	399	Semi-conductors
Printed business forms	327	Non-electric furnaces & heating equipment	400	Printed circuits
Advertising flyers, catalogues, directories	328	Commercial cooking equipment	401	Integrated circuits
Other printed matter	329	Custom metal working	402	Other electronic equipment components
Printing plates, type, etc.	330	Iron & steel forgings	403	Electronic alarm & signal systems
Ferro-alloys	331	Valves	404	Welding machinery & equipment
Iron & steel ingots, billets, etc.	332	Metal plumbing fixtures & fittings	405	Power generation & marine prop., non-electric
Steel castings	333	Plastic plumbing fixtures & fittings	406	Electrical generators & motors
Steel bars & rods, non-alloy, excl. reinforced	334	Gas & water meters	407	Ballast
Reinforcing bars & rods	335	Fire fighting & traffic control equipment	408	Transformers & converters
Alloy steel bars & rods	336	Firearms & military hardware	409	Industrial electric equipment, incl. safety
Flat iron & steel, not alloy, not coated	337	Bulldozers, farm & garden tractors	410	Batteries
Flat iron & steel, alloy, coated	338	Other agricultural machinery	411	Wire & cable, insulated, excl. aluminum
Iron & steel railway construction material	339	Bearings	412	Aluminum wire & cable
Tar & pitch	340	Mechanical power transmission equipment	413	Wiring materials & electrical meters
Carbon & graphite products	341	Pumps, compressors, fans & blowers	414	Electric light bulbs & tubes
Oil & gas casing & drill pipe	342	Conveyors, elevators & hoisting machinery	415	Electric lighting fixtures, excl. portable
Oil & gas line pipe	343	Industrial trucks & material handling equipment	416	Vehicle lighting equipment
Other iron & steel pipes & tubes	344	Fans & air circulation units, not industrial	417	Cement
Other cast iron products	345	Packaging & bottling machinery	418	Lime
Grinding balls & ingot moulds	346	Air purification equipment	419	Concrete products
Cast iron pipe & fittings	347	Other general purpose machinery	420	Ready-mix concrete
Other iron & steel pipe fittings	348	Industrial furnaces, kilns & ovens	421	Bricks & other clay building products
Nickel in primary forms	349	Construction & mining machinery	422	Porcelain insulators
Copper in primary forms	350	Logging, pulp & paper industry machinery	423	Ceramic household products
Lead in primary forms	351	Metal working machinery	424	Refractory products
Zinc in primary forms	352	Other industry specific machinery	425	Natural stone products
Aluminum & alloy ingots, billets, blocks & slabs	353	Service industry machinery	426	Gypsum building products
Aluminum & alloys, other primary forms	354	Power hand tools	427	Mineral wool building products
Precious metals in primary forms excl. gold	355	Air conditioning equipment, wall & window	428	Asbestos products
Other non-ferrous base metals	356	Air cond. & refrig. equip., commercial & transport	429	Other non-metallic mineral basic products
Other non-ferrous base & fabricated materials	357	Scales & balances	430	Glass and other glass products
Other inorganic bases & metallic oxides	358	Vending machines	431	Safety glass
Metal scrap, excl. iron & steel	359	Computers, video units, printers, etc.	432	Optical fibre cables
Iron & steel scrap	360	Office equipment, excl. photocopy & facsimile	433	Glass fibre batts, mats, etc.
Aluminum & aluminum alloy fabricated materials	361	Aircraft	434	Glass containers
Copper fabricated materials	362	Aircraft engines	435	Mirrors & glass household products
Copper alloy fabricated materials	363	Aircraft parts & equipment	436	Abrasive products
Lead & lead alloy fabricated materials	365	Automobiles, incl. passenger vans	437	Motor gasoline
Nickel & nickel alloy fabricated materials	366	Trucks, road tractors & chassis	438	Aviation fuel
Zinc & zinc alloy fabricated materials	367	Buses & chassis	439	Diesel oil

**Resource Dependency:
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Code	Goods Commodity Title	Code	Goods Commodity Title
440	Light fuel oil	511	Metal working industrial chemicals
441	Heavy fuel oil	512	Printing & other inks
442	Lubricating oils & greases	513	Polish, cream & wax products
443	Benzene, toluene & xylene	514	Other oils, fats & waxes
444	Liquid petroleum gases, incl. natural gas	515	Aircraft & nautical navig. instruments, excl. radio
445	Naphtha	516	Lab & scientific instruments, & flight simulators
446	Asphalt compound, hot bulk	517	Measuring & controlling instruments
447	Other asphalt products	518	Medical & dental equipment & supplies
448	Petrochemical feed stock	519	Ophthalmic goods
449	Animal & vegetable fertilizers, imputed	520	Personal medical goods
450	Animal & vegetable fertilizers, excl. imputed	521	Industrial safety equipment
451	Potash	522	Watches, clocks, etc
452	Chemical fertilizers	523	Optical & photo equipment
453	Ethylene polymers	524	Photocopy & microfilm equipment
454	Vinyl polymers	525	Photographic film & plate
455	Other polymers	527	Brooms, brushes, mops, etc.
456	Cellulosic plastic film & sheet	528	Bicycles
457	Monoethylene glycol	529	Recreational equipment
458	Pharmaceuticals	530	Toys & games, incl. electronic
459	Paints & related products	531	Impregnated & coated fabrics
460	Refined vegetable oils	532	Floor & wall covering, excl. vinyl
461	Oral care products	533	Advertising signs, displays, etc.
462	Soaps	534	Shades & blinds
463	Detergents	535	Custom work, refined petroleum and coal
464	Other cleaning products	536	Other custom work
465	Other industrial chemical preparations	537	Animal hair, fur dyeing, etc.
466	Cosmetic products	538	Other metal end products
467	Hair care products	539	Sewing needs
468	Other personal care products	540	Recordings, musical instr., artists' supplies, etc.
469	Bleach and fabric softeners	541	Smokers' supplies
470	Chlorine	579	Electric power
471	Oxygen	581	Coke
472	Phosphorous	664	Raw cotton
473	Other chemical elements	665	Natural rubber & gums
474	Sulphuric acid	666	Raw sugar
475	Other inorganic acids & oxygen compounds	667	Cocoa beans
476	Ammonia	668	Coffee, not roasted
477	Caustic soda	669	Tropical fruit
478	Sodium chlorate	672	Indirect taxes on products
479	Sodium phosphates	673	Subsidies on products
480	Sodium carbonate	674	Subsidies on production
481	Other metallic salts & peroxysalts	675	Indirect taxes on production
482	Deuterium oxide (heavy water)		
483	Radioactive chemicals		
484	Other inorganic chemicals		
485	Ethylene		
486	Butylenes		
487	Butadiene		
488	Styrene		
489	Vinyl chloride		
490	Other hydrocarbons & derivatives		
491	Methyl alcohol		
492	Other alcohols & derivatives		
493	Ethers, alcohol peroxides, etc.		
494	Other phenols, aldehydes & ketones		
495	Organic acids & derivatives		
496	Organo-inorganic compounds		
497	Other organic chemicals		
498	Titanium dioxide, excl. slag		
499	Carbon		
500	Pigments, lakes & dyes		
501	Synthetic rubber		
502	Antifreezing preparations		
503	Additives & automobile chemicals		
504	Rubber & plastic compounding agents		
505	Explosives & non-military ammunition		
506	Military ammunition & ordnance		
507	Crude vegetable materials & extracts		
508	Insecticides & herbicides		
509	Adhesives		
510	Catalysts		

**Resource Dependency:
The Spatial Origins of
BC's Economic Base.**

	Code	Services Commodity Title	Code	Services Commodity Title
s	26	Services incidental to agriculture	600	Life insurance
s	27	Services incidental to forestry	601	Non-life insurance
s	54	Services incidental to mining	602	Trusteed pension funds
s	132	Distilled alc. beverages, consumed on lic. premises	603	Insurance commissions
s	134	Beer, incl. coolers, consumed on lic. premises	604	Gross imputed rent
s	136	Wine. Incl. coolers, consumed on lic. premises	605	Gross paid residential rent
s	181	Textile dyeing & finishing service	606	Imputed lodging
s	200	Custom tailoring	607	Lodging in universities
s	205	Custom wood work & millwork	608	Other paid lodging, excl. universities
s	257	Advertising in print media	609	Non-residential rent
s	258	Specialized publishing service	610	Private education services
s	364	Aircraft service & repairs	611	Private hospital services
s	386	Ship repairs	612	Private residential care facilities
s	526	Jewelry, silverware, flatware, etc.	613	Child care, outside the home
s	542	Art & decorative goods, misc. end products	614	Other health & social services
s	543	Repair construction	615	Health practitioners & laboratory services
s	544	Residential construction	616	Motion picture, audio, & video prod. & distributor
s	545	Non-residential building construction	617	Motion picture exhibition
s	546	Road, highway & airport runway construction	618	Lottery and other gambling
s	547	Gas & oil facility construction	619	Race track services
s	548	Electric power, dams & irrigation construction	620	Other recreational services
s	549	Railway & telecommunications construction	621	Architect, engineering, & scientific services
s	550	Other engineering construction	622	Accounting & legal services
s	551	Air transport, passenger	623	Advertising services
s	552	Air transport, freight	624	Laundry and dry cleaning
s	553	Air transport, specialty	625	Accommodation services
s	554	Services incidental to air transport	626	Meals
s	555	School bus & other transportation	627	Barber & beauty services
s	556	Ambulance services	628	Funeral services
s	557	Travel agents, tour wholesaler & operator serv.	629	Child care, in the home
s	558	Parking services	630	Private household service
s	559	Other services incidental to transport	631	Other personal services
s	560	Water transport, passenger	632	Photographic services
s	561	Water transport, freight	633	Services to buildings & dwellings
s	562	Water transport, other	634	Software products development
s	563	Services incidental to water transport	635	Computer lease & rental (hardware)
s	564	Rail transport, passenger	636	Professional & processing computer service
s	565	Rail transport, freight	637	Other services to business & persons
s	566	Services incidental to rail transport	638	Courier service
s	567	Truck transportation	639	Rental of automobiles & trucks
s	568	Bus transport, interurban & rural, passenger	640	Membership organization dues (excl. religious)
s	569	Bus transport, interurban & rural, parcel express	641	Rental, video & recreation equipment
s	570	Urban transit	642	Rental, other machinery & equipment incl const
s	571	Taxicab transportation	643	Spare parts & maintenance supplies
s	572	Pipeline transportation	644	Office supplies
s	573	Highway and bridge maintenance	645	Cafeteria supplies
s	574	Grain storage	646	Transportation margins
s	575	Other storage and warehousing	647	Laboratory equipment & supplies
s	576	Radio & television broadcasting, incl cable	648	Travelling and entertainment
s	577	Telephone & other telecommunications	649	Advertising & promotion
s	578	Postal services	650	Religious organizations services
s	580	Gas distribution	651	Welfare organizations services
s	582	Water supply	652	Non-profit sports & recreation services
s	583	Other utilities	653	Non-profit educational services
s	584	Wholesaling margins	654	Other non-profit services
s	585	Repair service for machinery & equipment	655	Government funding of hospital
s	586	Rental of office equipment	656	Government funding of residential care
s	587	Retailing margins	657	Government funding of universities
s	588	Retailing service	658	Government funding of other education
s	589	Central bank	659	Defence services
s	590	Implicit charges, banks & oth. dep. acc. intermed.	660	Other municipal government services
s	591	Paid charges, banks & oth. dep. acc. intermed.	661	Other provincial government services
s	592	Implicit charges, credit unions & caisses pop.	662	Other federal government services
s	593	Paid charges, credit unions & caisses pop.	663	
s	594	Royalties & licence fees (excl. natural resource)	670	Unallocated imports & exports
s	595	Stock & bond commissions	671	Sales of other government services
s	596	Implicit charge, sales finance & consumer loan	676	Wages and salaries
s	597	Mutual funds	677	Supplementary labour income
s	598	Other financial intermediary services	678	Mixed income
s	599	Real estate commissions & management fees	679	Other operating surplus

**Resource Dependency:
The Spatial Origins of
BC's Economic Base.**

Appendix II:
**Allocation of International Exports
by Two Digit Export Codes.**

**Resource Dependency:
The Spatial Origins of
BC's Economic Base.**

Category	Labour Force		1992-2001 Average Annual Exports		
	Non-Metro	Metro	Provincial	Non-metro	Metro
HS 01 - Live Animals	77%	23%	\$ 68,227,055	\$ 52,786,772	\$ 15,440,283
HS 02 - Meat and Edible Meat Offal	77%	23%	\$ 51,775,740	\$ 40,058,510	\$ 11,717,230
HS 03 - Fish, Crustaceans, Molluscs and Other Aquatic Invertebrates	67%	33%	\$ 793,407,846	\$ 533,949,561	\$ 259,458,285
HS 04 - Dairy Produce, Eggs, Honey and Other Similar Edible Products of Animal Origin	77%	23%	\$ 7,882,554	\$ 6,098,674	\$ 1,783,880
HS 05 - Products of Animal Origin Not Elsewhere Classified	77%	23%	\$ 7,283,268	\$ 5,635,011	\$ 1,648,257
HS 06 - Live Trees and Other Plants (Incl. Cut Flowers and Ornamental Foliage)	55%	45%	\$ 47,168,509	\$ 25,784,087	\$ 21,384,422
HS 07 - Edible Vegetables and Certain Roots and Tubers	75%	25%	\$ 123,095,298	\$ 92,748,959	\$ 30,346,339
HS 08 - Edible Fruits and Nuts	75%	25%	\$ 111,195,283	\$ 83,782,622	\$ 27,412,661
HS 09 - Coffee, Tea, Maté and Spices	75%	25%	\$ 24,059,539	\$ 18,128,209	\$ 5,931,331
HS 10 - Cereals	75%	25%	\$ 29,723,647	\$ 22,395,960	\$ 7,327,687
HS 11 - Products of the Milling Industry; Malt, Straches, Inulin and Wheat Gluten	75%	25%	\$ 12,771,673	\$ 9,535,227	\$ 3,236,446
HS 12 - Oil Seeds, Oleaginous Fruits, Industrial or Medicinal Plants, Straw and Fodder	75%	25%	\$ 53,031,032	\$ 39,592,535	\$ 13,438,497
HS 13 - Lac, Gums, Resins and Other Vegetable Saps and Extracts	75%	25%	\$ 1,036,929	\$ 774,163	\$ 262,766
HS 14 - Vegetable Plaiting Material and Other Similar Vegetable Products	75%	25%	\$ 14,218	\$ 10,615	\$ 3,603
HS 15 - Fats, Oils, Their Cleavage Products and Waxes	75%	25%	\$ 78,595,638	\$ 59,203,943	\$ 19,391,696
HS 16 - Meat, Fish and Seafood Preparations	75%	25%	\$ 137,071,145	\$ 103,251,941	\$ 33,819,204
HS 17 - Sugars and Sugar Confectionery	34%	66%	\$ 3,833,698	\$ 1,311,528	\$ 2,522,170
HS 18 - Cocoa and Cocoa Preparations	34%	66%	\$ 9,526,198	\$ 3,258,963	\$ 6,267,236
HS 19 - Preparations of Cereals, Flour, Starch or Milk (Including Bread and Pastry)	75%	25%	\$ 62,289,970	\$ 46,505,182	\$ 15,784,788
HS 20 - Preparations of Vegetables, Fruit, Nuts or Other Parts of Plants	75%	25%	\$ 37,927,788	\$ 28,316,576	\$ 9,611,212
HS 21 - Miscellaneous Edible Preparations	75%	25%	\$ 36,555,984	\$ 27,292,399	\$ 9,263,585
HS 22 - Beverages, Spirits and Vinegar	75%	25%	\$ 92,738,528	\$ 69,237,827	\$ 23,500,702
HS 23 - Residues and Waste from the Food Industries, and Prepared Animal Fodder	75%	25%	\$ 96,613,572	\$ 72,130,902	\$ 24,482,669
HS 24 - Tobacco and Manufactured Tobacco Substitutes	38%	62%	\$ 3,615,819	\$ 1,366,123	\$ 2,249,696
Agriculture, Fishery, Orchard, Food, Food Products and By Products	71%	29%	\$ 1,889,440,934	\$ 1,343,156,289	\$ 546,284,645
HS 27 - Mineral Fuels, Mineral Oils, Bituminous Substances and Mineral Waxes	93%	7%	\$ 3,339,318,283	\$ 3,093,043,560	\$ 246,274,723
Fuels, Oils, Bituminous Substances, and Electricity	93%	7%	\$ 3,339,318,283	\$ 3,093,043,560	\$ 246,274,723
HS 72 - Iron and Steel	35%	65%	\$ 128,219,281	\$ 44,383,597	\$ 83,835,684
HS 73 - Articles of Iron or Steel	35%	65%	\$ 265,307,959	\$ 91,837,370	\$ 173,470,588
HS 74 - Copper and Articles Thereof	93%	7%	\$ 20,406,882	\$ 18,980,778	\$ 1,426,105
HS 75 - Nickel and Articles Thereof	93%	7%	\$ 1,147,748	\$ 1,067,539	\$ 80,209
HS 76 - Aluminum and Articles Thereof	93%	7%	\$ 604,325,667	\$ 562,093,258	\$ 42,232,409
HS 78 - Lead and Articles Thereof	93%	7%	\$ 61,252,064	\$ 56,971,554	\$ 4,280,510
HS 79 - Zinc and Articles Thereof	93%	7%	\$ 330,229,547	\$ 307,151,941	\$ 23,077,606
HS 80 - Tin and Articles Thereof	93%	7%	\$ 275,996	\$ 256,708	\$ 19,288
HS 81 - Other Base Metals, Cermetes and Articles Thereof	60%	40%	\$ 12,563,363	\$ 7,535,883	\$ 5,027,480
HS 82 - Tools, Implements, Cutlery, Spoons and Forks of Base Metals	60%	40%	\$ 22,641,887	\$ 13,581,285	\$ 9,060,602
HS 83 - Miscellaneous Articles of Base Metal	60%	40%	\$ 32,312,531	\$ 19,382,028	\$ 12,930,503
HS 25 - Salt, Sulfur, Earths, Lime, Stone, Cement and Plastering Materials	79%	21%	\$ 144,690,047	\$ 114,577,851	\$ 30,112,196
HS 26 - Ores, Slag and Ash	93%	7%	\$ 687,766,418	\$ 639,702,875	\$ 48,063,543
HS 28 - Inorganic Chemicals and Compounds of Precious Metals and Radioactive Elements	50%	50%	\$ 190,497,463	\$ 94,722,495	\$ 95,774,968
Ores, Metals and Metal Articles	79%	21%	\$ 2,501,636,853	\$ 1,972,245,163	\$ 529,391,690
HS 29 - Organic Chemicals (Including Vitamins, Alkaloids and Antibiotics)	50%	50%	\$ 307,895,651	\$ 153,097,285	\$ 154,798,366
HS 30 - Pharmaceutical Products	50%	50%	\$ 9,238,201	\$ 4,593,581	\$ 4,644,620
HS 31 - Fertilizers	50%	50%	\$ 38,651,799	\$ 19,219,127	\$ 19,432,673
HS 32 - Tannins, Dyes, Pigments, Paints, Varnishes, Inks, Putty and Other Similar Substances	50%	50%	\$ 18,929,689	\$ 9,412,553	\$ 9,517,137
HS 33 - Essential Oils and Resinoids, Perfumes, Cosmetics and Toilet Preparations	50%	50%	\$ 12,768,556	\$ 6,349,006	\$ 6,419,550
HS 34 - Soap, Washing and Lubricating Preparations, Waxes and Related Articles	50%	50%	\$ 11,322,507	\$ 5,629,976	\$ 5,692,531
HS 35 - Albuminoidal Substances, Modified Starches, Glues and Enzymes	50%	50%	\$ 8,561,607	\$ 4,257,153	\$ 4,304,454
HS 36 - Explosives, Matches and Other Miscellaneous Combustible Preparations	50%	50%	\$ 1,901,645	\$ 945,569	\$ 956,075
HS 37 - Photographic or Cinematographic Goods	50%	50%	\$ 19,320,855	\$ 9,607,055	\$ 9,713,800
HS 38 - Miscellaneous Chemical Products	50%	50%	\$ 25,642,159	\$ 12,750,245	\$ 12,891,914
HS 39 - Plastics and Articles Thereof	26%	74%	\$ 238,364,096	\$ 62,608,291	\$ 175,755,805
HS 40 - Rubber and Articles Thereof	26%	74%	\$ 19,661,492	\$ 5,164,253	\$ 14,497,240
Plastic, Rubber, and Chemical Products and By-Products	41%	59%	\$ 712,258,257	\$ 293,634,092	\$ 418,624,166

**Resource Dependency:
The Spatial Origins of
BC's Economic Base.**

Category	Labour Force		1992-2001 Average Annual Exports		
	Non-Metro	Metro	Provincial	Non-metro	Metro
HS 41 - Raw Hides, Skins (Other than Furskins) and Leather	81%	19%	\$ 10,358,345	\$ 8,414,700	\$ 1,943,644
HS 42 - Articles of Leather; Saddlery and Harness, Travel Goods, Handbags and Similar Containers	81%	19%	\$ 11,096,809	\$ 9,014,599	\$ 2,082,210
HS 43 - Furskins, Artificial Fur and Related Articles of Apparel or Clothing Accessories	81%	19%	\$ 10,755,584	\$ 8,737,402	\$ 2,018,183
Fur, Leather, and Products Thereof	81%	19%	\$ 32,210,739	\$ 26,166,701	\$ 6,044,037
HS 44 - Wood and Articles of Wood (Incl. Wood Charcoal)	92%	8%	\$ 8,823,715,209	\$ 8,097,312,048	\$ 726,403,161
HS 47 - Pulp of Wood and The Like; Waste and Scrap of Paper or Paperboard	92%	8%	\$ 3,430,155,760	\$ 3,159,353,989	\$ 270,801,771
HS 48 - Paper, Paperboard and Articles Made From These Materials	92%	8%	\$ 2,067,868,325	\$ 1,904,615,562	\$ 163,252,762
HS 45 - Cork and Articles of Cork	63%	38%	\$ 48,702	\$ 30,439	\$ 18,263
HS 46 - Straw and Other Plaiting Materials; Basketware and Wickerwork	63%	38%	\$ 328,963	\$ 205,602	\$ 123,361
HS 49 - Printed Books, Newspapers, Pictures, Manuscripts and The Like	28%	72%	\$ 124,304,186	\$ 34,432,924	\$ 89,871,262
Wood, Pulp, Paper and Products Thereof	91%	9%	\$14,446,421,146	\$13,195,950,565	\$ 1,250,470,581
HS 50 - Silk	16%	84%	\$ 473,013	\$ 74,940	\$ 398,074
HS 51 - Wool, Wool Yarns and Wool Fabrics	16%	84%	\$ 109,034	\$ 17,274	\$ 91,759
HS 52 - Cotton, Cotton Yarns and Cotton Fabrics	16%	84%	\$ 704,358	\$ 111,592	\$ 592,767
HS 53 - Other Vegetable Textile Fibers, Yarns and Fabrics	16%	84%	\$ 157,720	\$ 24,988	\$ 132,732
HS 54 - Man-Made Filaments, Filament Yarns and Fabrics	16%	84%	\$ 1,583,645	\$ 250,897	\$ 1,332,748
HS 55 - Man-Made Staple Fibers, Staple Fiber Yarns and Fabrics	16%	84%	\$ 497,466	\$ 78,814	\$ 418,653
HS 56 - Wadding, Felt, Nonwovens, Twine, Cordage, Rope, Cables and Related Articles	16%	84%	\$ 3,147,136	\$ 498,602	\$ 2,648,535
HS 57 - Carpets and Other Textile Floor Coverings	16%	84%	\$ 2,088,091	\$ 330,817	\$ 1,757,274
HS 58 - Special Woven or Tufted Fabrics, Lace, Trimmings, Embroidery and Tapestries	16%	84%	\$ 244,889	\$ 38,798	\$ 206,091
HS 59 - Coated, Impregnated, Covered or Laminated Fabrics and Industrial Textiles	16%	84%	\$ 5,664,180	\$ 897,377	\$ 4,766,803
HS 60 - Knitted or Crocheted Fabrics	16%	84%	\$ 666,200	\$ 105,546	\$ 560,654
HS 61 - Knitted or Crocheted Clothing and Articles of Apparel	16%	84%	\$ 132,295,592	\$ 20,959,621	\$ 111,335,970
HS 62 - Woven Clothing and Articles of Apparel	16%	84%	\$ 48,730,955	\$ 7,720,456	\$ 41,010,498
HS 63 - Other Made-Up Textile Articles and Worn Clothing	16%	84%	\$ 12,567,370	\$ 1,991,051	\$ 10,576,319
HS 64 - Footwear	16%	84%	\$ 2,281,324	\$ 361,431	\$ 1,919,894
HS 65 - Headwear	16%	84%	\$ 1,492,590	\$ 236,471	\$ 1,256,119
HS 66 - Umbrellas, Whips, Walking-Sticks and Similar Articles	16%	84%	\$ 1,007,883	\$ 159,679	\$ 848,204
HS 67 - Prepared Feathers and Downs, Artificial Flowers and the Like	16%	84%	\$ 389,279	\$ 61,674	\$ 327,606
Textiles, Fabrics, and Products Thereof	16%	84%	\$ 214,100,728	\$ 33,920,028	\$ 180,180,700
HS 68 - Articles of Stone, Plaster, Cement, Asbestos, Mica or Similar Materials	65%	35%	\$ 50,811,219	\$ 33,067,619	\$ 17,743,600
HS 69 - Ceramic Products	65%	35%	\$ 5,868,903	\$ 3,819,445	\$ 2,049,458
HS 70 - Glass and Glassware	65%	35%	\$ 70,216,665	\$ 45,696,560	\$ 24,520,105
HS 71 - Pearls, Precious Stones or Metals, Coins and Jewellery	65%	35%	\$ 134,221,137	\$ 87,350,264	\$ 46,870,873
HS 97 - Works of Art, Collector's Pieces and Antiques	44%	56%	\$ 22,314,848	\$ 9,845,278	\$ 12,469,571
Articles of Stone, Cement, Ceramics, Glass, and Precious Metals	63%	37%	\$ 283,432,773	\$ 179,779,165	\$ 103,653,608
HS 84 - Nuclear Reactors, Boilers, Machinery and Mechanical Appliances	39%	61%	\$ 1,080,366,739	\$ 424,393,356	\$ 655,973,384
HS 85 - Electrical or Electronic Machinery and Equipment	19%	81%	\$ 772,733,916	\$ 142,999,413	\$ 629,734,504
HS 86 - Rail Transportation (Incl. Tramways and Traffic Signalling Equipment)	33%	67%	\$ 3,871,965	\$ 1,289,003	\$ 2,582,963
HS 87 - Motor Vehicles, Trailers, Bicycles, Motorcycles and Other Similar Vehicles	59%	41%	\$ 686,162,191	\$ 402,884,222	\$ 283,277,969
HS 88 - Aircrafts and Spacecrafts	14%	86%	\$ 67,170,025	\$ 9,595,718	\$ 57,574,307
HS 89 - Ships, Boats and Floating Structures	38%	62%	\$ 91,311,745	\$ 34,649,546	\$ 56,662,199
Boilers, Machinery, Electrical, Transportation Equipment and Products	38%	62%	\$ 2,701,616,582	\$ 1,015,811,257	\$ 1,685,805,325
HS 90 - Optical, Medical, Photographic, Scientific and Technical Instrumentation	35%	65%	\$ 278,536,163	\$ 97,284,511	\$ 181,251,652
HS 91 - Clock and Watches and Parts Thereof	35%	65%	\$ 1,960,557	\$ 684,765	\$ 1,275,792
HS 92 - Musical Instruments	35%	65%	\$ 5,838,678	\$ 2,039,279	\$ 3,799,399
HS 93 - Arms and Ammunitions and Parts Thereof	35%	65%	\$ 1,581,011	\$ 552,201	\$ 1,028,810
HS 94 - Furniture, and Stuffed Furnishings; Lamps and Illuminated Signs; Prefabricated Buildings	35%	65%	\$ 256,407,099	\$ 89,555,478	\$ 166,851,621
HS 95 - Toys, Games, Sporting Goods and Other Goods for Amusement	35%	65%	\$ 48,387,411	\$ 16,900,303	\$ 31,487,108
HS 96 - Miscellaneous Manufactured Articles	35%	65%	\$ 1,652,786	\$ 577,270	\$ 1,075,516
Misc Manufactured Products	19%	81%	\$ 594,363,706	\$ 110,309,296	\$ 484,054,410