

HD
2346
.C2E73

Small Business Secretariat Working Paper

ANALYSIS OF INDIRECT
CONTRIBUTIONS TO EXPORTS
BY SMALL BUSINESSES
IN CANADA



Government
of Canada

Department of Regional
Industrial Expansion

Minister of State,
Small Business and Tourism

Gouvernement
du Canada

Ministère de l'Expansion
industrielle régionale

Ministre d'État, Petites
entreprises et Tourisme

ANALYSIS OF INDIRECT CONTRIBUTIONS
TO EXPORTS BY SMALL BUSINESSES IN CANADA

SUBMITTED TO

THE SMALL BUSINESS SECRETARIAT

OTTAWA

by

Era Business Consultants Ltd.
Vancouver, British Columbia

and

Don R. Allen & Associates Ltd.
Ottawa, Ontario

December 1983

TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION	1
2.0 MICRO-ANALYSIS OF INDIRECT CONTRIBUTIONS TO EXPORTS BY SMALL BUSINESSES IN CANADA	2
2.1 QUALITATIVE SURVEY	2
2.1.1 Methodology	2
2.1.2 Overview	3
2.1.3 Findings	4
2.1.4 Summary	10
2.2 QUANTITATIVE ESTIMATES	11
2.2.1 The Maclean Hunter Studies	13
2.2.2 Detailed Analyses of Three Firms' Purchases	15
2.2.3 Export Development Corporation Sub-Suppliers	23
3.0 MACRO-ANALYSIS OF INDIRECT CONTRIBUTIONS TO EXPORTS BY SIZE OF BUSINESS IN CANADA	26
3.1 OVERVIEW	26
3.2 ESTIMATION OF INTER-INDUSTRY INPUTS	27
3.3 INDUSTRY SECTOR SIMULATIONS PERFORMED	30
3.4 SUMMARY OF MACRO RESULTS	33
4.0 SUMMARY AND INTEGRATION OF RESULTS	34
5.0 CONCLUSION	35

APPENDIX

1.0 INTRODUCTION

This study was prepared for the Small Business Secretariat in Ottawa to enhance the information base for the formulation of policies affecting small businesses in Canada. Available statistics indicate that the great majority of exported goods and services are sold by large firms. However, there are indications that these large exporting firms purchase significant components for export products from small and medium-sized firms. The objective of this study has been to determine the magnitude and character of this indirect contribution to Canadian exports.

The participation by small and medium-sized firms is, potentially, a highly desirable phenomenon. First, subcontracting with smaller firms for components which exhibit diseconomies of scale can improve production efficiency and thereby make Canadian exports more competitive. Second, the contribution of smaller firms to exported value added enables the smaller firms to share in the benefits of wider markets and greater sales volumes which exporting provides. Third, if small and medium-sized firms participate significantly in the production of goods and services exported by larger firms, it is possible to improve small and medium firms' export production indirectly by promoting exports by larger firms, which some analysts believe is more cost-effective than attempting to enhance direct exporting activities of smaller firms.

This study was conducted in two parts. A macro-analysis utilizing input/output data from Statistics Canada has been carried out under the direction of Don Allen & Associates. Era Business Consultants (formerly Edwin, Reid & Associates) of Vancouver conducted a micro-analysis based on information collected from large Canadian exporters. This paper reports the findings of both.

Section 2 describes the methodology and finding of the micro-analysis portion of the study. Section 3 reports on the macro-analysis.

2.0 MICRO-ANALYSIS OF INDIRECT CONTRIBUTIONS TO EXPORTS BY SMALL BUSINESSES IN CANADA

The micro-analysis portions of the study involved obtaining information from large Canadian exporters concerning their purchase of component goods and services from small Canadian firms. Two types of information were sought from the large firms. First, the sample firms were interviewed for qualitative information about the present and potential role of small businesses as suppliers to the large exporting firms. Second, we sought quantitative data on the magnitude of purchases by the large exporters from small Canadian firms.

Due to uncertainties about the ability of large firms to provide information on the size distribution of their suppliers, a "feasibility analysis" was undertaken for the first phase of the data collection program. This feasibility survey was restricted to 10 firms. As the concerns about the ability of large firms to provide the desired information proved well founded, the sample for the micro-analysis portion of the study was not increased beyond the same 10 firms.

2.1 QUALITATIVE SURVEY

2.1.1 Methodology

The survey of large Canadian exporters encompassed the following firms:

MacMillan Bloedel Ltd.

Atco Ltd.

NOVA, an Alberta Corporation

Stelco Inc.

Northern Telecom Ltd.

CAE Electronics Ltd.

Hawker Siddeley Canada Inc.

Inco Ltd.

Cominco Ltd.

Chrysler Canada Ltd.

Two companies, Atco and NOVA, were dropped from the survey. Discussions with purchasing officers revealed that neither did enough exporting to warrant inclusion in our study. In the case of NOVA, methanol and ethylene are its primary exports - it does not have any significant exports with small business components. As for Atco, exports are no longer an important part of its Canadian operation. The company's American subsidiary does most of the exporting.

Following an initial phone call, a written questionnaire was sent to the contact person in each company. The responses were collected during the follow-up phone interview. The telephone interview format was chosen because we felt it would encourage more detail than written responses, and because face-to-face interviews would have been too costly.

Seven of eight firms replied. Three preferred to complete their questionnaires and mailed them to us. After reviewing their written replies, each was telephoned, but they were either unwilling or unavailable to elaborate upon their initial written responses.

2.1.2 Overview

In short, almost all responses were "pithy" rather than expansive. Not surprisingly those responses from the telephone interviews were generally more productive and yielded more considered opinions. Although we made every effort to explain why we were researching this topic, the respondents were dismayed that the government had commissioned "yet another study". Over the course of our discussions, their initial ingrained reaction to government "meddling" usually abated somewhat. One contact volunteered that if the identical study had been undertaken by a private or university research group he would be more willing to co-operate and he believed that others in the sample probably shared the same view.

It appears that senior management in these large exporting firms tend to have a laissez-faire view of the economic marketplace. The less government the better. Government interventions into specific areas of the economy are viewed as inappropriate and ineffective. This view holds that the role of government should be confined to maintaining a general legal framework and fiscal environment which allows businesses to develop. A corollary of this viewpoint is that policies should not be aimed specifically at the small business sector. Small firms should play by the same rules as everyone else.

Generally speaking, the respective heads of purchasing had limited knowledge of their small suppliers. In most cases, it was necessary for them to consult with subordinates or in fact appoint someone in the field to assist us with our study.

It appears that large firms do not discriminate against small firms per se, in fact some indicate they like to provide a boost for small business. Their first concern is to get good value with reliable delivery and quality from their suppliers. When a small supplier can meet these requirements, it stands a chance of getting the business. One way in which small suppliers may be discriminated against is the assumptions large firms make about them. It may be assumed that all smaller firms are financially insecure or technically unsophisticated when many are not. Many of these thoughts are consistent with the findings of Large-Small Firms Interrelationships; Report on Research¹ where it appears that there is no altruism, - only self interest - when it comes to large/small relationships.

2.1.3 Findings

A. Question 1 - Trends

Due to the varied mix of companies and the small size of our sample, one must be cautious in assigning significance to the questionnaire results. The responses to Question 1 are summarized in Table 1.

TABLE 1 - TRENDS			
	Generally Increasing	Generally Decreasing	No Change
Proportion of sales going to export markets	4	1	2 (variable)
Outside purchases as percentage of total sales	2	0	4
Use of small firms as suppliers	1	1	5
Use of foreign suppliers	1	1	5

(Note: Not all questions answered)

¹ Large-Small Firm Interrelationships: Report on Research, Small Business Secretariat, ITC, Government of Canada, Ottawa, April, 1980.

There thus appears to be a trend towards a greater reliance on exports. The proportion of sales destined to export markets was generally increasing for the majority. One firm felt otherwise, however, and two indicated significant variation from year to year.

Outside purchases as a percentage of total sales remained generally static although it was increasing for two firms.

Except for one interviewee who felt that small firms were more price-responsive and that his firm was therefore utilizing more small firms as suppliers, there was no shift evident towards similar use.

Similarly, the respondents stated that the use of foreign suppliers was neither increasing nor decreasing. Only one firm is clearly purchasing less from external sources.

B. Question 2 - Characteristics of Inputs Purchased from Suppliers

The responses to Question 2 are summarized in Table 2.

TABLE 2			
Characteristics of inputs purchased from suppliers	Applies more to smaller suppliers	Applies more to larger suppliers	Applies equally to both
Key components of specific products	1	4	2
General inputs not identified with a specific input	2	1	4
Services	1	1	4
Products purchased for resale without further fabrication	0	4	1
Inputs utilized in production intended primarily for domestic markets	0	2	3
Inputs utilized in production intended primarily for foreign markets	0	2	4
(Note: Not all questions answered)			

Only one respondent reported purchasing key components from small suppliers. He felt that small firms produce generic parts at the same quality and at competitive prices and as a result small firms have the edge in providing integral components. Otherwise, the remaining interviewees were inclined to look to larger suppliers or were not inclined to give an edge either way to large or small in this category. Several felt that large firms have better quality control and, for key inputs, quality took precedence over any other factor.

For general inputs, price eclipsed quality as the overriding consideration, although most felt that there was no difference between large or small suppliers.

For general services, the respondents gave the nod to larger suppliers or made no distinction regarding size of firm. This was a mild surprise as we presumed that small firms might have an advantage in providing such services, whether it be for janitorial work, courier service or artwork and design. Reputation would seem to be of primary significance. One firm described price and location as being most important.

Products purchased for resale without further fabrication was essentially an area for larger suppliers.

Inputs used in production for the domestic market applied equally to both large and small although two responses gave an edge to larger suppliers.

Finally, in spite of two respondents who favoured larger suppliers for inputs using products destined for foreign markets, the majority saw no difference between large and small.

C. Question 3 - Characteristics of Performance by Suppliers

The responses to Question 3 are summarized in Table 3.

TABLE 3
Characteristics of Performance by Suppliers

Characteristics of suppliers' performance	Smaller suppliers at an advantage	Smaller suppliers at a disadvantage	Little difference by size of supplier
Price	1	2	4
Quality of product	2	2	3
Technological sophistication	0	4	3
Meeting delivery deadlines	3	4	3
Meeting quantity requirements	0	4	3
Meeting local or provincial objectives	2	1	1
Financial resources	0	6	1

(Note: Not all questions answered)

From our survey of firms, small suppliers were at an advantage in two areas - meeting delivery deadlines and meeting local or provincial objectives. They were at a clear disadvantage in technical sophistication, meeting quantity requirements, and at an overwhelming disadvantage in terms of financial resources. Supplier size had little bearing on price or quality of product.

Small firms were viewed to "hustle" more and as a result have an advantage in meeting deadlines.

One interviewee thought that it was difficult for a small supplier to break into a big company. He likened it to the new kid on the block and stated that, generally speaking, large firms are more comfortable dealing with existing, well-known suppliers. Large firms tend to be loyal to their present suppliers.

For quantity requirements, large firms often have orders that, due to delivery deadlines and sheer size of the order, cannot be handled by small suppliers. It is understandable that large exporters consistently turn to large suppliers for high volume items. One respondent stated that if his company needed a large order it would not go to a small company and, likewise, a small supplier would not bid on it.

Because small firms don't have the financial muscle for extensive research and development, the respondents uniformly granted large suppliers an advantage in terms of technological sophistication.

The question on financial resources seemed to draw out the most comments from all respondents. The following is a sample of some of the comments:

1. "Small firms tend to be most vulnerable in this area - they are often undercapitalized and may have problems in recessionary economies."
2. "Perhaps we large companies can be blamed in part. We do tend to take forever to pay our bills and that may be a problem for small companies. Larger firms tend to have better resources and do not need to be paid as frequently (within 30 days) as the smaller guys."
3. "We have well-established suppliers and don't have any problems with any of them going bankrupt. However, if any of them do go bankrupt it's usually the small ones."
4. "A lot of small business managers are pretty naive and lack basics in finance - they tend to lean on their bank managers. The Federal Business Development Bank has some good training programs and they offer low-cost loans, which is probably legitimate. In a small sense, small business is such an important facet in the national scene that we'd grudgingly give them an edge in low-cost loans."
5. "I realize that small suppliers are at a disadvantage when it comes to financial resources but if government gave them tax advantages there is a danger that they may not grow beyond a certain level."
6. "We will sometimes give credit breaks to small firms - especially during a recession. We want them to be around. We want to ensure long-term relationships."

D. Viewpoints on How Governments May Enhance Small Business'
Indirect Contribution to Export Sales

Rather than suggesting specific policy options, the respondents preferred to make general observations. The following is a sample of replies to Question 4 (and Question 5).

1. "Government should stay out of the supply/demand picture. It should provide more information for small businesses - they generally get scared and run away when they don't have enough information. We should give them the proper information so that they would have confidence to move in on the export markets whether it be direct or indirect."
2. "Government should create a new business climate. It seems to me to be hostile at best. There are onerous regulations; there is a lousy attitude by both business and government towards each other; and we have high interest rates."
3. "Government should probably give more aid to small business to enter foreign markets. The Export Development Corporation has to be more reasonable though; it has to be more like the French and British models. It must be more streamlined and more aggressive and become more of a partner - one that goes right in there and negotiates."
4. "We don't have any favouritism towards large or small suppliers. We buy on price, quality and service."
5. "We won't support domestic, inefficient industries. We are free traders and the last thing we want is subsidized businesses."
6. "Government can help all Canadian businesses compete in world markets by accepting some responsibilities for the current malaise of Canadian business and using the fiscal and monetary options available to create a climate conducive to business investment."
7. "Government spending must be brought under control so that inflation can be reduced and so that much needed investment capital is not drained from the economy by government borrowing. Government regulations and tax policies should be consistent with the aims implicit in this questionnaire. At present they are not. Direct intervention is not required in my opinion."

8. "There is a need to develop co-ordinated programs across all levels of government aimed at targetting industries with long-term growth potential. We need to review and adjust existing programs - eliminate duplication to improve effectiveness. It is imperative that these programs are evaluated and adjusted over time."
9. "If they do get involved in small business programs, let's hope it is done with a minimum of red tape."
10. "Government could contribute best by staying out of the way with little interference. Perhaps in the area of research and development small business can be assisted. I don't know how government can contribute, perhaps by tax write-offs, but I do know that the Canadian government doesn't do enough compared to other countries."
11. "The best thing government could do is let those who could create wealth go ahead and do it - government can then skim off their fair share."
12. "Job creation programs are a waste - by the time you wade into the bureaucracy you will find that you cannot get money if the result is going to give you a competitive edge."
13. "Since governments rarely do a consistently good job of governing, there is no place for them in industry. Least of all, using the public purse to give one company an advantage over another one."

2.1.4 Summary

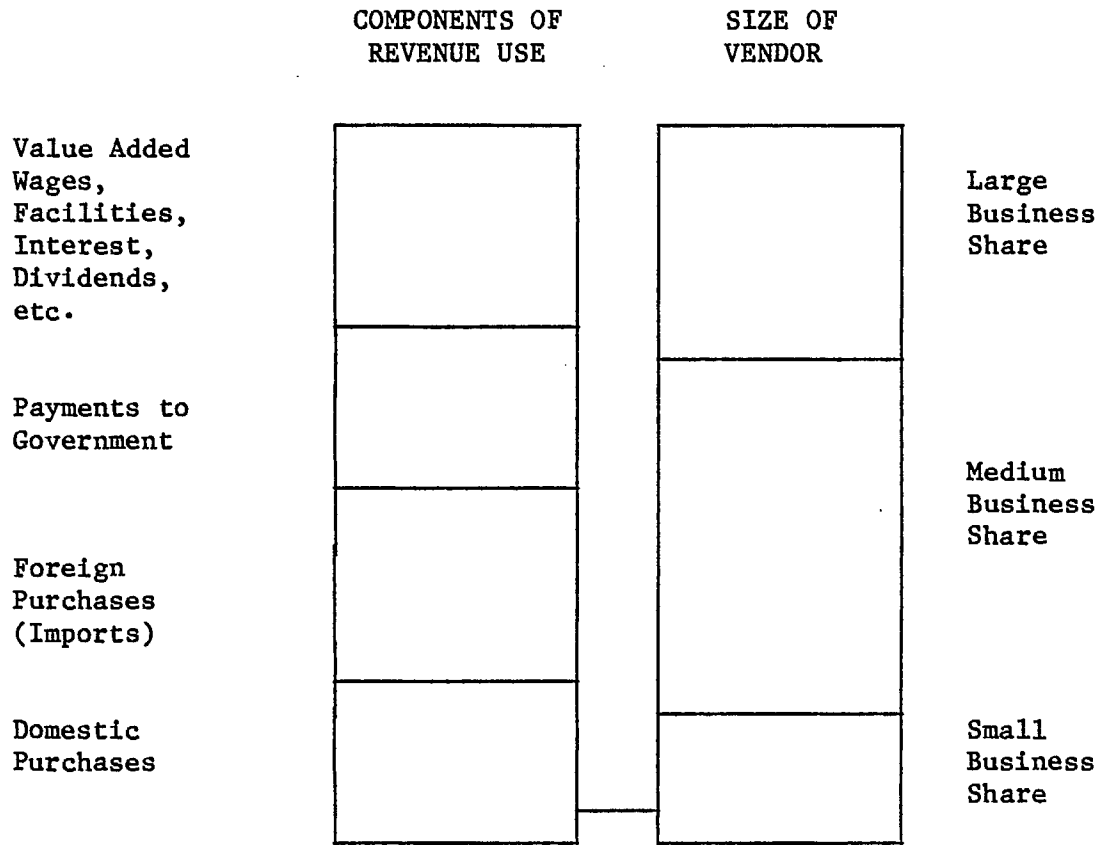
While the general attitude toward government initiatives is that "government could contribute best by staying out of the way with little interference", when it comes to specific initiatives like R&D incentives or financing programs there appears to be a feeling that government should help. The above quote was followed by the following comment about research and development in small firms: "But I do know that the Canadian government doesn't do enough compared to other countries". This would appear to be part of a general, and contradictory, popular belief that government should be smaller and spend less while maintaining important services and doing more in some areas.

Other specific initiatives favoured by survey respondents were "more aid to small business to enter foreign markets" and "targetting industries with long-term growth potential".

2.2 QUANTITATIVE ESTIMATES

To determine what proportion of export sales results in purchases from small businesses, we need to determine two factors: (1) the percentage of revenues used to purchase goods and services from domestic suppliers (the domestic purchase rate); and (2) the percentage of domestic purchases which come from small businesses (the small business share). Figure 1 shows each of these factors in the context of total revenues.

FIGURE 1



Revenues which come into a firm are allocated to the various factors of production as illustrated in the left column of Figure 1. Some of the revenues are used to pay for the inputs provided by the firm itself. This includes payments to the company's employees, payments for land and facilities, and interest and dividend payments to the providers of capital. These payments taken together represent the value added to the product by the company. Another share of firm revenue goes to pay taxes.

The third share is used to purchase goods and services from other businesses, some of which are imported from other countries while the rest come from domestic suppliers. It is these domestic purchases in which we are interested for this study. The magnitude of domestic purchase as a percentage of total revenues is what we are calling the "domestic purchase rate".

Domestic purchases are divided among different sized vendors as illustrated in the right-hand column of Figure 1. The percentage of total domestic purchases which go to small vendors is what we are calling the "small business share".

Multiplying the domestic purchase rate and the small business share together yields the percentage of total revenues which go to small vendors. This provides an estimate of the percentage of exports by large firms which is produced indirectly by small business suppliers.

One assumption underlying the use of this estimate is that small business participation in the production of exported products is similar to its role in the production of all products. Isolating the use of export revenues (versus domestic revenues) would impose both definition and measurement problems. In most cases the same products are sold into both markets. Where different products go into different markets, many of the purchased inputs would be difficult to allocate. Systematic bias would occur if 1) the participation of small business is different in different industries and 2) different industries have different participation rates in exporting. These conditions could combine in such a way that the contribution of small business to export was different from the contribution to domestic products. However, the macro-economic analysis described below focuses explicitly on those industries which have the greatest exports. This analysis suggests a slightly higher percentage of sales revenues being used for domestic purchases. Therefore, it seems unlikely that our assumption will lead to an overestimate of small business participation.

A second assumption concerns the fact that the small business from which the large exporter purchases some input goods or services will, in turn, purchase some inputs from other large and small suppliers. Each supplier in turn uses some of the revenues to purchase inputs. However, as long as the proportions of inputs purchased from each size of supplier is similar for each size of purchaser, the ultimate distribution of value added will be similar to the distribution in first round purchases. Using the Maclean Hunter data described below we computed a correlation coefficient between firm size and percentage purchases from small suppliers. The coefficient was -0.145 and was not significant at the .05 level.

Four sources of data have been assembled to provide estimates of the domestic purchase rate and the small business share. First, the data from two articles in Maclean Hunter publications have been combined to give estimates of the two percentages. Second, three case studies were

undertaken to get detailed estimates of the small business share of those firms' domestic purchases. Third, tabulations were obtained with the co-operation of the Export Development Corporation of the distribution of purchases for some EDC projects. Fourth, a macro simulation analysis employing input/output analysis was undertaken. Each of these sources are described below followed by a comparison and interpretation of the results.

2.2.1 The Maclean Hunter Studies

The "Magazine That's all about Small Business" published by Maclean Hunter conducted a study of large company purchasing, reported in the May/June 1983 issue. This study surveyed companies from the Financial Post list of the 500 largest Canadian companies to obtain their estimates of 1) the volume of their arms-length purchases from other firms, and 2) the small business share of those purchases. Small firms were defined as those with annual sales less than \$10 million. While figures were not provided for the total sales of the firms included in the study, since the firms were taken from the Financial Post listing, we were able to obtain sales figures for each of the companies from the 1982 Financial Post survey (published by Maclean Hunter in June 1982).

The Maclean Hunter results are presented in Table 4. The 44 companies included in this table were those which were willing and able to provide a numerical estimate for the percentage of purchases coming from small businesses (the small business share). The estimates shown in column (5) range from 5 per cent to 100 per cent. The average estimates is 51 per cent and the ratio of total purchases from small businesses to total purchases (a weighted average) is 43 per cent. The median is 50 per cent.

Determining the small business share is difficult because it's not a variable that firms normally monitor. Companies keep track of the vendors from whom they buy goods and services in their accounts payable systems. Although someone within the company generally has some background information on each vendor, that information may not include the size of the firm either in terms of gross sales or number of employees. Furthermore, that information is typically not recorded in a database system which can be accessed for the company as a whole. Therefore, firms often are not able to report the percentage of their total purchases which come from small businesses.

Estimates of the percentage of sales revenues used for purchasing input goods and services are reported in column (3) of Table 4. They range from near 0 to 88 per cent, and the average is 22 per cent. The ratio of total purchases for all the firms to total sales equals 22 per cent. This is an average weighted by the size of each firm. The median is 25 per cent. A 45th firm, not included in the list, reported purchases which were equal to 160 per cent of its sales. This suggests either an error or a very

TABLE 4
TABULATIONS OF MACLEAN HUNTER DATA

ORGANIZATION	(1)	(2)	(3)	(4)	(5)	(6)
	1981 Sales	1981 Amt	Purch % Rev	Purch Amt	from Small Firms % Pur	% Rev
Total Petroleum (N.Am.) Ltd.	2854	4	0	2	60	0
Sherritt Gordon Mines Ltd.	323	1	0	1	80	0
Bowater Canadian Ltd.	331	1	0	1	93	0
St. Lawrence Cement Co.	268	2	1	1	52	0
Mobil Oil Canada Ltd.	905	80	9	4	5	0
Nu-West Group Ltd.	1040	30	3	8	25	1
Steetley Industries Ltd.	230	10	4	2	22	1
Massey-Ferguson Ltd.	3175	144	5	45	31	1
Turbo Resources Ltd.	560	29	5	15	50	3
Saskatchewan Wheat Pool	1941	112	6	56	50	3
Livingston Export Pkg. Ind.	152	15	10	5	34	3
Maclean Hunter Ltd.	409	58	14	15	26	4
Black & Decker Canada Ltd.	130	100	77	5	5	4
Motorola Canada Ltd.	144	12	8	6	50	4
Murphy Oil Co. Ltd.	147	14	10	7	50	5
Teleglobe Canada Inc.	170	12	7	9	75	5
Canadian Natnl. Railways	4286	1024	24	246	24	6
Cyanimid Canada Inc.	277	159	57	16	10	6
Dow Chemical Canada, Inc.	1214	600	49	72	12	6
The Lundrigans Ltd.	355	25	7	25	100	7
de Havilland Aircraft	348	250	72	28	11	8
Canadian Co-Operative Imp. Ltd.	105	15	14	9	58	8
Union Carbide Canada, Ltd.	827	400	48	76	19	9
Litton Systems Canada Ltd.	121	67	55	11	17	9
Hayes-Dana Ltd.	223	45	20	23	50	10
Manitoba Hydro	362	62	17	38	62	11
National Sea Products Ltd.	314	65	21	34	53	11
Budd Canada Inc.	126	60	48	15	25	12
Maritime T & T Co. Ltd.	207	60	29	30	50	14
Consolidated Bathurst Inc.	1479	280	19	238	85	16
Combustion Eng-Superheater Ltd.	248	70	28	46	66	19
Transalta Utilities Ltd.	403	100	25	79	79	20
Ontario Hydro	3162	1017	32	661	65	21
Marks & Spencer Canada Inc.	226	60	27	51	85	23
B.C. Sugar Refinery Ltd.	214	150	70	50	33	23
Trimac Ltd.	451	220	49	110	50	24
Indal Ltd.	584	300	51	174	58	30
UAP Inc.	165	138	84	50	36	30
Eurocan Pulp & Paper Inc.	144	120	83	60	50	42
Genesco Group Inc.	107	55	51	55	100	51
Manville Canada Inc.	311	230	74	161	70	52
Cape Breton Devel. Corp.	131	100	76	76	76	58
Brooke Bond Inc.	155	125	81	113	90	73
Kelsey-Hayes Canada Ltd.	114	100	88	100	100	88
Totals:	29 438	6521	22	2827	43	10
Average			33		51	16
Std. Dev.			29		28	20
Median			25		50	8-9

short-term unusual situation. Some of the very low values appear to be somewhat suspect as well. In tables included in Appendix A, several of the firms with the highest values and lowest values are excluded and the average recomputed. Throughout these changes the average is quite stable in the area of 20-22 per cent.

The ratio of each company's purchases from small firms to its total sales can be computed by multiplying the purchase rate by the small business share. The result is shown in column (6). The entries in the table have been sorted in order of these numbers. The percentage ranges from 0 through 88 per cent. The average percentage is 16 while the ratio of total purchases from small business to total sales (a weighted average) is 10 per cent. The median is between 7 and 9 per cent.

Since there was some question about the validity of some of the responses, we excluded, as described above, some of the firms with the lowest and highest values and recomputed the averages. Throughout these exercises the weighted average percentage is stable at 10-11 per cent and the unweighted average moves toward this level as extreme cases are excluded.

Based on these analyses one would conclude that large firms spend about a quarter of their sales revenues on arms-length suppliers of goods and services. Of these purchases, about 40 per cent goes to small business suppliers defined as suppliers with annual sales less than \$10 million. Multiplying these two factors together one concludes that about 10 per cent of the sales revenues of large firms goes to the purchases of goods and services from businesses with annual sales less than \$10 million.

2.2.2 Detailed Analysis of Three Firms' Purchases

While large companies may find it difficult to provide information about the sizes of their suppliers either in terms of total sales or number of employees, they generally do know the names of all their suppliers and amount of purchases from each. This information is generally contained in a computerized accounts-payable system. We found three companies which were willing to provide us with a copy of an accounts-payable listing giving the name of each supplier and the amount of total purchases over a period of time. The participating firms were Cominco Ltd., MacMillan Bloedel Ltd. and Northern Telecom Ltd.

These three files were forwarded to the Small Business Secretariat in Ottawa which assigned each vendor on the list to a size category based on a computerized cross referencing system. The size distribution of vendors is presented in Tables 5A, 5B and 5C. The computerized size coding system regards all firms with less than 100 employees as small businesses. Since the more common definition is firms with fewer than 50 employees, the data has been adjusted and presented in Tables 6A, 6B and 6C.

The listing for MacMillan Bloedel Ltd. covers operating and maintenance expenditures. While these do not represent all arms-length purchases (log purchases, for example, are excluded), the list is extensive enough that it should be representative of a large firm's purchases of goods and services.

While the distribution of purchases across size categories is relatively consistent for the three companies studied in detail, data were not available from the companies which would enable us to accurately determine what proportion of sales revenues were represented by the listed purchases. Therefore we are using the Maclean Hunter figures and the macro-economic figures to estimate this magnitude. They are more likely to be accurate since they come from a larger number of firms.

The computer analysis for the three firms also indicated that slightly under 10 per cent of the purchases were from non-Canadian suppliers. The Maclean Hunter data do not specify whether the arms-length purchases are restricted to Canadian suppliers. It would appear that the figures are not restricted to Canadian suppliers so that those figures should be adjusted downward to reflect the included imports. The macro-economic analysis in the following section suggests that 40 per cent of total outside purchases consists of imports. However, this likely includes imports from parent companies in foreign countries which would have been excluded from the arms-length purchase estimates in the Maclean Hunter tables. Therefore it would appear that 20 per cent would be a conservative estimate of the percentage of total revenues which are used for arms-length purchases of domestic goods and services.

TABLE 5A

DISTRIBUTION OF SUPPLIERS

(FROM COMINCO TAPE)

WHERE UNKNOWN SIZE IS INCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-99)	725	72.50	13 089.31	39.30	18 054.22
MEDIUM (100-199)	68	6.80	4 662.86	14.00	68 571.45
LARGE (200+)	112	11.20	14 488.17	43.50	12 358.64
UNKNOWN	95	9.50	1 065.80	3.20	11 218.91
TOTAL	1 000	100.00	33 306.13	100.00	33 306.13

WHERE UNKNOWN SIZE IS EXCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-99)	725	80.11	13 089.31	40.60	18 054.22
MEDIUM (100-199)	68	7.51	4 662.86	14.46	68 571.45
LARGE (200+)	112	12.38	14 488.17	44.94	129 358.66
TOTAL	905	100.00	32 240.34	100.00	35 624.68

Note: Listing of suppliers received from COMINCO Ltd.
 Size coding prepared by Small Business Secretariat
 using internal DRIE sources.

TABLE 5B

DISTRIBUTION OF SUPPLIERS

(FROM MACMILLAN BLOEDEL TAPE)

WHERE UNKNOWN SIZE IS INCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-99)	598	62.16	52 210.60	37.50	87 308.69
MEDIUM (100-199)	106	11.02	14 897.42	10.70	140 541.74
LARGE (200+)	195	20.27	69 196.45	49.70	354 853.57
UNKNOWN	63	6.55	2 923.79	2.10	46 409.42
TOTAL	962	100.00	139 228.26	100.00	144 727.92

WHERE UNKNOWN SIZE IS EXCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-99)	598	66.52	52 210.60	38.30	87 308.69
MEDIUM (100-199)	106	11.79	14 897.42	10.93	140 541.74
LARGE (200+)	195	21.69	69 196.45	50.77	354 853.57
TOTAL	899	100.00	136 304.47	100.00	151 617.87

Note: Listing of suppliers received from MacMillan Bloedel Ltd.
 Size coding prepared by Small Business Secretariat
 using internal DRIE sources.

TABLE 5C

DISTRIBUTION OF SUPPLIERS

(FROM NORTHERN TELECOM TAPE)

WHERE UNKNOWN SIZE IS INCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-99)	5 272	77.52	161 901.47	45.45	30 709.69
MEDIUM (100-199)	283	4.16	32 529.77	9.13	114 946.17
LARGE (200+)	791	11.63	143 622.98	40.32	181 571.40
UNKNOWN	455	6.69	18 125.99	5.09	39 837.34
TOTAL	6 801	100.00	356 180.21	100.00	52 371.74

WHERE UNKNOWN SIZE IS EXCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-99)	5 272	83.08	161 901.47	47.89	30 709.69
MEDIUM (100-199)	283	4.46	32 529.77	9.62	114 946.17
LARGE (200+)	791	12.46	143 622.98	42.49	181 571.40
TOTAL	6 346	100.00	338 054.22	100.00	53 270.44

Note: Listing of suppliers received from Northern Telecom Ltd.
 Size coding prepared by Small Business Secretariat
 using internal DRIE sources.

TABLE 6A

DISTRIBUTION OF SUPPLIERS

(FROM ADJUSTED COMINCO TAPE)

WHERE UNKNOWN SIZE IS INCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	655	65.46	7 371.84	22.13	11 261.69
MEDIUM (50-199)	138	13.84	10 380.33	31.17	74 999.35
LARGE (200+)	112	11.20	14 488.17	43.50	12 358.64
UNKNOWN	95	9.50	1 065.80	3.20	11 218.91
TOTAL	1 000	100.00	33 306.13	100.00	33 306.13

WHERE UNKNOWN SIZE IS EXCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	655	72.33	7 371.84	22.87	11 261.69
MEDIUM (50-199)	138	15.29	10 380.33	32.20	74 999.35
LARGE (200+)	112	12.38	14 488.17	44.94	129 358.64
TOTAL	905	100.00	32 240.34	100.00	35 624.68

Note: Adjustment from Table 5A to convert definition of "Small" to 1-49 Employees and "Medium" to 50-199 was based upon Size Distribution of Numbers of Established and Value of Shipments in Manufacturing Industries of Canada: National and Provincial areas, 1980, Statistics Canada, Catalogue 31-203 Annual.

TABLE 6B

DISTRIBUTION OF SUPPLIERS

(FROM ADJUSTED MACMILLAN BLOEDEL TAPE)

WHERE UNKNOWN SIZE IS INCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	540	56.13	29 404.76	21.12	54 460.57
MEDIUM (50-199)	164	17.06	37 703.26	27.08	229 796.35
LARGE (200+)	195	20.27	69 196.45	49.70	354 853.57
UNKNOWN	63	6.55	2 923.79	2.10	46 409.42
TOTAL	962	100.00	139 228.26	100.00	144 727.92

WHERE UNKNOWN SIZE IS EXCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	540	60.06	29 404.76	21.57	54 460.57
MEDIUM (50-199)	164	18.25	37 703.26	27.66	229 796.35
LARGE (200+)	195	21.69	69 196.45	50.77	354 853.57
TOTAL	905	100.00	136 304.47	100.00	151 617.87

Note: Adjustment from Table 5B to convert definition of "Small" to 1-49 Employees and "Medium" to 50-199 was based upon Size Distribution of Numbers of Established and Value of Shipments in Manufacturing Industries of Canada: National and Provincial areas, 1980, Statistics Canada, Catalogue 31-203 Annual.

TABLE 6C

DISTRIBUTION OF SUPPLIERS

(FROM ADJUSTED NORTHERN TELECOM TAPE)

WHERE UNKNOWN SIZE IS INCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	4 760	69.99	91 182.14	25.60	19 155.79
MEDIUM (50-199)	795	11.69	103 249.10	28.99	129 877.94
LARGE (200+)	791	11.63	143 622.98	40.32	181 571.40
UNKNOWN	455	6.69	18 125.99	5.09	39 837.34
TOTAL	6 801	100.00	356 180.21	100.00	52 371.74

WHERE UNKNOWN SIZE IS EXCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	4 760	75.01	91 182.14	26.97	19 155.79
MEDIUM (50-199)	795	12.53	103 249.10	30.54	129 877.94
LARGE (200+)	791	12.46	143 622.98	42.49	181 571.40
TOTAL	6 346	100.00	338 054.22	100.00	53 270.44

Note: Adjustment from Table 5C to convert definition of "Small" to 1-49 Employees and "Medium" to 50-199 was based upon Size Distribution of Numbers of Established and Value of Shipments in Manufacturing Industries of Canada: National and Provincial areas, 1980, Statistics Canada, Catalogue 31-203 Annual.

2.2.3 Export Development Corporation Sub-Suppliers

As a Crown corporation involved in financing exports from Canada with high Canadian content, EDC amasses a good deal of administrative data on transactions between its principal exporters and the sub-suppliers. For the purposes of this study, we requested and received listings of all purchase orders approved during 1980 in respect of exports financed by EDC. As in the case of data received from exporters directly, discussed in the preceding sections, our plan was to size code the sub-suppliers in order to determine the indirect role of small/medium/large businesses in this particular body of exports, i.e. those financed by EDC.

Unfortunately, there are limitations posed by administrative procedures of EDC upon the analytical value of the data to a study such as this one. The most important one is undoubtedly the threshold placed upon the requirements for exporters to submit purchase orders to EDC. In order to minimize paper flow and maximize cost-effectiveness of administrative work of EDC, the corporation exempts the smallest purchases by exporters from scrutiny for Canadian content; as a general rule, purchase orders of less than \$10 000 need not be submitted to EDC. Given that small suppliers are more likely to make small, rather than large, sales to their customers, this exclusion probably omits a greater portion of sales by small suppliers than large suppliers. Therefore, the size distribution of amounts supplied to EDC customers based upon these administrative data is likely to understate the contribution of small business.

Also, at the time that the listings of sub-suppliers were prepared for use in this project, not all of the suppliers' addresses were included on EDC's computer files. This leads to a relatively high proportion of "unknowns" in the process of size coding the firms, particularly in comparison with the results from individual companies in the preceding section. Since the purchase orders for which we were unsuccessful in identifying a supplier size code tended to be for smaller than average amounts, this also suggests that a relatively higher portion of small suppliers were coded "unknown". Again, this suggests that the EDC data in Table 7 tend to understate the small business indirect contribution.

Despite these qualifications, the EDC data are useful for this study, not only because they add an additional set of observations in a context where hard data are very scarce, but also because they show a lower bound for the portion of EDC financing which indirectly benefits small suppliers. Knowing the ultimate beneficiaries of a government program or agency is always helpful in considering policy options such as how to provide further support for small business involvement, direct or indirect, in export markets.

TABLE 7

DISTRIBUTION OF SUPPLIERS

(FROM EDC PRINTOUT)

WHERE UNKNOWN SIZE IS INCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	186	13.92	14 657.00	10.54	78 801.08
MEDIUM (50-199)	277	20.73	30 485.00	21.92	110 054.15
LARGE (200+)	468	35.03	56 446.00	40.80	120 611.11
UNKNOWN	405	30.31	37 457.00	26.94	92 486.42
TOTAL	1 336	100.00	139 045.00	100.00	104 075.60

WHERE UNKNOWN SIZE IS EXCLUDED

	<u>Suppliers</u>		<u>Current Account Purchased</u>		Average \$ Purchase
	Number	% of Total	\$(000's)	% of Total	
SMALL (1-49)	186	19.98	14 657.00	14.43	78 801.08
MEDIUM (50-199)	277	29.75	30 485.00	30.01	110 054.15
LARGE (200+)	468	50.27	56 446.00	55.56	120 611.11
TOTAL	931	100.00	101 588.00	100.00	109 117.08

Note: Listing of sub-suppliers received from Export Development Corporation. Size coding prepared by Don Allen and Associates from Business Opportunities Sourcing System, Statistics Canada Census of Manufacturers Files, Scott's Industrial List.

Table 7 shows that for those transactions where sub-suppliers were successfully size coded, over \$100 million in 20 per cent of the sub-suppliers involved were small, and they obtained close to 15 per cent of the \$100 million of sales in question. This is a lower bound for the small sub-suppliers' portion of procurement by EDC's primary exporters, as noted above, and it is therefore not surprising that the value is smaller than 22-27 per cent levels shown for the three companies in the preceding section.

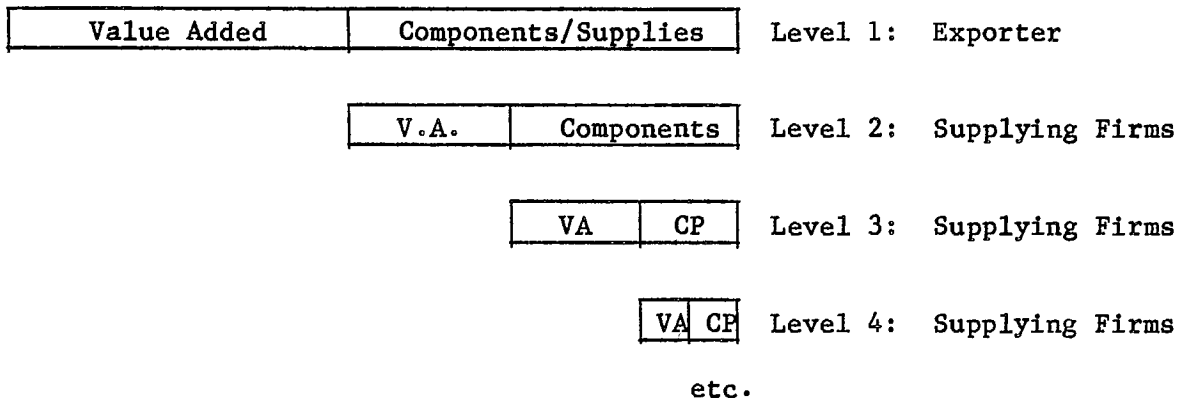
Given the large size of principal exporters benefiting from EDC financing, it is very interesting to note that close to half the dollar value of their outside procurement is from small and medium-sized business.

3.0 MACRO-ANALYSIS OF INDIRECT CONTRIBUTIONS TO EXPORTS BY SIZE OF BUSINESS IN CANADA

3.1 OVERVIEW

This approach works statistically back through the various linkages from the primary exporter to the various stages of intermediate and primary industry inputs, as illustrated in the following diagram:

FIGURE 2: THE LINKAGES



The objective of this phase of work is to estimate how much of the value added of the various levels of supplying firms is contributed by small, medium and large producing units.² To do this, the key statistical inputs are simulations from the Input-Output System, and especially-prepared tables from (a) the Census of Manufacturing and (b) 1979 Corporate Taxation returns.

² The definition of producing unit varies according to the source of the size distribution data employed herein. The Census of Manufacturing uses the establishment rather than the firm as the reporting unit; therefore, our estimates will necessarily show the contribution of small, medium and large manufacturing establishments rather than enterprises. However, the value added for the non-manufacturing sector was represented by GNP contribution obtained from the 1979 Corporate Taxation data which are, of course, at the company level. This definitional difference does not appear to be serious at the three sub-group level (small, medium, large) used in this study; for example, Statistics Canada has shown that 92 per cent of small manufacturing establishments belong to small enterprises (where small is defined in both cases as fewer than 50 employees).

3.2 ESTIMATION OF INTER-INDUSTRY INPUTS

The methodology required preparation of special input-output simulations, driven by 1981 amounts of exports from the sectors of the economy which registered \$1 billion or more of exports in that year. That is, simulations were done on a sector-by-sector basis in order to isolate the indirect contributions from input industries into each sector's exports. Then the results for all significant export sectors were combined to produce the macro estimates of inter-industry flows. The final step was to disaggregate the value added contribution from supplying sectors into estimates for small, medium and large producing units.

In this particular project, data availability considerations on the small/medium/large breakdown constrained us to work at what the Input-Output Division calls the "M level of aggregation", in which industries are identified as the major group level.³ Manufacturing and non-manufacturing major groups are shown in Figures 3A and 3B respectively.

FIGURE 3A: MANUFACTURING MAJOR GROUPS

- Food and Beverage Industries
- Tobacco Products
- Rubber and Plastics Products
- Leather Industries
- Textile Industries
- Knitting Mills
- Clothing Industries
- Wood Industries
- Furniture and Fixtures
- Paper and Allied Industries
- Printing and Publishing
- Primary Metals
- Metal Fabricating
- Machinery Industries
- Transportation Equipment
- Electrical Products
- Non-Metallic Mineral Products
- Petroleum and Coal Products
- Chemicals and Chemical Products
- Miscellaneous Manufacturing Industries

³ Various levels of input-output aggregation for industry groups are discussed in The Input-Output Structure of the Canadian Economy, Statistics Canada, Catalogue No. 15-201, April, 1982.

FIGURE 3B: NON-MANUFACTURING MAJOR GROUPS

Agriculture
Forestry
Fishing, Hunting and Trapping
Metal Mines
Mineral Fuels
Non-Metal Mines and Quarries
Services Incidental to Mining
Construction
Transportation
Communications
Electric Power, Gas, Other Utilities
Wholesale Trade
Retail Trade
Owner Occupied Dwellings
Other Finance, Insurance and Real Estate
Education and Health Services
Amusement and Recreation Services
Services to Business Management
Accommodation and Food Services

The overall sequence of data manipulation (using exports of the transportation equipment sector as an illustration) is shown in Figure 4. Column 1 lists examples of sectors whose outputs are ultimately utilized, to some degree, in goods production by the transportation equipment manufacturing industry. In Column 2, the \$16 billion of transportation equipment exports (the actual volume for 1981⁴) is partitioned into the direct component (i.e. value added within the transportation equipment industry itself - \$4.6 billion), the indirect component (i.e. value added by supplier industries - \$3.7 billion) and import content (imported materials and components embodied in Canadian exports - \$7.5 billion).

Column 3 illustrates examples of the amounts of indirect contributions by various major groups (within primary, secondary and tertiary sectors) into transportation equipment exports. The major contributing industry groups are primary metals (\$523 million), suppliers within the transportation equipment sector itself (\$476 million) and services to business management (\$414 million).

⁴ Commodity Trade by Industry Sector, Historical Summary 1966-81,
Government of Canada, Industry, Trade and Commerce/Regional Economic
Expansion, Ottawa, July, 1982.

FIGURE 4: ILLUSTRATION OF MACRO ESTIMATION OF INDIRECT CONTRIBUTION TO CANADIAN EXPORTS,
BY ESTABLISHMENT SIZE GROUP: TRANSPORTATION EQUIPMENT SIMULATION

(1) Components of Direct Exports	Export Industry A: Transp. Equip.		(4) % Share Value Added by Size Group			(5) \$ Share (Million) Indirect Exports by Size Group**		
	(2) Breakdown of \$ Exports*	(3) \$ Indirect Exports* GDP Factor Costs						
Input Industries	*****							
A. Agriculture	*****	12 Million	78.4	21.5	0.0	9.5	2.4	0.0
B. Forestry	*****	9 Million	55.3	34.0	10.6	5.0	3.1	1.0
C. Metal Mines	*****	68 Million	0.0	3.0	97.0	0.0	2.0	66.0
D. Primary Metals	*****	523 Million	2.9	10.2	86.9	15.2	53.3	454.5
E. Transportation Equip.	*****	476 Million	4.5	9.5	86.0	21.4	45.2	409.4
F. Metal Fabricating	*****	263 Million	27.8	37.0	35.2	73.1	97.3	92.6
G. Services to Bus. Mgt.	*****	414 Million	55.8	27.0	17.2	231.0	111.8	71.2
etc.

Total Indirect	3 684 Million	3 684 Million	*****	*****	*****	*****	*****	*****
Direct (Export industry itself)	4 611 Million	*****	*****	*****	*****	*****	*****	*****
Import Content	7 474 Million	*****	*****	*****	*****	*****	*****	*****
	16 233 Million					803.1	663.2	2 217.7

* From 1-0 matrix, most recent year (1978) and (1981); i.e. assumes 1-0 relationship applicable to total production in Export Industry A also apply to portion exported, alone.

** (5) = (3) x (4) i.e. assumes exporters purchase inputs from each size of establishment in proportion to the latter's relative share of value added in this input industry for Canada as a whole.

Column 4 presents the split of production into small/medium/large producing units in each of the supplier industries.⁵ In Column 5 this split is applied to the amounts supplied (taken from Column 3) in order to produce estimated amounts of small/medium/large business indirect contribution to transportation equipment exports for 1981. In this example, small suppliers contributed \$803 million of the \$16 billion transportation equipment exports, medium suppliers provided an indirect export contribution of \$663 million, and large suppliers, \$2 217 million.

3.3 INDUSTRY SECTOR SIMULATIONS PERFORMED

As noted earlier, simulations were done for all major industry groups for which 1981 exports exceeded \$1 billion. On the goods side, export data are routinely available by commodity from Statistics Canada, converted to an industry base by the Department of Regional Industrial Expansion and published in the report named in a footnote in the preceding section. The largest sector in terms of exports was transportation equipment (with \$16 billion exports in 1981) and the smallest sector included in these simulations was electric power, gas and other utilities (\$1.1 billion exports).

Canada also has a growing services sector, and a sizeable portion of export revenues arise from the sale of tradeable services such as tourism and consulting services. It is therefore important to include the service sector in our simulations because of the potentially significant indirect exports. Unfortunately, data are not routinely available on an industry base for service exports. However, estimates were made using balance of payments data⁶ for three sectors:

- ° Tourism and travel (\$3.041 billion)
- ° Transportation and storage (\$4.193 billion)
- ° Services to business management (\$1.555 billion).

5 Based on special tabulations from Statistics Canada. For manufacturing, this phase of work used principal statistics of the Census of Manufacturing, namely, value added by establishment size range (1-49 employees, 50-199, 200+). In addition, breakdowns of small/medium/large firm contribution to GNP by major group, computed from corporate tax data, were obtained by the Small Business Secretariat from Statistics Canada. These were used in this study for the non-manufacturing major groups. In this case, small, medium and large could not be based upon employment, but rather sales size ranges (up to \$2 million, \$2-20 million, \$20 million+).

6 Advice and inputs in this area are acknowledge from the staff of both Statistics Canada's Balance of Payments Division and the Tourism Canada (DRIE), as well as the Input-Output Division of Statistics Canada, whose staff assisted throughout this macro phase of the project.

Combining goods and services which are internationally traded, the following table illustrates that the simulations herein covered the vast majority of Canadian exports for 1981:

	Total Exports ⁷	Sectors Simulated
Goods	\$84.1 b.	\$78.0 b.
Services	11.7	8.9
Total	<u>95.8</u>	<u>86.9</u>

The simulations indicate that in 1981 Canada's exports of goods and services (for major groups exceeding \$1 billion each) totalled \$86.9 billion; of this, \$26.3 billion was indirect exports. Of the \$26.3 billion, small firms contributed \$6.2 billion or 23.7 per cent, medium firms, \$5.6 billion or 21.5 per cent and large firms accounted for \$14.4 billion or 54.8 per cent. The figure on the page following represents the detailed results.

Canada's overall indirect component of export sales arises primarily from non-manufacturing sector, which accounted for 73 per cent or \$19.2 billion of total for all industries. Both the primary and the construction/trade/service sectors make very large indirect contributions to Canadian exports.

Not surprisingly, the major sources of dollar contribution to exports from small business also originated in the non-manufacturing industries, primarily agriculture, with \$942 million, services to business management (\$873 million) and forestry (\$852 million). (See Figure 6.) These three industries accounted for about 43 per cent of the total indirect value added contribution by small businesses. In total, the non-manufacturing sector accounted for 85 per cent, or \$5.3 billion, of this small business indirect export activity. The main manufacturing sectors were metal fabricating (\$214 million), wood industries (\$105 million), printing and publishing (\$102 million) and chemicals and chemical products (\$102 million).

⁷ Source: Report of Task Force on Trade in Services, Government of Canada, Ottawa, July 20, 1982.

FIGURE 5: KEY CONTRIBUTION SECTORS TO SMALL BUSINESS
INDIRECT ROLE IN CANADIAN EXPORTS (1981 ESTIMATES)

MAJOR GROUPS

AGRICULTURE \$42M (15.2%)

SERVICES TO BUS. MGT. \$73M (14.1%)

FORESTRY \$52M (13.7%)

OTHER FINANCE, INSURANCE \$568M (9.2%)

WHOLESALE TRADE \$421M (6.8%)

TRANS. AND STORAGE \$419M (6.8%)

CONSTRUCTION INDUSTRY \$364M (5.9%)

RETAIL TRADE \$281M (4.5%)

FISHING, HUNTING \$253M (4.1%)

METAL FABRICATION \$214M (3.5%)

ACCOMMODATION AND FOOD SERV. \$114M (1.8%)

WOOD INDUSTRIES \$105M (1.7%)

PRINTING AND PUBLISHING \$102M (1.7%)

CHEM. AND CHEM. PROD. \$102M (1.7%)

OTHER MANUFACTURING \$388M (6.3%)

ALL OTHERS \$195M (6.3%)

TOTAL \$6 203M

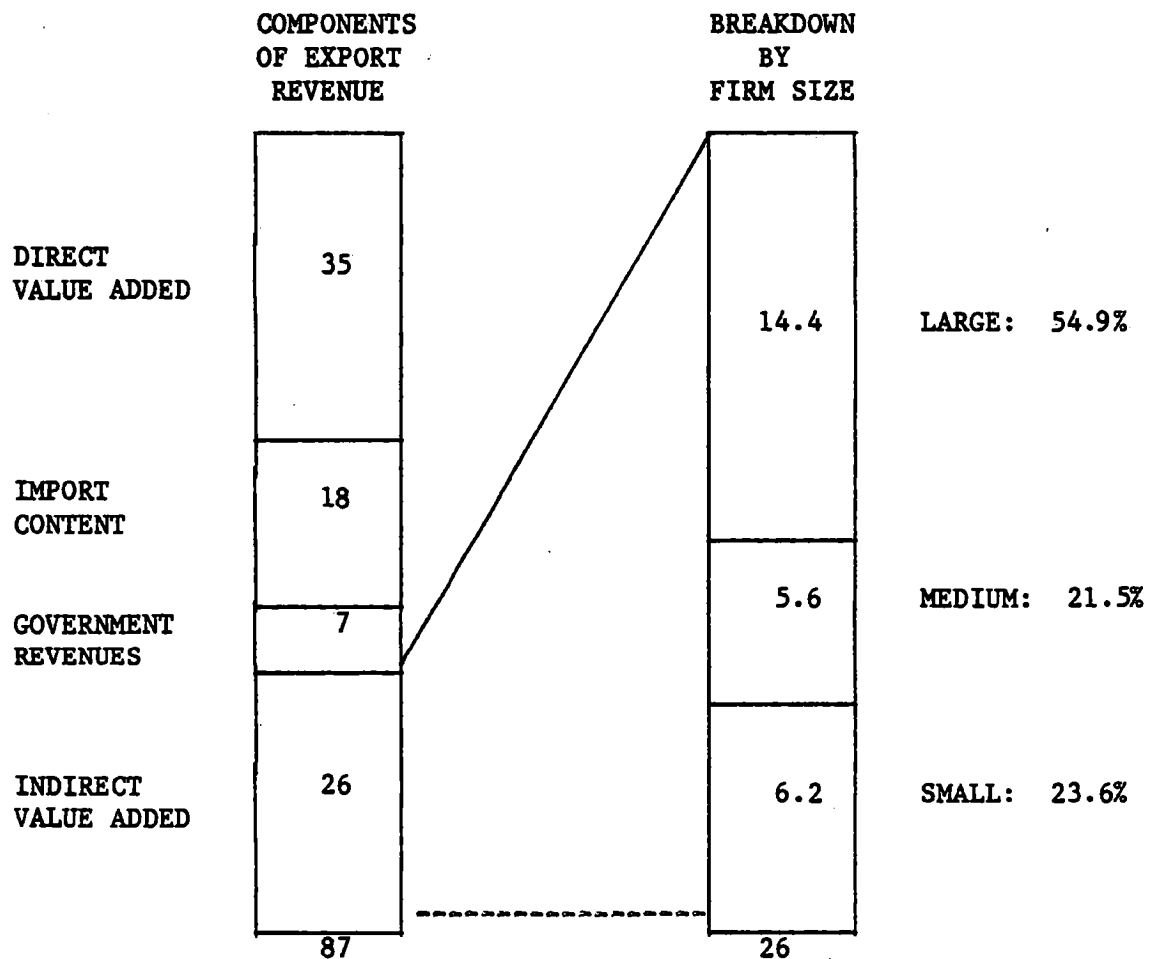
3.4 SUMMARY OF MACRO RESULTS

Of the \$87 billion of Canadian direct exports simulated through the analytical structure described herein, \$26 billion represented the value added of sectors feeding indirectly into export activity as suppliers to primary exporters.

Of this \$26 billion, \$6 billion represented the indirect contribution of small business to Canadian exports in 1981. This is very significant in relationship to various estimated of the size of direct exports by small Canadian firms.⁸

FIGURE 6: ANALYSIS OF CANADIAN EXPORTS

Simulation for 1981: \$87 Billion



⁸ Note, for example the ITC Small Business Secretariat report, Small Business in Canada: A Statistical Profile, 1981. In the manufacturing sector, small business direct exports were estimated at \$331.3 million for 1979.

4.0 SUMMARY AND INTEGRATION OF RESULTS

Table 8 gathers the various estimates for 1) the percentage of large company revenues spent on purchases from other companies, 2) the percentage of those purchases which go to small suppliers, and 3) the product which gives the percentage of revenues spent on purchases from small businesses.

TABLE 8

SUMMARY OF DATA FROM FOUR SOURCES

	Purchases Percentage of Revenues	Purchases from Percentage of Purchases	Small Businesses Percentage of Revenues
Maclean Hunter Data (Sales \$10 Million)	25	40	10
3 Case Studies (Employees <100) Cominco MacMillan Bloedel Northern Telecom		41 38 48	
Adjusted Case Studies (Employees <50) Cominco MacMillan Bloedel Northern Telecom		23 22 27	
Macro Simulation (Employees <50)	30	24	7
Export Devel. Corp.		14	

The percentage of those purchases which go to small businesses would appear to be either 25 per cent or 40 per cent (depending on how small businesses are defined (i.e. less than 50 or less than 100 employees). This suggests that 7-10 per cent of the total sales revenues of large companies is used to purchase goods and services from small businesses.

Applying the lower bound of this range to the \$96 billion of export revenues suggests that the small business sector's indirect participation in exports is at least \$6 billion.

5.0 CONCLUSION

While available statistics indicate that only a small fraction of Canadian exports are exported by small businesses, small businesses play an additional role in the production of Canadian exports. Canadian small businesses provide goods and services to larger businesses which then incorporate the value of these goods and services into exports.

The small business share of inputs into production by primary exporters resulting from the macro estimation approach is reasonably consistent with the samplings available using the micro approach. That is, the 24 per cent share estimated for small business as a result from the input/output size distribution methodology falls within the range of estimates arising from the company information and EDC data supplied for this study, as well as the recently-published Maclean Hunter survey.

We would therefore conclude that, from the information available at this stage, \$6 billion is a reasonable estimate of the magnitude of the annual small business indirect contribution of Canadian exports in the early 1980s. This indirect contribution is, of course, in addition to the small business share of production directly for export, for which estimates tend to be much lower.

On the one hand this means that the contribution of Canadian small businesses through the provision of goods and services necessary for the production of exports may be greater than previously believed. On the other hand, it also means that policies aimed at increasing the levels of exports by large firms may provide significant benefits to small businesses as well. It suggests the possibility that the objective of providing more opportunities for smaller businesses might be better served by policies which improve the sales of Canada's most promising export products regardless of the size of producer instead of focusing on exports directly by small businesses.

APPENDIX

To test for the influence of firms with extreme values we first excluded the four firms with the lowest percentage and the four firms with the highest percentage and recomputed the averages. The results are shown in Table 1. To further test the extent to which extreme results might be affecting the averages, we excluded four more firms from the top of the table and four more from the bottom and recomputed the results displayed in Table 2. The same process was repeated in Table 3 which has a total of 12 firms excluded from the top and 13 firms from the bottom of the list.

TABLE 1

ORGANIZATION	Size	1981 Purch	1981 Sales	1981 Purch	Small Purch	Small Purch	Pur/ Sal	Small Sal
Mobil Oil Canada Ltd.	86	50	905	80	4	5	9	0
Nu-West Group Ltd.	76	70	1 040	30	8	25	3	1
Steeley Industries Ltd.	245	88	230	10	2	22	4	1
Massey-Ferguson Ltd.	15	47	3 175	144	45	31	5	1
Turbo Resources Ltd.	125	71	560	29	15	50	5	3
Saskatchewan Wheat Pool	40	37	1 941	112	56	50	6	3
Livingston Export Pkg. Ind.	331	81	152	15	5	34	10	3
Maclean Hunter Ltd.	162	58	409	58	15	26	14	4
Black & Decker Canada Ltd.	356	44	130	100	5	5	77	4
Motorola Canada Ltd.	341	80	144	12	6	50	8	4
Murphy Oil Co. Ltd.	337	77	147	14	7	50	10	5
Teleglobe Canada Inc.	307	82	170	12	9	75	7	5
Canadian Natnl. Railways	11	7	4 286	1 024	246	24	24	6
Cyanimid Canada Inc.	217	28	277	149	16	10	57	6
Dow Chemical Canada, Inc.	64	13	1 214	600	72	12	49	6
The Lundrigans Ltd.	184	72	355	25	25	100	7	7
de Havilland Aircraft	188	23	348	250	28	11	72	8
Canadian Co-Operative Imp. Ltd.	397	83	105	15	9	58	14	8
Union Carbide Canada, Ltd.	91	16	827	400	76	19	48	9
Litton Systems Canada Ltd.	370	52	121	67	11	17	55	9
Hayes-Dana Ltd.	249	66	223	45	23	50	20	10
Manitoba Hydro	176	53	362	62	38	62	17	11
National Sea Products Ltd.	199	54	314	65	34	53	21	11
Budd Canada Inc.	362	59	126	60	15	25	48	12
Maritime T&T Co. Ltd.	261	65	207	60	30	50	29	14
Consolidated Bathurst Inc.	51	22	1 479	280	238	85	19	16
Combustion Eng-Superheater Ltd.	230	40	248	70	46	66	28	19
Transalta Utilities Ltd.	164	42	403	100	79	79	25	20
Ontario Hydro	16	9	3 162	1 017	661	65	32	21
Marks & Spencer Canada Inc.	247	61	226	60	51	85	27	23
B.C. Sugar Refinery Ltd.	256	31	214	150	50	33	70	23
Trimac Ltd.	152	30	451	220	110	50	49	24
Indal Ltd.	119	17	584	300	174	58	51	30
UAP Inc.	316	32	165	138	50	36	84	30
Eurocan Pulp & Paper Inc.	340	35	144	120	60	50	83	42
Genesco Group Inc.	392	62	107	55	55	100	51	51
Totals			24 951	5 958	2 372	40	24	10
Average						45	32	12
Std. Dev.						26	25	12

TABLE 2

ORGANIZATION	Size	1981 Purch	1981 Sales	1981 Purch	Small Purch	Small Purch	Pur/ Sal	Small Sal
Turbo Resources Ltd.	125	71	560	29	15	50	5	3
Saskatchewan Wheat Pool	40	37	1 941	112	56	50	6	3
Livingston Export Pkg. Ind.	331	81	152	15	5	34	10	3
Maclean Hunter Ltd.	162	58	409	58	15	26	14	4
Black & Decker Canada Ltd.	356	44	130	100	5	5	77	4
Motorola Canada Ltd.	341	80	144	12	6	50	8	4
Murphy Oil Co. Ltd.	337	77	147	14	7	50	10	5
Teleglobe Canada Inc.	307	82	170	12	9	75	7	5
Canadian Natnl. Railways	11	7	4 286	1 024	246	24	24	6
Cyanimid Canada Inc.	217	28	277	149	16	10	57	6
Dow Chemical Canada, Inc.	64	13	1 214	600	72	12	49	6
The Lundrigans Ltd.	184	72	355	25	25	100	7	7
de Havilland Aircraft	188	23	348	250	28	11	72	8
Canadian Co-Operative Imp. Ltd.	397	83	105	15	9	58	14	8
Union Carbide Canada, Ltd.	91	16	827	400	76	19	48	9
Litton Systems Canada Ltd.	370	52	121	67	11	17	55	9
Hayes-Dana Ltd.	249	66	223	45	23	50	20	10
Manitoba Hydro	176	53	362	62	38	62	17	11
National Sea Products Ltd.	199	54	314	65	34	53	21	11
Budd Canada Inc.	362	59	126	60	15	25	48	12
Maritime T&T Co. Ltd.	261	65	207	60	30	50	29	14
Consolidated Bathurst Inc.	51	22	1 479	280	238	85	19	16
Combustion Eng-Superheater Ltd.	230	40	248	70	46	66	28	19
Transalta Utilities Ltd.	164	42	403	100	79	79	25	20
Ontario Hydro	16	9	3 162	1 017	661	65	32	21
Marks & Spencer Canada Inc.	247	61	226	60	51	85	27	23
B.C. Sugar Refinery Ltd.	256	31	214	150	50	33	70	23
Trimac Ltd.	152	30	451	220	110	50	49	24
Totals			18 601	5 081	1 975	39	27	11
Average						46	30	10
Std. Dev.						26	22	7

TABLE 3

ORGANIZATION	Size	Purch	1981 Sales	1981 Purch	Small Purch	Small Purch	Pur/ Sal	Small Sal
Black & Decker Canada Ltd.	356	44	130	100	5	5	77	4
Motorola Canada Ltd.	341	80	144	12	6	50	8	4
Murphy Oil Co. Ltd.	337	77	147	14	7	50	10	5
Teleglobe Canada Inc.	307	82	170	12	9	75	7	5
Canadian Natnl. Railways	11	7	4 286	1 024	246	24	24	6
Cyanimid Canada Inc.	217	28	277	149	16	10	57	6
Dow Chemical Canada, Inc.	64	13	1 214	600	72	12	49	6
The Lundrigans Ltd.	184	72	355	25	25	100	7	7
de Havilland Aircraft	188	23	348	250	28	11	72	8
Canadian Co-Operative Imp. Ltd.	397	83	105	15	9	58	14	8
Union Carbide Canada, Ltd.	91	16	827	400	76	19	48	9
Litton Systems Canada Ltd.	370	52	121	67	11	17	55	9
Hayes-Dana Ltd.	249	66	223	45	23	50	20	10
Manitoba Hydro	176	53	362	62	38	62	17	11
National Sea Products Ltd.	199	54	314	65	34	53	21	11
Budd Canada Inc.	362	59	126	60	15	25	48	12
Maritime T&T Co. Ltd.	261	65	207	60	30	50	29	14
Consolidated Bathurst Inc.	51	22	1 479	280	238	85	19	16
Combustion Eng-Superheater Ltd.	230	40	248	70	46	66	28	19
Transalta Utilities Ltd.	164	42	403	100	79	79	25	20
Totals			11 486	3 420	1 013	30	30	9
Average						45	32	9
Std. Dev.						28	22	5

Canada