

DOC TRADE POSITION STUDY - PHASE 3
THE IMPACT OF TRADE BARRIERS ON
PRODUCTION AND CONSUMPTION
In
Telecom and
Computer Equipment

September, 1985

The Canada Consulting Group Inc.

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In

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D62 1985 The purpose of this document is to examine the impact of trade barriers on the production and consumption of telecom and computer equipment in the Canadian economy

PHASES 1 AND 2A OF THE DOC TRADE POSITION STUDY CONCLUDED THAT COMPUTER EQUIPMENT AND TELECOM EQUIPMENT HAVE A SIGNIFICANT ROLE IN TRADE

DOC TRADE POSITION STUDY

		.Computer Equipment .Telecom Equipment				•Telecom Equipment	
SIGNIFICANCE OF IMPORT TRADE	**			SIGNIFICANCE OF EXPORT TRADE		•Computer Equipment	
				**			
	- DOMES	TIC TRADE	BARRIERS →	.	U.S.	TRADE BAR	RIERS -

MORE SPECIFICALLY, IN PHASE 2A, TARIFF AND NON-TARIFF BARRIERS IN TELECOM AND COMPUTERS WERE FOUND TO BE OF EQUAL IMPORTANCE IN BOTH CANADA AND THE UNITED STATES

DOC TRADE POSITION STUDY TARIFF AND NON-TARIFF BARRIERS - SUMMARY

TELECOM EQUIPMENT COMPUTER EQUIPMENT CANADA U.S. CANADA U.S. Telegraph Equipment and Telegraph Equipment and Parts 10.2% Parts 5.6% **EDP Machines and EDP Machines and** Telephone. Telephone 3.9% **Parts** 3.9% Parts Apparatus 17.5% Apparatus 8.5% Tariff Tariff Radio Telegraphic Radio Telegraphic **Barriers Barriers EDP Peripherals EDP Peripherals** Equipment Equipment (1987)(1987)2.4-8.0% and Parts and Parts 3.9% 10.2% Television Television Apparatus and Parts 11. Apparatus and Office Machines Office Machines 11.0% Parts 3.6% Communication Satellites 11.0% 2.0-3.7% Communication Satellites U.S. military Residual AT&T Bell and space Federal and linkages U.S. military Canada/Nortel programs provincial relationship R&D/high tech and space programs R&D/high tech "incubator" Federal and procurement "incubator" provincial Non-Non-Government parks procurement Tariff Tariff assistance(e.g., Government Export PEMD) **Barriers Barriers** assistance parks marketing programs (e.g., PEMD) Tax incentives Export assistance Tax incentives marketing State and local for R&D assistance venture capital for R&D State and local financing venture capital financing Medium Medium Significance Significance Medium Medium of Barriers of Barriers

THIS DOCUMENT INVESTIGATES THE IMPACT OF TRADE BARRIERS - BOTH DOMESTIC AND FOREIGN - ON THE ECONOMICS OF TELECOM EQUIPMENT AND COMPUTER EQUIPMENT

ECONOMICS OF CANADIAN TRADE BARRIERS TELECOM AND COMPUTER EQUIPMENT Determinants of consumption of telecom and computer . Tariffs equipment . Relevant Sources of competitive **Non-Tariff Barriers** advantage in production of telecom and computer equipment

THIS DOCUMENT IS PRESENTED IN FOUR SECTIONS

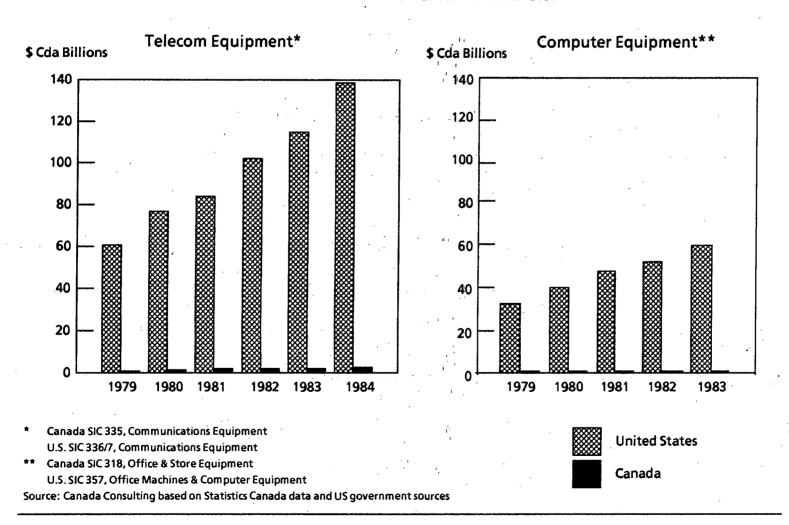
- I. DOMESTIC CONSUMPTION, NOT PRODUCTION, BEST DESCRIBES THE ROLE OF THE TELECOM AND COMPUTER EQUIPMENT SECTORS IN CANADA
- II. CANADIAN CONSUMPTION OF TELECOM AND COMPUTER EQUIPMENT IS NEGATIVELY AFFECTED BY TARIFFS AND PREFERENTIAL PROCUREMENT
- III. THE IMPACT OF TRADE BARRIERS ON THE COMPETITIVENESS OF THE TELECOM AND COMPUTER EQUIPMENT INDUSTRIES IS BUFFERED
- IV. BILATERAL REMOVAL OF TELECOM AND COMPUTER EQUIPMENT TRADE
 BARRIERS WOULD HAVE A MIXED IMPACT ON CANADIAN PRODUCTION BUT A
 POSITIVE IMPACT ON CANADIAN CONSUMPTION

- I. DOMESTIC CONSUMPTION, NOT PRODUCTION, BEST DESCRIBES THE ROLE OF THE TELECOM AND COMPUTER EQUIPMENT SECTORS IN CANADA
- A. The telecom and computer equipment sectors in Canada are much smaller than their American counterparts and rely on trade to satisfy domestic needs
- B. The strategic significance of the telecom and computer equipment sectors to Canada arises from domestic consumption requirements

A. 	THE TELECOM AND COMPUTER EQUIPMENT SECTORS IN CANADA ARE MUCH SMALLER THAN THEIR AMERICAN COUNTERPARTS AND RELY ON TRADE TO SATISFY DOMESTIC NEEDS
	alling the work of Phases 1 and 2B, U.S. shipments of telecom and computer ipment dwarf Canadian shipments
	n U.S. spare production capacity in the two sectors is significantly greater than adian shipments
	ada-U.S. trade in telecom and computer equipment is highly significant to Canada considerably less so for the United States
Can	ada relies on trade in both sectors to supply domestic consumption

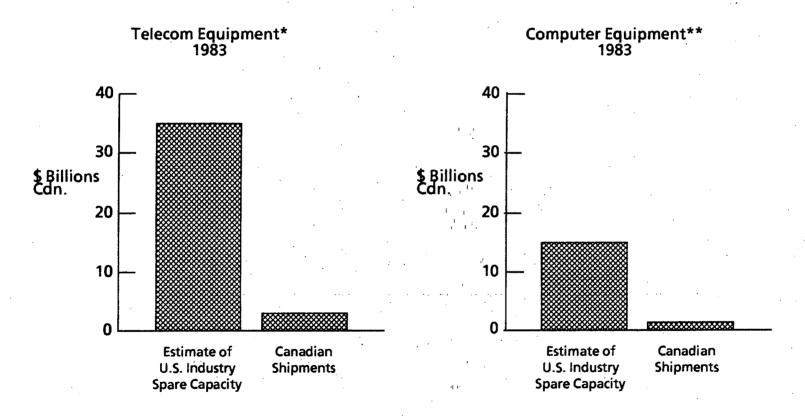
RECALLING THE WORK OF PHASES 1 AND 2B, U.S. SHIPMENTS OF TELECOM AND COMPUTER EQUIPMENT DWARF CANADIAN SHIPMENTS

INDUSTRY SHIPMENTS - CANADA AND U.S.



EVEN U.S. SPARE PRODUCTION CAPACITY IN THE TWO SECTORS IS SIGNIFICANTLY GREATER THAN CANADIAN SHIPMENTS

CAPACITY COMPARISONS

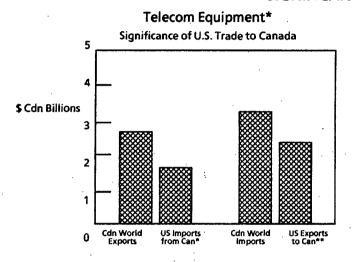


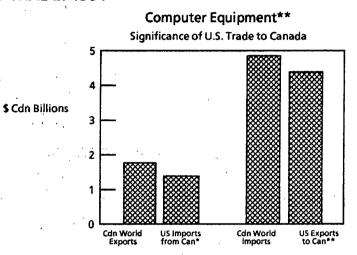
- Canada SIC 335, Communications Equipment
 U.S. SIC 336/7, Communications Equipment
- ** Canada SIC 318, Office & Store Equipment
 U.S. SIC 357, Office Machines & Computer Equipment

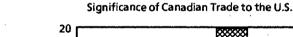
Source: Canada Consulting based on Statistics Canada data and US government sources

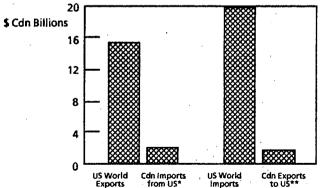
CANADA-U.S. TRADE IN TELECOM AND COMPUTER EQUIPMENT IS HIGHLY SIGNIFICANT TO CANADA BUT CONSIDERABLY LESS SO FOR THE UNITED STATES

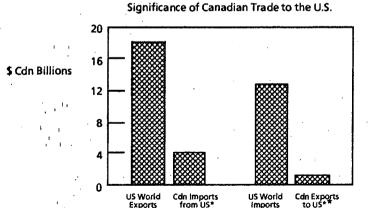
SIGNIFICANCE OF TRADE: 1984





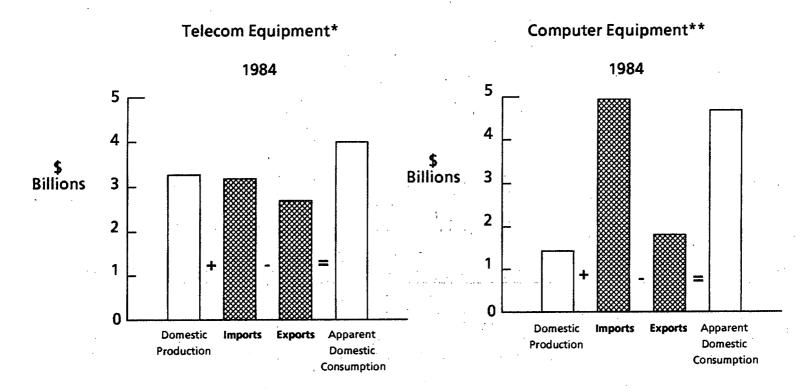






CANADA RELIES ON TRADE IN BOTH SECTORS TO SUPPLY DOMESTIC CONSUMPTION

CANADIAN COMPONENTS OF APPARENT DOMESTIC CONSUMPTION DOMESTIC SHIPMENTS, IMPORTS AND EXPORTS



Canada SIC 335, Communications Equipment

Source: Canada Consulting based on Statistics Canada data

^{**} Canada SIC 318, Office & Store Equipment

B. THE STRATEGIC SIGNIFICANCE OF THE TELECOM AND COMPUTER EQUIPMENT SECTORS TO CANADA ARISES FROM DOMESTIC CONSUMPTION REQUIREMENTS

The current significance to Canada of domestic production of telecom and computer equipment is low

The strategic significance of telecom and computer equipment is low as measured against production-oriented variables, but high against those which are consumption-oriented

THE CURRENT SIGNIFICANCE TO CANADA OF DOMESTIC PRODUCTION OF TELECOM AND COMPUTER EQUIPMENT IS LOW

PRODUCTION SIGNIFICANCE TO CANADA TELECOM & COMPUTER EQUIPMENT

	Value-added		d r	Employment	
	<u>1978</u> (\$ Billi	<u>1982</u> ons)	<u>1978</u> (T	<u>1982</u> housands)	
Total Canadian Economy	\$ 224.8	\$330.0	9,987	10,644	
All Manufacturing	51.5	69.0	1,310	1,212	
Communications Equipment - including Telecom Equipment	1.0	2.0	24	30	
Office & Store Machinery - including Computer Equipment	0.2	0.5	5	6	

Source: Canada Consulting based on Statistics Canada data

THE STRATEGIC SIGNIFICANCE OF TELECOM AND COMPUTER EQUIPMENT IS LOW AS MEASURED AGAINST PRODUCTION-ORIENTED VARIABLES, BUT HIGH AGAINST THOSE WHICH ARE CONSUMPTION-ORIENTED

CURRENT RELATIVE STRATEGIC SIGNIFICANCE TO CANADA

Production-oriented Variables	Telecom Equipment	Computer Equipment
Jobs	Low	Low
Value-added to Economy	Low	Low
Balance of Trade	Low	Low
Human Capital Development National Identity	Moderate Moderate	Moderate Moderate
Consumption-oriented Variables		
Technology Diffusion	High	High
Infrastructure	High	High

- II. CANADIAN CONSUMPTION OF TELECOM AND COMPUTER EQUIPMENT IS NEGATIVELY AFFECTED BY TARIFFS AND PREFERENTIAL PROCUREMENT
- A. Trade barriers play an indirect role in influencing Canadian consumption of telecom and computer equipment
- B. The impact of tariff and non-tariff barriers on Canadian consumption of telecom and computer equipment is mixed

A. TRADE BARRIERS PLAY AN INDIRECT ROLE IN INFLUENCING CANADIAN CONSUMPTION OF TELECOM AND COMPUTER EQUIPMENT

Consumption of high technology products in Canada is determined by three factors: demand, cost and availability

Trade barriers that exist in the telecom and computer equipment industries influence consumption indirectly, in so far as they affect demand, cost and availability

We will evaluate the impacts of Canadian and U.S. tariff and non-tariff barriers on Canadian consumption of high technology products

CONSUMPTION OF HIGH TECHNOLOGY PRODUCTS IN CANADA IS DETERMINED BY THREE FACTORS: DEMAND, COST AND AVAILABILITY

DETERMINANTS OF CONSUMPTION

DEMAND

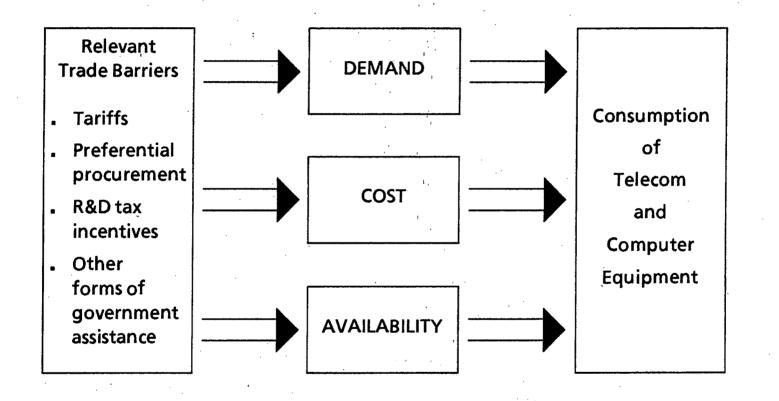
- Intrinsic, strategic need for a product or component
- Demand dimension independent of cost
- Response to competitive needs such as capability, performance, productivity, customer service, cost reduction, etc.

COST

- Lower cost tends to increase demand
- Value or price/performance tradeoffs are important: "not just the sticker price"

AVAILABILITY

- . Ability to purchase
 - Key related issues include:
 - -product quality
 - lead times
 - supplier competence, reliability and proximity
 - quality and timeliness of service
 - alternate sources of supply and service



WE WILL EVALUATE THE IMPACT OF CANADIAN AND U.S. TARIFF AND NON-TARIFF BARRIERS ON CANADIAN CONSUMPTION OF HIGH TECHNOLOGY PRODUCTS

TELECOM AND COMPUTER EQUIPMENT

Impact of Canadian and U.S. Trade Barriers on Canadian Consumption

	IN	IPACT SUMMARY	•	EXPLANATION
	C D A	,	C D A	
Demand	U S A		U S A	
Cost	C D A		C D A	
DETERMINANTS OF	U S A		U S A	
CONSUMPTION Availability	C D A		C D A	
,	U S A		U S A	
OVERALL	C D A		C D A	1
	U S A		U S A	
			ln	mpact Grading Scale High Medium Low NEUTRAL/ Low Medium High NEGATIVE NONE POSITIVE

В.	THE IMPACT OF TARIFF AND NON-TARIFF BARRIERS ON CANADIAN CONSUMPTION OF TELECOM AND COMPUTER EQUIPMENT IS MIXED
	OF TELECOIVI AND COIVIPOTER EQUIPIVIENT IS IVIIXED
Tar	iffs raise the cost of telecom and computer products
Pre	ferential procurement can have mixed impacts on consumption in Canada
	D tax incentives, in both Canada and the U.S., have modestly encouraged the sumption of technology products by Canadians
Sim	ilarly, government assistance programs also promote consumption
Car	ummary, while R&D tax incentives and government assistance may encourage hadian consumption, Canadian tariffs have more significant negative impacts on sumption

TARIFFS RAISE THE COST OF TELECOM AND COMPUTER PRODUCTS

TARIFFS: TELECOM AND COMPUTER EQUIPMENT Impact of Canadian* Tariffs on Canadian Consumption

TARIFFS: **IMPACT SUMMARY**

EXPLANATION

Demand	C D A	C D No impact
	U S . A	U S A
Cost	C D A	C D Increased cost of imported products and components
DETERMINANTS OF	U S A	U S A
CONSUMPTION	C D A	C D No impact
Availability	U S A	U S A
OVERALL	C D A	C Although tariffs raise cost, strategic demand for high tech products is somewhat price inelastic, especially the case for regulated telecom equipment purchasers
· ·	U S A	U S A
*Impact of U.S. tariffs on Canadia insignificant.	n consumption is	Impact Grading Scale High Medium Low NEUTRAL/ Low Medium High NEGATIVE NONE POSITIVE

PREFERENTIAL PROCUREMENT CAN HAVE MIXED IMPACTS ON CONSUMPTION IN CANADA

PREFERENTIAL PROCUREMENT: TELECOM AND COMPUTER EQUIPMENT Impact of Canadian* Preferential Procurement on Canadian Consumption

PREFERENTIAL PROCUREMENT: IMPACT SUMMARY

consumption is insignificant.

EXPLANATION

Demand	C D A	Increases the demand for Canadian made products, but does not increase overall demand for high technology products in general
	U S A	U S A
Cost	C D A	C Higher cost if preferred Canadian supplier is not low cost. On the other hand, volume purchases by government may generate scale economies for manufacturers, thus lowering costs
DETERMINANTS OF CONSUMPTION	U S A	U S A
Availability OVERALL	C D A	C If precludes procurement of more advanced foreign product, availability may be impaired. On the other hand, support of domestic producers may increase availability in longer term
	U S A	U S A
	C D A	C D Tends to increase cost and restrict options re: availability
	U S A	U S A
*Impact of U.S. preferential proce	rement on Canadian	Impact Grading Scale

Medium POSITIVE

NEUTRAL/ NONE

R&D INCENTIVES, IN BOTH CANADA AND THE U.S., HAVE MODESTLY ENCOURAGED THE CONSUMPTION OF TECHNOLOGY PRODUCTS BY CANADIANS

R&D TAX INCENTIVES: TELECOM AND COMPUTER EQUIPMENT Impact of Canadian and U.S.R&D Tax Incentives on Canadian Consumption

R&D TAX INCENTIVES: IMPACT SUMMARY

EXPLANATION

Demand	C D A	New technological advances will influence and may increase or shift demands by consumers
	U S A	New technological advances will influence and may increase or shift demands by consumers
Cost	C D A	R&D incentives may lower the effective cost of new product development
DETERMINANTS OF CONSUMPTION	U A	R&D incentives may lower the effective cost of new product development
Availability OVERALL	C D A	C Enhanced production capability will enhance availability. Tax expenditures may also enhance viability of firms improving supply security
	U S A	U Improved availability in the U.S. may increase availability in Canada A
	CDA	C D Positive effect on demand, cost and availability
	U S A	Positive effect on demand, cost and availability

Impact Grading Scale

Medium POSITIVE

NEUTRAL/ NONE

Medium NEGATIVE

SIMILARLY, GOVERNMENT ASSISTANCE PROGRAMS ALSO PROMOTE CONSUMPTION

OTHER GOVERNMENT ASSISTANCE: TELECOM AND COMPUTER EQUIPMENT Impact of Other Forms of Canadian and U.S.Government Assistance on Canadian Consumption

OTHER GOVERNMENT ASSISTANCE: IMPACT SUMMARY

EXPLANATION

	C D A	C D A	Improved access to financing will stimulate demand
Demand	U S A	U S A	No impact
Cost	C D A	C D A	Subsidized financing and various forms of advisory support assistance will tend to lower the cost of products manufactured in Canada
DETERMINANTS OF CONSUMPTION	U S A	U S A	Assistance targeted at U.S. exporters will tend to reduce the cost of U.S. products sold in Canada
	C D A	C D A	Encouraging domestic production capability will enhance availability. Tax expenditures also enhance viability of individual firms, thus improving supply security
Availability	U S A	U S A	Improved availability in U.S. may increase availability in Canada
OVERALL	C D A	C D A	Positive effect on demand, cost and availibility
	U S A	U S A	Some reduction in cost and some potential for increased availability
			50/2000081/(CCCCCO-11111)

Impact Grading Scale

Medium POSITIVE

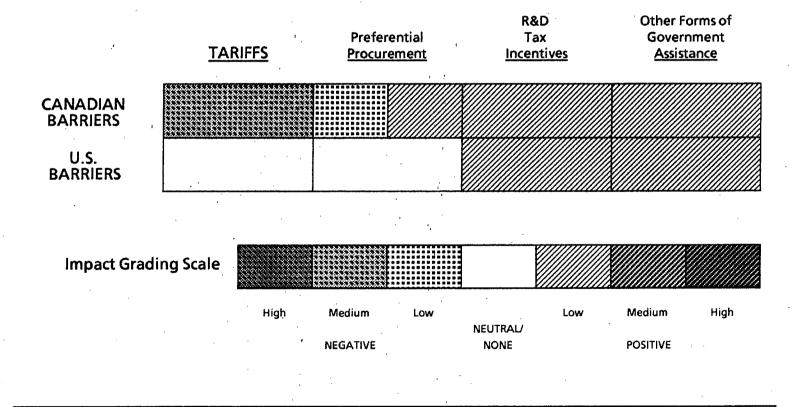
NEUTRAL/ NONE

Medium NEGATIVE

IN SUMMARY, WHILE R&D INCENTIVES AND GOVERNMENT ASSISTANCE MAY ENCOURAGE CANADIAN CONSUMPTION, CANADIAN TARIFFS HAVE MORE SIGNIFICANT NEGATIVE IMPACTS ON CONSUMPTION

CANADIAN AND U.S. TARIFF AND NON-TARIFF BARRIERS: TELECOM AND COMPUTER EQUIPMENT OVERALL IMPACT ON CANADIAN CONSUMPTION

NON-TARIFF BARRIERS



- III. THE IMPACT OF TRADE BARRIERS ON THE COMPETITIVENESS OF THE TELECOM AND COMPUTER EQUIPMENT INDUSTRIES IS BUFFERED
- A. Trade barriers have an indirect impact on sources of competitive advantage in production of telecom and computer equipment
- B. Tariffs, preferential procurement, R&D tax incentives and other forms of government assistance have a minor impact on competitive advantage in the Canadian telecom equipment industry
- C. The impact of trade barriers on Canada's computer industry is also minor
- D. The overall impact of major tariff and non-tariff barriers on the competitiveness of the Canadian telecom and computer equipment industries is not significant

A. TRADE BARRIERS HAVE AN INDIRECT IMPACT ON SOURCES OF COMPETITIVE ADVANTAGE IN PRODUCTION OF TELECOM AND COMPUTER EQUIPMENT

Key sources of competitive advantage in telecom and computer equipment include products and technology, marketing savvy and low cost

Trade barriers affect Canadian telecom and computer equipment production by influencing these three key sources of competitive advantage

We will assess the impact of tariff and relevant non-tariff barriers on Canadian competitiveness in these technology intensive industries

KEY SOURCES OF COMPETITIVE ADVANTAGE IN TELECOM AND COMPUTER EQUIPMENT INCLUDE PRODUCTS AND TECHNOLOGY, MARKETING SAVVY AND LOW COST

SOURCES OF COMPETITIVE ADVANTAGE

PRODUCTS AND TECHNOLOGY

Access to technology (R&D)

- Access to educated, technology-oriented human resources especially for products with a high engineering component
- Development and delivery of products embodying quality technology which address a need in the marketplace

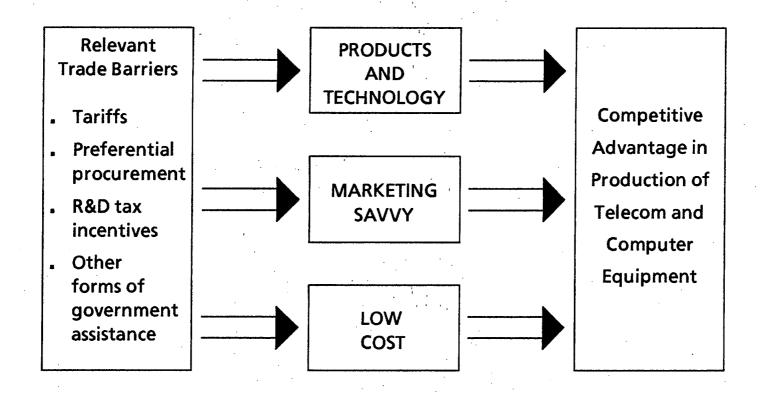
MARKETING SAVVY

- Understanding market trends and customer needs
- Building strong customer service and support networks
- And for U.S. market success, having U.S.based manufacturing

LOW COST

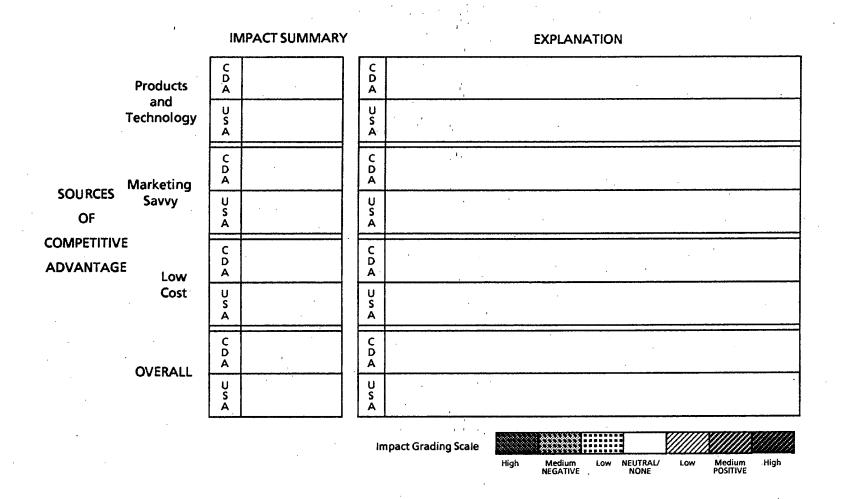
- Achieving high production volumes at low unit cost
- Manufacturing in southern North America or offshore, where proximity to major markets, scale economies and other cost advantages can be best captured

TRADE BARRIERS AFFECT CANADIAN TELECOM AND COMPUTER EQUIPMENT PRODUCTION BY INFLUENCING THESE THREE KEY SOURCES OF COMPETITIVE ADVANTAGE



WE WILL ASSESS THE IMPACT OF TARIFF AND RELEVANT NON-TARIFF BARRIERS ON CANADIAN COMPETITIVENESS IN THESE TECHNOLOGY INTENSIVE INDUSTRIES

IMPACT OF CANADIAN AND U.S. TRADE BARRIERS ON CANADIAN COMPETITIVENESS



B. TARIFFS, PREFERENTIAL PROCUREMENT, R&D TAX INCENTIVES AND OTHER FORMS
OF GOVERNMENT ASSISTANCE HAVE A MINOR IMPACT ON COMPETITIVE
ADVANTAGE IN THE CANADIAN TELECOM INDUSTRY

Tariffs are generally perceived as irritants by high technology industries

Procurement strategy can have a major impact on the telecom equipment industry, but Canada has not fully capitalized on this opportunity

Canadian R&D incentives benefit the telecom equipment industry, but U.S. incentives reduce the competitive significance of this benefit

Other government assistance programs in the U.S. and Canada influence both the location and the financial stability of high tech manufacturers

TARIFFS ARE GENERALLY PERCEIVED AS IRRITANTS BY HIGH TECHNOLOGY INDUSTRIES

TARIFFS: TELECOM EQUIPMENT Impact of Canadian and U.S. Tariffs on Canadian Competitiveness

TARIFFS: IMPACT SUMMARY EXPLANATION CD Ď No impact **Products** Ã and U Technology Š No impact CD C Ď No impact Marketing Ä Savvy **SOURCES** U S Š No impact OF À **COMPETITIVE** Confer small cost advantages on domestic manufacturers, but other cost disadvantages in Canada usually outweigh tariff benefits C **ADVANTAGE** Low Α Cost Reduce cost advantage that Canadian manufacturers might otherwise enjoy when selling into U.S. market Increase cost of doing business in Canada. Are irritants and not determinants of strategy **OVERALL** Act the same way as Canadian tariffs Impact Grading Scale High Medium NEUTRAL/ Medium NEGATIVE NONE POSITIVE

PROCUREMENT STRATEGY CAN HAVE A MAJOR IMPACT ON THE TELECOM EQUIPMENT INDUSTRY, BUT CANADA HAS NOT FULLY CAPITALIZED ON THIS OPPORTUNITY

PREFERENTIAL PROCUREMENT: TELECOM EQUIPMENT Impact of Canadian and U.S. Preferential Procurement on Canadian Competitiveness

PREFERENTIAL PROCUREMENT: **IMPACT SUMMARY**

EXPLANATION

Products	C D A	C D Mixed results: Some "world product mandate" plants for Canada. However, some sub-optimal technology transfer
and Technology	U S A	Canadian companies without U.S. manufacturing base have a disadvantage in gaining access to U.S. space and defense program contracts
Marketing	C D A	C Bell Canada affiliation has helped Northern Telecom. Smaller companies allege that unsystematic procurement preferences in Canada nurt marketing efforts abroad
SOURCES Savvy OF COMPETITIVE	U S A	AT&T Technologies has residual links to regional Bell operating companies. A National security considerations restrict market access in U.S.A.
ADVANTAGE Low	C D A	C Foreign firms may build inefficient domestic assembly plants. However, large government contracts can provide critical mass of volume for smaller companies
Cost	U S A	Higher production volumes generate lower unit costs. Restricted access to government purchases in U.S.A. increases costs for unsuccessful Canadian bidders
OVERALL	C D A	In Canada, government accounts for a major share of high tech purchases, especially for small and growth companies
OVEINEE	U S A	Real impact mitigated because government share of market in U.S. smaller than in Canada and because many Canadian companies already manufacture in U.S.
·		Impact Grading Scale

Medium POSITIVE

NEUTRAL/ NONE

Medium NEGATIVE

CANADIAN R&D INCENTIVES BENEFIT THE TELECOM EQUIPMENT INDUSTRY, BUT U.S. INCENTIVES REDUCE THE COMPETITIVE SIGNIFICANCE OF THIS BENEFIT

R&D TAX INCENTIVES: TELECOM EQUIPMENT

Impact of Canadian and U.S. R&D Tax Incentives on Canadian Competitiveness

R&D TAX INCENTIVES: IMPACT SUMMARY

EXPLANATION

*		
Products	C D A	C Promote Canadian based R&D and manufacturing. Encourage growth of domestic human resource talent base. A incentives also available to U.S. companies based in Canada
and Technology	U S A	Are less attractive than corresponding Canadian incentives. Also available to Canadian companies based in U.S.A.
Marketing	C D A	C D No impact
SOURCES Savvy OF	U S A	U S A No impact
ADVANTAGE Low	C D A	Subsidize product development efforts, thus lowering cost of Canadian manufactured products
Cost	U S A	Lower the costs of U.S. manufacturers
OVERALL	C D A	Benefit all profitable companies paying Canadian taxes and which engage in R&D in Canada
OVERALL	U S A	Mitigate any product, technology or cost advantages enjoyed by Canadian companies exporting to the U.S.
		Impact Grading Scale High Medium Low NEUTRAL/ Low Medium High
,	•	NEGATIVE NONE POSITIVE

OTHER GOVERNMENT ASSISTANCE PROGRAMS IN THE U.S. AND CANADA INFLUENCE BOTH THE LOCATION AND THE FINANCIAL STABILITY OF HIGH TECH MANUFACTURERS

OTHER GOVERNMENT ASSISTANCE: TELECOM EQUIPMENT Impact of Other Forms of Canadian and U.S. Government Assistance on Canadian Competitiveness

OTHER GOVERNMENT ASSISTANCE: IMPACT SUMMARY

EXPLANATION

Products	C D A	C D Loans and grants support startup activities of high tech firms, including the R&D and product development phases
and Technology	U S A	U Incubator parks for high technology industries encourage U.S. industry development
Marketing	C D A	Export marketing assistance useful in overseas markets, but of less benefit in penetrating U.S.
SOURCES Savvy OF	U S A	Marketing programs assist U.Sbased companies competing with Canadian firms in world markets
COMPETITIVE ADVANTAGE Low	CDA	C D Loans and grants and other forms of advisory support reduce total costs
Cost	U S A	Advisory support programs and clustered development confer cost benefits on U.Sbased companies
OVERALL	C D A	Government assistance has kept many Canadian companies alive during their formative years
· OVERMEL	U S A	Favorable high tech climate in the U.S., supported by access to markets and financing, enhances competitiveness of U.S. industry

Impact Grading Scale

NEUTRAL/ NONE

Medium NEGATIVE

C.	THE IMPACT OF TRADE BA	ARRIERS ON CANADA'S COMPUTER INDUSTRY IS AL	.SO
	MINOR		

Computer equipment tariffs are lower than for telecom equipment, so that while their nuisance effect remains a concern, their cost implications are less significant

The role of preferential procurement in Canada's computer equipment industry is very much like that facing telecom equipment

Convergence of technology in telecom and computers has caused R&D tax incentives to have like effects on competitiveness in both these industries

Similarly, other forms of government assistance in both Canada and the U.S. have also assisted and encouraged the computer equipment industry

COMPUTER EQUIPMENT TARIFFS ARE LOWER THAN FOR TELECOM EQUIPMENT, SO THAT WHILE THEIR NUISANCE EFFECT REMAINS A CONCERN, THEIR COST IMPLICATIONS ARE LESS SIGNIFICANT

TARIFFS: COMPUTER EQUIPMENT Impact of Canadian and U.S. Tariffs on Canadian Competitiveness

TARIFFS: IMPACT SUMMARY EXPLANATION Ď Ď No impact **Products** Α Α and U U Technology S S No impact Α Α C C No impact Marketing A А Savvy **SOURCES** U U S No impact S OF Α Α **COMPETITIVE** Confer small cost advantage on domestic manufacturers, but other cost disadvantages in Canada usually outweigh tariff benefit C D A **ADVANTAGE** Low Cost Offset or exceed differential cost advantage that Canadian manufacturers might otherwise enjoy when selling into U.S. market. U.S. tariffs are higher than those in Canada Increase cost of doing business in Canada. Are irritants and not determinants of strategy C Ā **OVERALL** U S A Act the same way as Canadian tariffs impact Grading Scale NEUTRAL/ Medium POSITIVE NEGATIVE

THE ROLE OF PREFERENTIAL PROCUREMENT IN CANADA'S COMPUTER EQUIPMENT INDUSTRY IS VERY MUCH LIKE THAT FACING TELECOM EQUIPMENT

PREFERENTIAL PROCUREMENT: COMPUTER EQUIPMENT

Impact of Canadian and U.S. Preferential Procurement on Canadian Competitiveness

PREFERENTIAL PROCUREMENT: IMPACT SUMMARY

EXPLANATION

Medium NEGATIVE NEUTRAL/ NONE

Products	C D	C D Mixed results: Some "world product mandate' plants for Canada. However some sub-optimal technology transfer.
and Technology	U S	U Canadian companies without U.S. manufacturing bases have a disadvantage in gaining access to U.S. space and defense program contracts
Marketing	C D A	Smaller companies allege that unsystematic procurement preferences in Canada hurt their marketing efforts abroad
SOURCES Savvy OF	U S A	National security considerations restrict market access in U.S.A.
COMPETITIVE ADVANTAGE Low	C D A	C Foreign firms may build inefficient domestic assembly plants. However large government contracts can provide critical mass of volume for smaller companies
Cost	U S A	U Higher production volumes generate lower unit costs. Restricted access to government purchases in U.S.A. increases costs for unsuccessful Canadian bidders
OVERALL	C D A	In Canada, government accounts for a major share of high tech purchases, especially for small and growth companies
OVERALL	U S A	Real impact mitigated because government share of market in U.S. smaller than in Canada, and because many Canadian companies already manufacture in U.S.
		Impact Grading Scale

Medium POSITIVE

CONVERGENCE OF TECHNOLOGY IN TELECOM AND COMPUTERS HAS CAUSED R&D TAX INCENTIVES TO HAVE LIKE EFFECTS ON COMPETITIVENESS IN BOTH THESE INDUSTRIES

R&D TAX INCENTIVES: COMPUTER EQUIPMENT

Impact of Canadian and U.S. R&D Tax Incentives on Canadian Competitiveness

R&D TAX INCENTIVES: IMPACT SUMMARY EXPLANATION Promote Canadian based R&D and manufacturing. Encourage growth of domestic human resource talent base Incentives also available to U.S. companies based in Canada **Products** and Are less attractive than corresponding Canadian incentives. Technology Also available to Canadian companies based in U.S.A. Α C No impact Marketing Ā Savvy **SOURCES** No impact OF COMPETITIVE Subsidize product development efforts, thus lowering cost of ADVANTAGE Canadian manufactured products Low Cost U Lower the costs of U.S. manufacturers À Benefit all profitable companies paying Canadian taxes and which engage in R&D in Canada **OVERALL** Mitigate any product, technology or cost advantages enjoyed by Canadian companies exporting to the U.S.

Impact Grading Scale

Medium

NEUTRAL/

NONE

Medium NEGATIVE

SIMILARLY, OTHER FORMS OF GOVERNMENT ASSISTANCE IN BOTH CANADA AND THE U.S. HAVE ALSO ASSISTED AND ENCOURAGED THE COMPUTER EQUIPMENT INDUSTRY

OTHER GOVERNMENT ASSISTANCE: COMPUTER EQUIPMENT

Impact of Other Forms of Canadian and U.S. Government Assistance on Canadian Competitiveness

OTHER GOVERNMENT ASSISTANCE: IMPACT SUMMARY

EXPLANATION

	•	
Products	C D A	C Loans and grants support the initial start-up activities of high tech firms, including the R&D and product development phases
and Technology	U S A	Incubator parks for high technology industries encourage U.S. industry development
Marketing	C D A	Export marketing assistance useful in overseas markets, but of less benefit in penetrating U.S. market
SOURCES Savvy OF	U S A	Marketing programs assist U.S. based companies competing with Canadian firms in world markets
COMPETITIVE ADVANTAGE Low	C D A	C Loans and grants and other forms of advisory support reduce total costs
Cost	U S A	Advisory support programs and clustered development confercost benefits on U.S based companies.
OVERALL	C D A	Government assistance has kept many Canadian companies alive during their formative years
OVERALL	U S A	Favorable high tech climate in the U.S., supported by access to markets and financing, enhances competitiveness of U.S. industry

Impact Grading Scale

Medium POSITIVE

NEUTRAL/ NORMAL

Medium

NEGATIVE

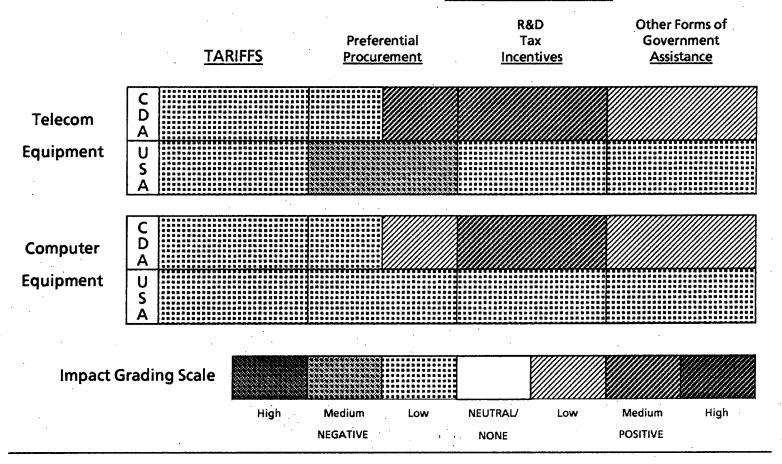
High

Low

D. THE OVERALL IMPACT OF MAJOR TARIFF AND NON-TARIFF BARRIERS ON THE COMPETITIVENESS OF THE CANADIAN TELECOM AND COMPUTER INDUSTRIES IS NOT SIGNIFICANT

OVERALL IMPACT ON CANADIAN COMPETITIVENESS

NON-TARIFF BARRIERS



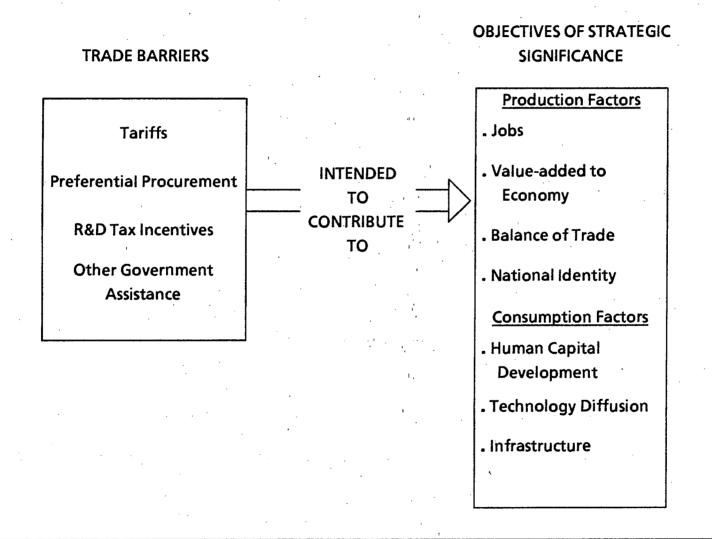
IV. BILATERAL REMOVAL OF TELECOM AND COMPUTER EQUIPMENT TRADE BARRIERS WOULD HAVE A MIXED IMPACT ON CANADIAN PRODUCTION BUT A POSITIVE IMPACT ON CANADIAN CONSUMPTION

Trade barriers are intended to contribute to a number of objectives of strategic significance

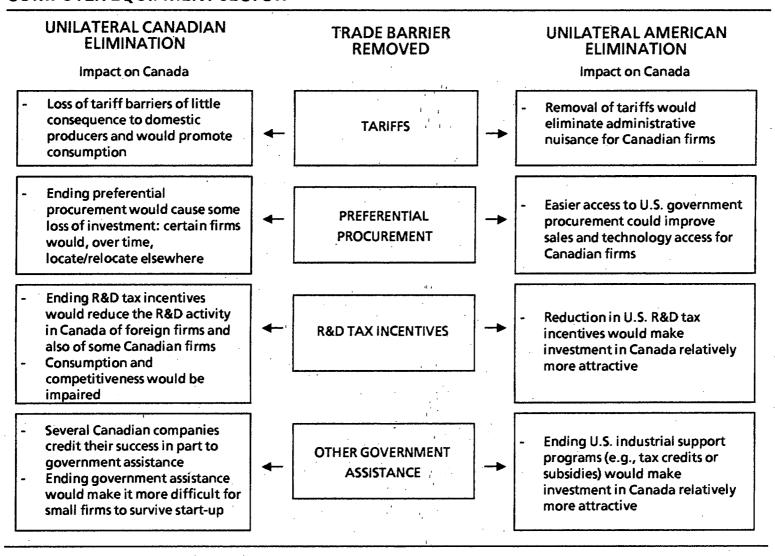
Unilateral elimination of the trade barriers by either Canada or the U.S. would have quite different impacts on the Canadian telecom and computer equipment sector

Bilateral freer trade between the U.S and Canada in the telecom and computer equipment sectors would most likely be of net benefit to Canada

TRADE BARRIERS ARE INTENDED TO CONTRIBUTE TO A NUMBER OF OBJECTIVES OF STRATEGIC SIGNIFICANCE



UNILATERAL ELIMINATION OF THE TRADE BARRIERS BY EITHER CANADA OR THE U.S. WOULD HAVE QUITE DIFFERENT IMPACTS ON THE CANADIAN TELECOM AND COMPUTER EQUIPMENT SECTOR



BILATERAL FREER TRADE BETWEEN THE U.S. AND CANADA IN THE TELECOM AND COMPUTER EQUIPMENT SECTORS WOULD MOST LIKELY BE OF NET BENEFIT TO CANADA

The strategic significance of a sector is a combination of production and consumption oriented factors

Canadian trade policies have affected the pattern of trade and contributed to the growth of domestic telecom and computer equipment production

However production factors make only a minor contribution to the strategic significance of these sectors

Consumption factors make a major contribution to the strategic significance of telecom and computer equipment, especially through development of infrastructure

Freer trade would promote consumption of telecom and computer equipment

