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Industry, Science and  
Technology Canada

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Technologie Canada

## **SUBSIDIES IN THE NORTH AMERICAN PULP AND PAPER INDUSTRY**

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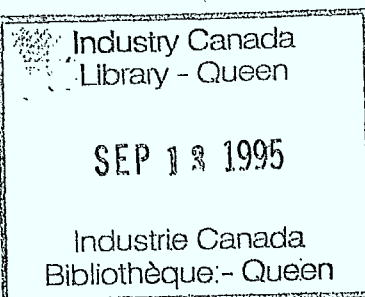
**EFFECTS ON CANADA-US  
COMPETITIVENESS**

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**SUBSIDIES IN THE NORTH AMERICAN  
PULP AND PAPER INDUSTRY**

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COMPETITIVENESS**



**Special Projects Branch  
Industry, Science & Technology  
August 20, 1992**

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## EXECUTIVE SUMMARY

The ISTC analysis of subsidy practices in the North American pulp and paper industry is based on a sample of 200 cases covering investments made during the decade of the 80s. Each case involved an investment in excess of \$50 million. The sample captured 100% of Canadian investments in the industry and roughly 77% of all U.S. investments. In all, the sample represents some \$50 billion of investments split about equally between Canada and the U.S.

Unlike other analyses, the ISTC analysis started with a comprehensive list of investment projects and then carefully researched all forms of assistance obtained by the project from all levels of government. This bottom-up approach required extensive research including site visits and was greatly assisted by the Canadian industry and the Canadian Pulp and Paper Association.

Each form of assistance was examined to determine whether or not the assistance took the form of an economic subsidy. Subsidies were valued from two perspectives: first, as valued by the receiving firm; and second, by using the calculated methodologies of the US Department of Commerce. The value of the subsidies to the firm was determined in accordance with the principles of corporate finance. This approach yields an after-tax net present value using industry norms for the cost of debt and the cost of equity.

The results of the analysis are as follows:

- Expressed as a percentage of investment, sales, or per tonne of output, the net present value of subsidies to the pulp and paper industry was about equal in both countries. In each country there were cases where the subsidies exceeded 20% of investment.
- The form in which subsidies were given in the U.S. differed from that in Canada. In the U.S., the major subsidies were conveyed in the form of tax exempt bonds, high leverage financing, cogeneration and property tax abatement. In Canada, most subsidies were conveyed in the form of grants, direct financing and investment tax credits.

- A comparison of subsidies by product line indicates that as a percentage of investment, subsidy levels were similar in the two countries for newsprint, but U.S. subsidies for market pulp were roughly double those in Canada. U.S. subsidies were also relatively high for uncoated groundwood and tissue while those in Canada were higher for uncoated free sheet, coated groundwood and bleached paper board.
- A comparison of subsidy levels by level of government shows that local governments in the U.S. were active players while those in Canada were not. Local governments contributed some 16% of total subsidies in the United States. State and Provincial subsidies were roughly the same, but U.S. federal government assistance accounted for 30% of total subsidies while the federal government in Canada contributed 44%.
- Subsidy levels in both countries declined by close to 50% during the last half of the decade but the share of total subsidies contributed by local governments in the U.S. increased.
- The analysis understates the level of subsidies conveyed in the US through cogeneration since only those arising in the state of Maine have been included. It is quite likely that cogeneration subsidies occur in other producing states as well. Determining the amount of these subsidies requires a detailed investigation of the relative costs of producing power and pricing policies. The issue is further complicated by the fact that not all of the benefit arising from cogeneration constitutes a subsidy in the economic sense. Some of it represents a genuine efficiency gain because some pulp and paper facilities can produce power at a lower cost than the utility. There is no doubt that cogeneration gives U.S. mills a significant competitive advantage.
- Estimating the magnitude and time distribution of subsidies using U.S. Department of Commerce (DOC) methodology indicates that the latter tends to front end load the benefits arising from grants and undervalues the benefits arising from soft loan subsidies. Undervaluing soft loan subsidies injects a bias in favour of the U.S., since this form of subsidy is used more frequently in the U.S. than in Canada.



- An assessment of the degree of subsidization in both countries for the year 1991 (using the DOC approach) for newsprint and market pulp indicates that U.S. producers enjoy a much higher level of benefit, amounting to 1% to 2% of sales. In the case of coated groundwood and uncoated free sheet, Canadian producers enjoy a higher level of benefit. In the case of tissue producers, Canadian firms received no subsidy while those in the U.S. received a subsidy amounting to 2% of sales.
- A comparison of subsidy levels by firm indicates that the three firms in the U.S. which received the highest level of specific subsidies achieved subsidy benefit levels in the order of 10% to 15% of sales in 1991 while their Canadian counterparts received benefits in the order of 3% to 5%.

1.0 INTRODUCTION

## 1.0 INTRODUCTION

### Context

Central to the mandate of the Canadian Department of Industry, Science, and Technology (ISTC) is the analysis of the competitiveness of Canada's industrial sectors. In this context, comparative levels of subsidies to firms could be a very important consideration for firms faced with decisions on whether to continue existing operations or increase their level of investment in Canada.

Following the implementation of the Canada-US Free Trade Agreement, ISTC began a comprehensive, empirically-based analysis of subsidy practices in Canadian and US industry sectors. When this work was started in 1989, the following considerations had to be confronted:

- There was a widely-held perception, even among many Canadians, that Canadian industry benefitted from much higher levels of subsidies than their US counterparts.
- The softwood lumber MOU had recently been signed - in response to US allegations that Canadian wood fibre was heavily subsidized; an export duty of 15 per cent was in place.
- Canada had no history (other than the corn case) of subsidy countervail actions against the US. Although there are a small number of countervail cases against other countries, there is not a comprehensive precedent for determining the existence and valuation of subsidies.
- There were distinct differences in the valuation of subsidies between, on the one hand, the US Department of Commerce approaches and, on the other hand, the methods used by corporate decision-makers in making investment and production decisions.

### Case Study Approach

Given the above challenges, it was decided that there was only one effective approach to address them: a detailed analysis of case studies, sector-by-sector. This report focuses on the first of these case studies, a comprehensive examination of 200 major investments in the US and Canadian pulp and paper sectors during the 1980s.



- **Canada's Pulp and Paper Sector**

With exports to the U.S. accounting for some 54% of industry shipments in 1990, full and free access to U.S. markets is of vital importance to the Canadian industry. As one of Canada's major industries accounting for 3% of GNP in 1990 and directly employing some 80,000 workers in harvesting and processing operations, the continued competitiveness of industry is vital to Canada. The industry is also a significant factor in regional economies and many communities in remote regions are entirely dependent on pulp and paper mills. Any threat to the ability of these mills to compete must therefore be a cause of concern.

- **Subsidy Analysis and Competitiveness**

It is important to keep in mind that subsidies are but one determinant of long-run competitiveness in the pulp and paper industry. Long-run competitiveness depends on the cost of inputs, scale, technology, distance from markets and the after-tax return on investment. Subsidization of input costs, transportation costs or the cost of capital may or may not result in a competitive advantage. To be effective in giving rise to a competitive advantage, subsidies must be capable of and, in fact, influence the behaviour of a firm. As history has repeatedly demonstrated, not all subsidies achieve the stated objectives. The magnitude of the subsidies must also be sufficient to offset a competitive disadvantage to be capable of distorting trade.

Determination of the impact of subsidies on competitiveness requires a comprehensive analysis of the industry value-added chain as a basis for determining long-run marginal cost. Given the availability of primary resources, the mobility of capital and technology, new investment will tend to take place where the after-tax return on investment is the highest. Given also that firms in the industry are essentially price takers, prices will, in the long run, be determined on the basis of long-run marginal cost and hence the after-tax return on investment. This governs the location of new investment and, as a result, is of most relevance in assessing the capability of subsidies to confer a competitive advantage to a region or a nation.

Such an analysis was beyond the scope of this study. The current analysis was limited to determining the nature and extent of subsidy practices in the U.S. and Canada, and estimating the magnitude of such subsidies from the standpoint of their value to the firm as compared to their value as determined under U.S. trade law procedures.

An examination of existing studies of subsidy practices in the pulp and paper industry indicated that they tended to be more in the form of taxonomies of available assistance rather than an investigation of assistance actually received by firms. As well, they did not appear to carefully examine state and local government incentives and policies. The studies did not utilize a consistent methodology to determine magnitude either from the standpoint of value to the firm or from the perspective of U.S. trade law.

## 2.0 THE EMPIRICAL BASE

## 2.0 The Empirical Base

To develop an adequate data base, the Competitiveness Analysis Unit of the Special Projects Branch of Industry, Science and Technology Canada undertook an analysis of all investments of more than \$50 million in the pulp and paper industry in both Canada and the US during the decade of the 1980s.

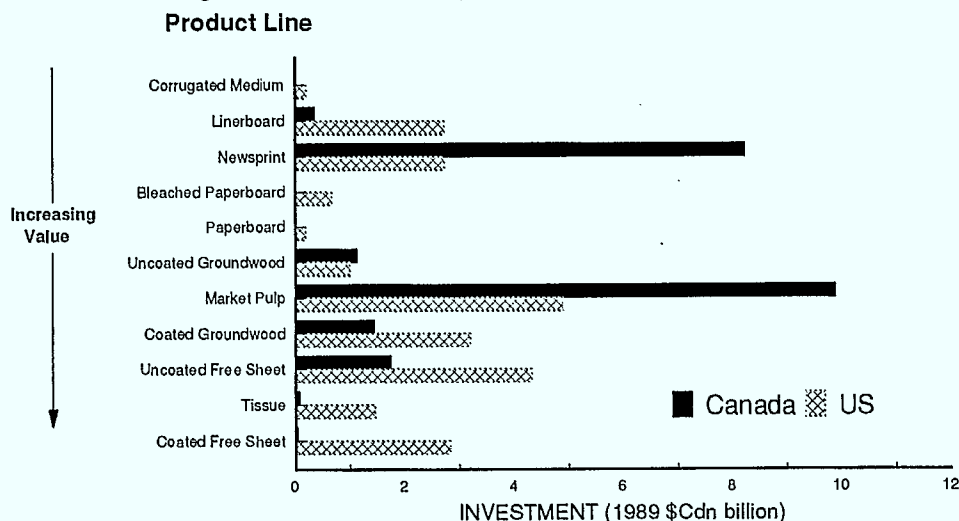
Investments meeting the above criteria were selected from the Miller Freeman Pulp and Paper Report and resulted in a sample comprised of 201 cases. The cases covered 100% of all investments in Canada and roughly 77% of those in the U.S. The cases were distributed geographically and by amount of investment as follows:

### UNITED STATES

### CANADA

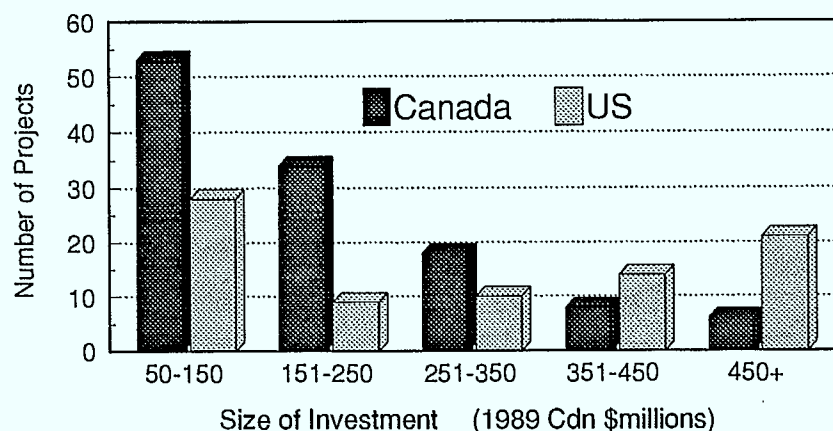
	No of Cases	Investment 1980s (1989 \$Cdn Billion)		No of Cases	Investment 1980s (1989 \$Cdn Billion)
ALABAMA	13	4.4	BRITISH COLUMBIA	34	6.4
GEORGIA	12	4.2	QUEBEC	34	6.1
SOUTH CAROLINA	9	3.5	ONTARIO	22	4.1
MAINE	12	2.8	ALBERTA	10	3.4
MISSISSIPPI	5	2.6	NEW BRUNSWICK	8	1.5
WASHINGTON	11	2.4	MANITOBA	2	1.0
MINNESOTA	5	2.0	NEWFOUNDLAND	3	0.7
MICHIGAN	6	1.9	SASKATCHEWAN	3	0.4
WISCONSIN	7	1.7	NOVA SCOTIA	3	0.3
OREGON	2	0.3			
TOTAL	<u>82</u>	<u>25.8</u>	TOTAL	<u>119</u>	<u>24.0</u>

- The sample disclosed differences between the two countries with respect to the product lines in which the investments were concentrated. Investments in Canada were more concentrated in newsprint and market pulp while those in the U.S. tended toward higher value added products:



¶ The US projects in our sample have significantly more investment in products having higher unit prices.

- Distribution of investments by size illustrated that while the magnitude of investment was fairly equal in both countries, there was a distinct propensity toward larger scale projects in the U.S.



¶ There is a clear propensity for larger investment projects in the US.



- Detailed information regarding the nature of investments and the nature and magnitude of the involvement by all levels of government was gathered from a number of sources. This phase of the analysis entailed time-consuming, detailed and painstaking research. It required searches of financial data bases, interviews with industry experts as well as on-site visits to gather information from local and state government agencies, libraries and other sources. The result of this effort was an extensive data base which constitutes the most detailed and documented evidence of government involvement in this industry currently available.

### 3.0 METHODOLOGY

### 3.0 Methodology

As the following table indicates, there is, in the U.S., a multiplicity of programs and assistance measures available to firms in the pulp and paper industry:

REGION / STATE											
		NORTHWEST		MIDWEST			EAST		SOUTH		
		- Washington	- Oregon	- Wisconsin	- Minnesota	- Michigan	- Maine	- Mississippi	- Arkansas	- Alabama	- Georgia
DIRECT SUBSIDIES											
Industrial Revenue Bonds		●		●	●		●	●	●	●	●
Grants		●	●	●	●	●	●	●	●	●	●
Soft Loans		●		●	●	●	●	●	●	●	●
Loan Guarantees		●	●	●	●	●		●	●	●	●
Customized Industrial Training		●	●	●	●	●	●	●	●	●	●
Enterprise Zones			●	●	●	●	●	●	●	●	●
Venture Capital Corps			●	●	●	●		●			
Provisions of Infrastructure		●	●	●	●	●	●	●	●	●	●
Foreign Trade Zones		●	●	●		●	●	●	●	●	●
INDIRECT SUBSIDIES											
Tax Credits/Exemptions/Abatements											
Business Inventory		●	●	●	●	●	●	●		●	●
Goods in Transit		●		●	●	●	●	●	●	●	●
Industrial Fuels and Raw Materials		●	●	●	●	●	●	●	●	●	●
Industrial Machinery and Equipment		●		●	●	●	●	●	●	●	●
Energy Conservation Measures		●	●	●			●				●
Investment		●	●	●	●	●	●	●	●	●	●
Job Creation		●	●	●	●	●	●	●	●	●	●
Pollution Control Equipment			●	●	●	●	●	●	●	●	●
Property		●		●	●	●	●	●	●	●	●
Research and Development		●	●	●	●	●	●	●	●	●	●

Simply describing these programs and adding up expenditures made under them, as many studies do, is a useful starting point but of limited value in determining their potential impact on competitiveness or their relevance to trade policy issues. What is required to make this data useful for assessment of the potential impact on competitiveness and to make it relevant for an examination of trade policy issues is to collate program expenditures with new investment projects and determine the combined impact of all programs which the firm accessed. This required a bottom up approach rather than the traditional top down approach.

The ISTC analysis started with a listing of all major investments in the North American pulp and paper industry made during the decade of the 80s. Through detailed investigation, the form, nature and amount of assistance each project received from all levels of government was then determined. This investigation revealed another weakness of the top down approach. In many cases, the assistance given was tailored to the needs of a specific project and would not have been captured in a listing of expenditures made under programs which were thought to be applicable.

The challenge was to reduce subsidies to a common denominator and estimate their magnitude. This was done in two ways. The assistance measures were first evaluated on the basis of the value of the assistance to the firm and, second, on the basis used by the U.S. Department of Commerce in determining the amount of subsidy.

Estimating the value of assistance from the firm's perspective involves converting the actual assistance to a cash equivalent basis using accepted principles of corporate finance. This approach reduced each assistance measure to an after tax net present value determined using the industry norm for the cost of capital. The value of all assistance determined in this manner can then be compared to the firm's total investment in the project and to sales revenue to form a judgement as to probable impact on the location of investment decision and the degree of subsidy per ton of output or dollar of sales.

The second method used for estimating the magnitude of specific subsidies is that used by the US Department of Commerce which has well-established procedures for the valuation and allocation of subsidies. In those cases having an affirmative countervail decision, the countervailing duties are established at a level that matches the subsidy value (per unit of sales).

The DOC approach for valuing and allocating assistance depends on the category of subsidies. The three principal categories of subsidies are treated as follows:

- ¶ One Time/Lump Sum Subsidies (Grant type) are allocated over the "life" of the asset based on a declining balance formula. The "life" of the asset is defined by the IRS depreciation schedules; for pulp and paper mills it is 13 years.
- ¶ Operating/Recurrent Subsidies (Operating Type) are allocated year-by-year based on actual benefits received. The subsidies received in one year are the bases for establishing the countervailing duties in the subsequent year. Examples are electricity and tax-related subsidies.
- ¶ Financial Subsidies (Loan Type) include subsidies resulting from preferred rates on financial instruments. Typical examples include low cost loans and guarantees. The benefits from these low costs are allocated over the time period of the instruments using a declining balance formula.

In an actual CVD case, the DOC will aggregate the above subsidies (only those deemed to be specific) on a yearly basis.



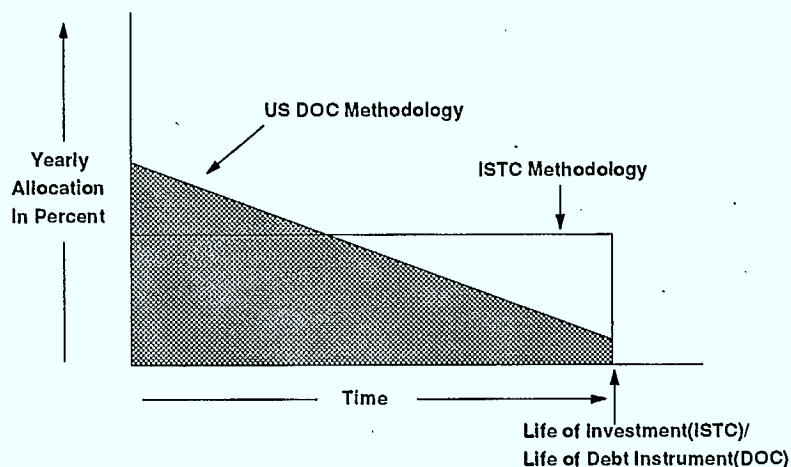
### Comparison of Methodologies

The ISTC and US DOC Methodologies differ significantly in how they treat two subsidies: soft loans and grants. The main difference in methodology between the two approaches concerns the allocation of cash flows to future years.

#### **Debt Instruments**

- Using the ISTC Methodology a constant stream of benefits can be viewed as accruing to the company. The value or benefit from the subsidization is equal on a yearly basis and extends for the life of the debt instrument. This benefit is the yearly savings in interest payments.
- However, the allocation of benefits using the US DOC Methodology is applied using a declining balance formula derived by the Department of Commerce. The allocation of benefits to the company is high in the first years and declines until maturity. In addition, the US DOC Methodology undervalues the subsidies; the cost of capital (a high value) is used to obtain the present value of the subsidy stream and hence results in a low value for the subsidies. More appropriately, the cost of debt should be used which would result in a suitable value (i.e. the valuation in keeping with the approach that would be used by the recipient)

ALLOCATION OF BENEFITS  
UNDER THE TWO METHODOLOGIES



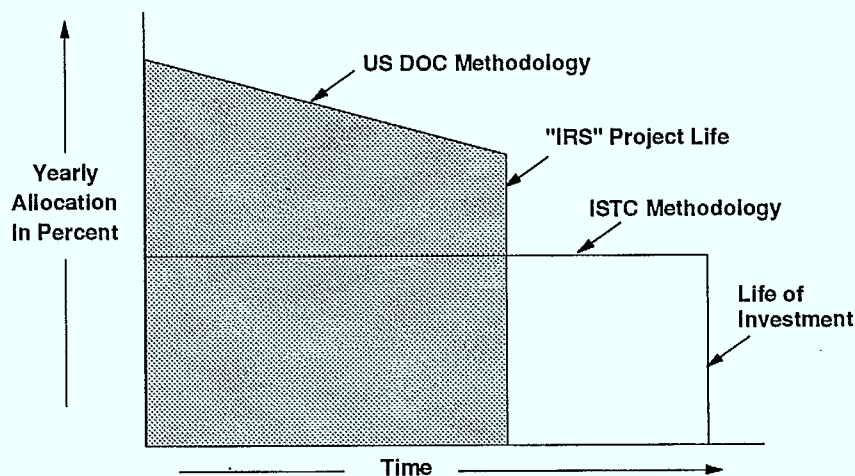
In summary, the corporate finance approach would yield a higher net present value of the subsidy, but would spread the benefit evenly over the life of the debt instrument.

## Grants

Similarly, the US DOC Methodology tends to front end load the benefit stream arising from a grant.

- Similar to the application of benefit for debt instruments, the ISTC Methodology allocates the benefit of a grant in equal annual instalments over the useful life of the project. For the analysis in this study a time horizon of 20 years was chosen, representative of the assumptions used by pulp and paper enterprises in assessing projects.
- The US DOC again applies a declining balance formula to allocate the benefit of the grant to future years. The time period used is industry specific and is based on the IRS asset depreciation schedule. For the pulp and paper industry this is 13 years.

ALLOCATION OF BENEFITS  
UNDER THE TWO METHODOLOGIES



### **Biases Introduced by the US DOC Methodology**

Compared to the ISTC Methodology approach that is intended to replicate private sector investment decision making, the use of the US DOC Methodology introduces the following distortions.

#### **Debt**

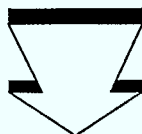
- ¶ The US DOC Methodology undervalues soft loan subsidies. Standard corporate finance theory establishes the present value of the subsidies by using the market value of bond interest to discount future subsidies (in this case reduced interest payments). The US DOC Methodology, however, uses the Weighted Average Cost of Capital (WACC) based on an average of the equity and debt rates (hence a higher rate). Soft loan subsidies are much more prevalent in the US. Consequently, in any Canada-US comparison, the DOC Methodology would underestimate the value of US subsidies.

#### **Grants**

- ¶ By allocating the grant on a declining balance over 13 years instead of over a straight line basis of 20 years, a bias is created against Canada where historically cash grants have made up a much greater percentage of the subsidies. The larger subsidy allocation in the first few years makes it more likely that the US DOC would find the ad valorem subsidization rate above the de minimus level and thus countervailable in the early years of the investment.

In summary, the differences between the ISTC and the US DOC methodologies are illustrated below:

	<u>Methodology</u>	
	<u>ISTC</u>	<u>US DOC</u>
<u>Soft Loans</u>		
Allocation	Constant Annual	Front-End Loaded
Valuation	High	Low
Life Span	Loan Life	Loan Life
<u>Cash Grants</u>		
Allocation	Constant Annual	Front-End Loaded
Valuation	Cash Value of Grant	Cash Value of Grant
Life Span	Project Life	IRS Asset Depreciation Schedule



The US DOC Methodology concentrates the allocation of subsidies in the early years of investment thus increasing the probability of a successful countervail action.

4.0 RESULTS



## 4.0 RESULTS

### 4.1 Introduction

As stated at the outset, the principal objective of this study was to compare, in-depth, the level and nature of subsidies provided to the Canadian and US pulp and paper industries during the 1980s. In both countries it was assumed that the wood fibre inputs were not subsidized. A separate ISTC analysis has proven that in Canada the wood inputs are unsubsidized; in-depth analysis of the potential subsidies in the fibre supply have not been completed for the US.

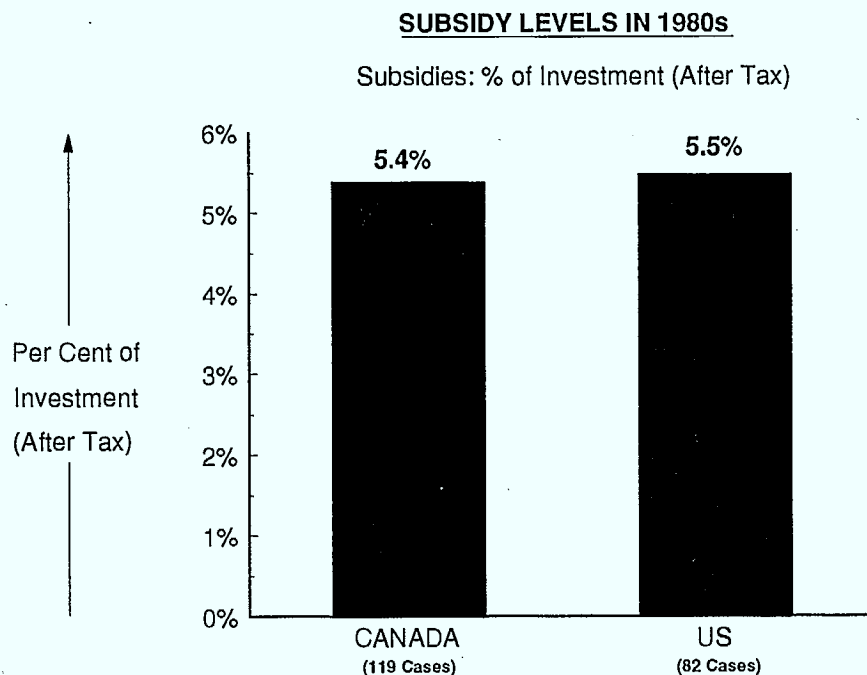
The results are presented using the two valuation approaches described earlier, the ISTC Methodology and the US DOC Methodology. Using each methodology the subsidy levels were determined for nine principal pulp and paper products. Moreover, the results illustrated the very different nature of subsidies between the two countries.

#### 4.2 Results: Using ISTC Methodology

The ISTC Methodology represents the typical procedure that a corporation would employ to value the benefits of a subsidy. The after-tax value of the US and Canadian subsidies were related to the investments; all data was converted to 1989 Canadian dollars to make the results comparable.

##### Magnitude of Subsidization

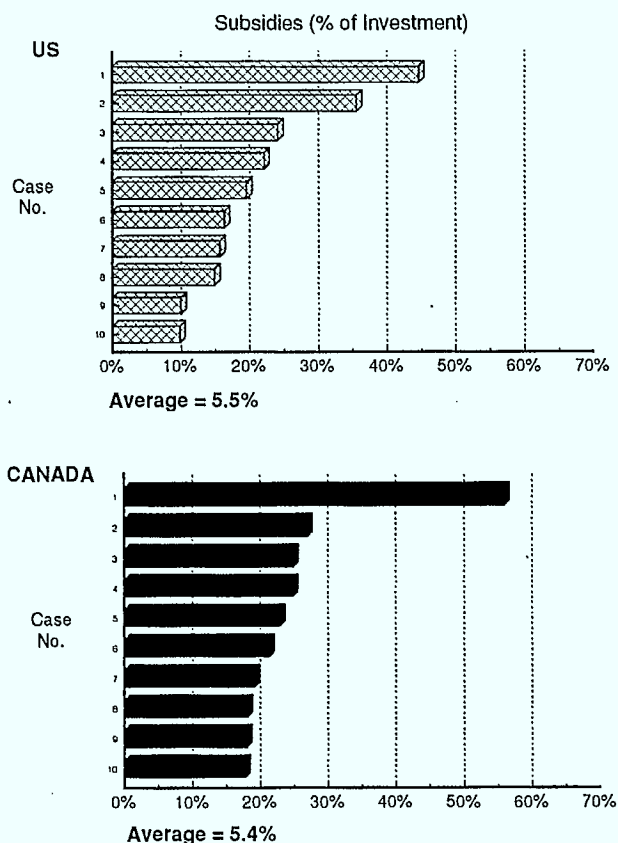
¶ The subsidy levels were very similar for Canada and the US.



### Leading Cases

- ¶ On average, the subsidization as a per cent of investment in Canada was 5.4% and in the US it was 5.5%. However, there are several cases in both countries in which the subsidization reached well over 20% of investment. For the leading 10 subsidy cases, the levels were as follows.

#### PRINCIPAL US AND CANADIAN CASES



- ¶ A concentration of subsidies in a small number of cases occurred in both countries.

### Complement of Subsidies

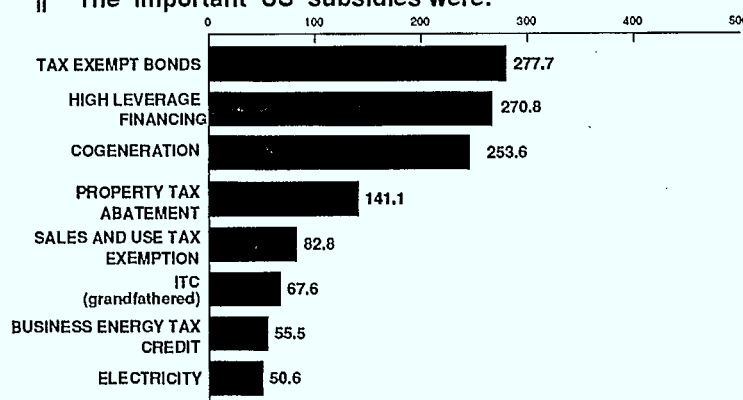
Although the value of subsidies was very similar in the US and Canada, the nature of the subsidies was very different. Canadian subsidies were very transparent, being concentrated in highly visible cash grants. US subsidies were very difficult to detect since they frequently utilize the tax system. Also, US subsidies are highly innovative; examples being high leverage financing (effectively state-backed guarantees) and cogeneration (transfers to enterprises by enabling them to sell electricity they generate to utilities at a high rate and repurchase the same electricity at a low rate).

### PRINCIPAL FORMS OF SUBSIDIZATION

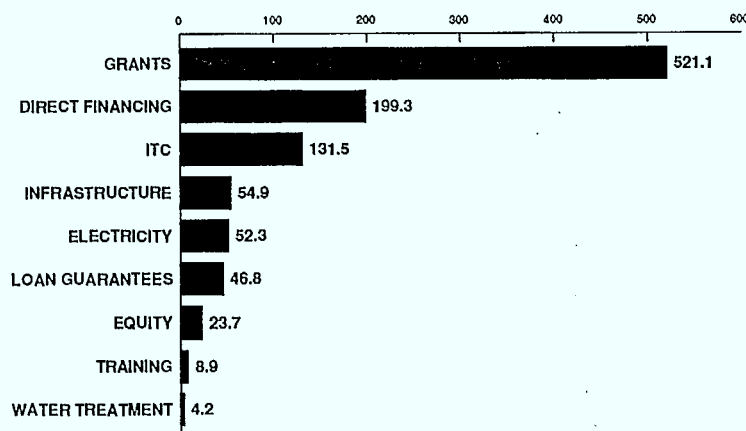
(For the 1980s)

(all data: \$Cdn Millions 1989)

¶ The important US subsidies were:

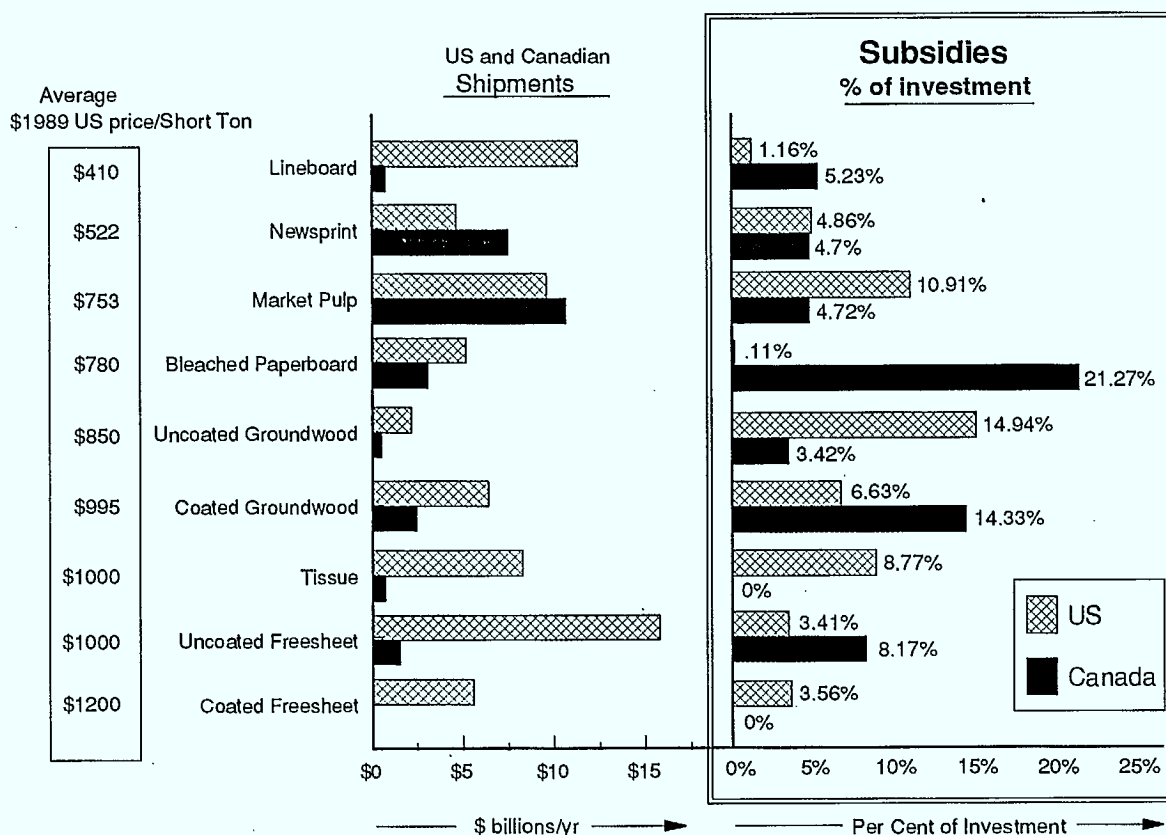


¶ In comparison, the important Canadian subsidies were:



### Subsidies: Product Line

The principal subsidies by product line were:



¶ These results illustrate that:

- For principal Canadian products:
  - subsidy levels were similar to the US levels for newsprint.
  - US subsidy levels were approximately double the Canadian levels in market pulp.
- In addition to market pulp, US subsidies were particularly high for uncoated groundwood and tissue.
- Canadian subsidies were comparatively high for uncoated free sheet, coated groundwood and bleached paperboard.

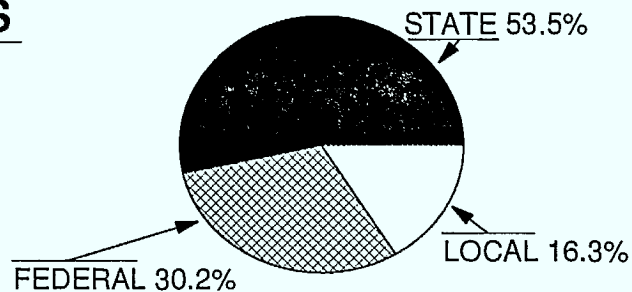


**Sources: Level of Government**

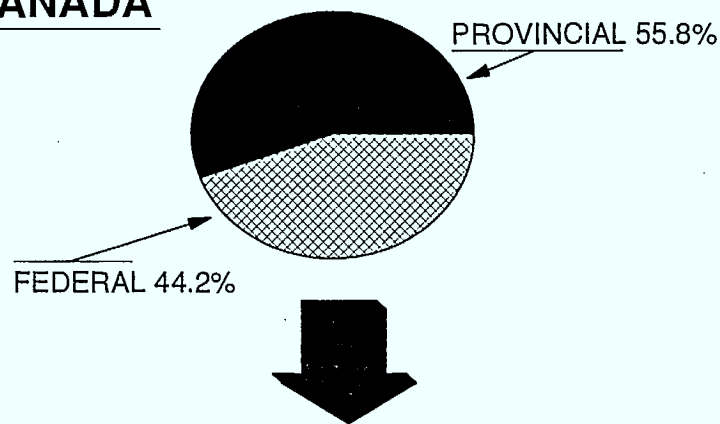
- ¶ The assistance provided by levels of government (federal, provincial/state, and local) was of a different magnitude in Canada compared to the US.

**MAGNITUDE OF SUBSIDY BY LEVEL OF GOVERNMENT**

**US**



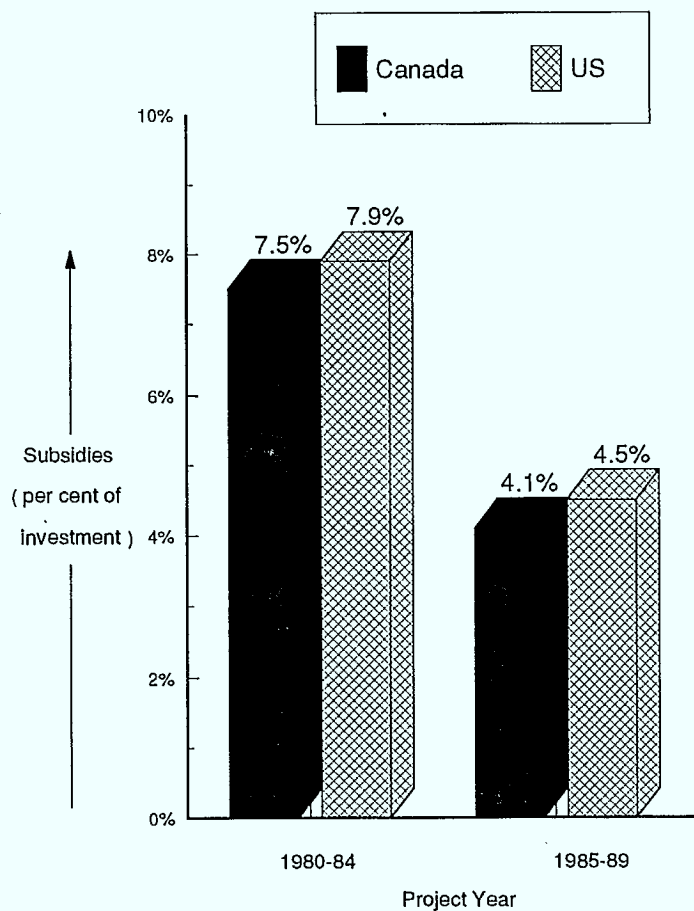
**CANADA**



- ¶ Federal subsidies were significantly higher in Canada.
- ¶ Local subsidies were significant in the US; there were no local subsidies in Canada.

**Trends: Levels of Subsidization**

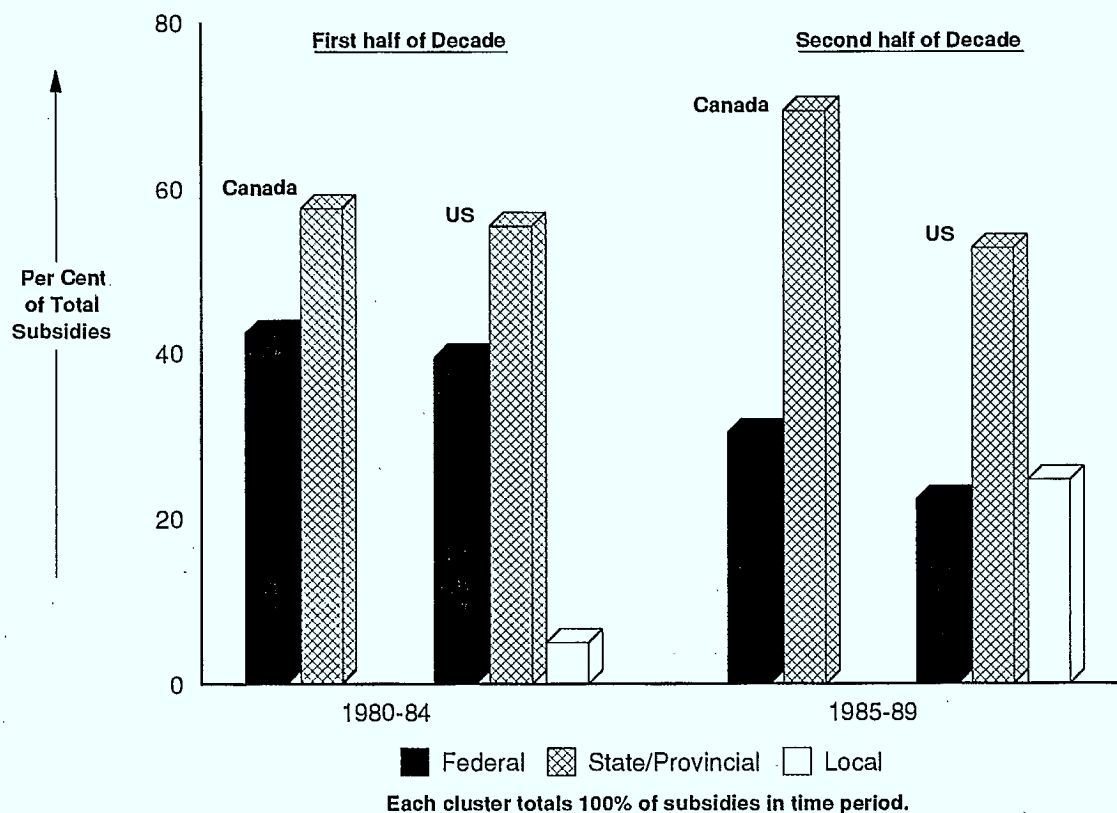
For the first and last halves of the decade the Canadian and US Subsidies were as follows:



The results suggest that:

- ¶ There was a significant reduction in the levels of subsidies in both the US and Canada between the first five years and the second five years of the decade.
- ¶ US subsidy levels were marginally above those in Canada throughout the decade.

**Trends: Subsidies by Level of Government**



The results suggest that in the latter half of the decade:

- ¶ In both the US and Canada the subsidies at the federal level made up a lower percentage of the total subsidies.
- ¶ The local government subsidies made up a greater percentage of subsidies in the US.

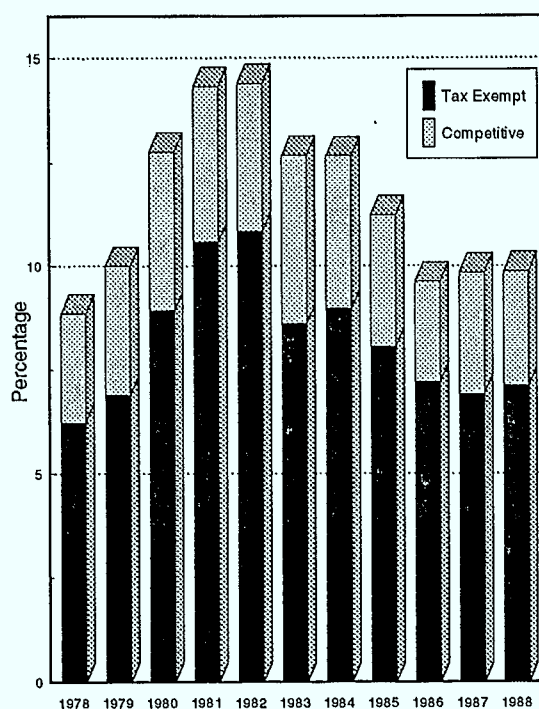
### 4.3 Some Prominent and Interesting forms of US Subsidies

#### 4.3.1 Subsidies: Tax Exempt Bonds

The greatest single subsidy provided to the US pulp and paper industry was tax exempt bond financing. Tax exempt bonds have been an integral part of state and municipal incentive programs since the early 1960s. These bonds provide companies with interest cost savings stemming from the difference between taxable and tax exempt interest rates. Interest income from the bond is tax exempt for the investors, thus investors do not require the interest rate to be as high as taxable issues. Typically, these bonds have had coupon rates 30% below comparable market rates. The interest rate reduction constitutes a subsidy reflecting the lower-than-market rates available to investors. The representative interest rate spreads between taxable and tax exempt bonds are illustrated below:

#### INTEREST RATES ON CORPORATE BONDS: TAXABLE VS TAX EXEMPT

Average Yearly Interest Rates



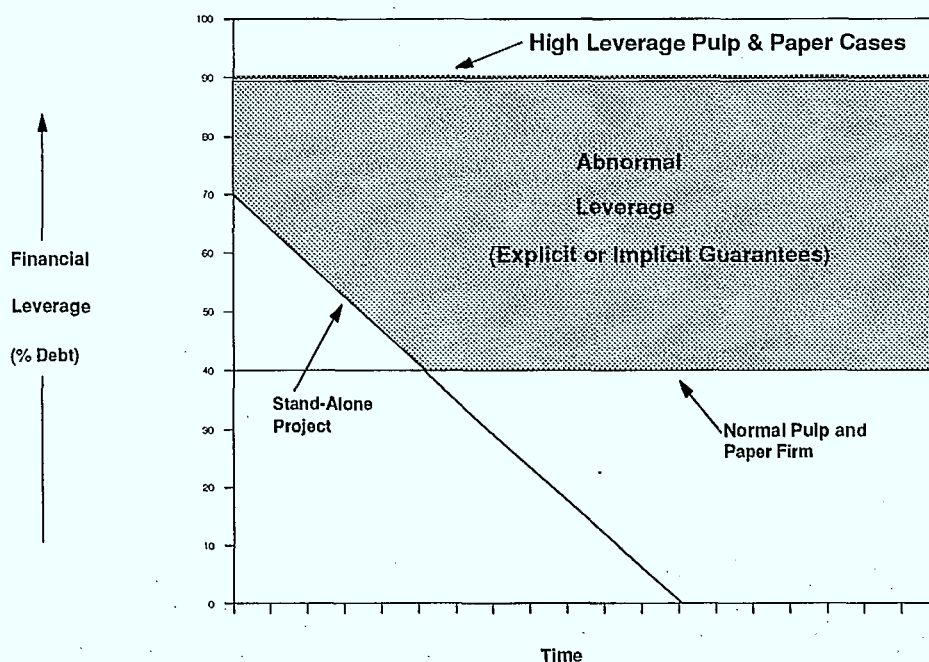
The estimated subsidy value for the tax exempt bonds was \$277.7 million (1989) for the decade.

### 4.3.2 High Leverage Financing

The ISTC investigation also revealed a limited number of very significant US investments that were financed with extremely high levels of debt (in excess of 90 per cent). Not only was the initial leverage very high, but also there were no requirements for principal repayments until maturity of the bond issues. Hence, the high leverage could be maintained for very long time periods, usually 20 to 30 years.

The ISTC analysis alleges that subsidies exist for those high leverage cases where projects do not have the backing of a parent corporation capable of standing behind the debt levels. In fact, the companies have received, from the local or state governments, explicit or implicit guarantees on the bonds (these guarantees have been documented to be on the accounts of the local or state governments as contingent liabilities). Investment bankers consider that for a good project, debt levels of only about 70 per cent can be raised initially; moreover the projects should have the cash flow capability of retiring this debt over 10 to 12 years. Normal financing of the pulp and paper sector is approximately 40 per cent debt.

The shaded area in the diagram below illustrates the alleged subsidies. This area is bounded by: an upper limit being the actual leverage in the U.S. cases (over 90 percent debt for the life of the project); and a lower limit being the greater of the debt carrying limit for a stand alone project and the normal debt level for a pulp and paper enterprise.



Having determined the abnormal debt levels, it was necessary to assess a measure of subsidies. It was assumed in the ISTC analysis that the alternative source of financing for the abnormal leverage was junk bonds. The benefit accruing to the projects (i.e. the value of the government guarantees) was the difference in debt costs between on the one hand, the junk bond rate, and on the other hand, the rate actually received.

To illustrate the approach used, consider the following example:

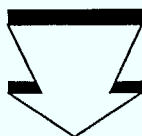
**EXAMPLE**

• Total project investment	\$600 Million
• Interest rate for "Junk Bond"	15% After Tax
• Subsidized cost of debt	10% After Tax
• Value of subsidy	5% / year

For simplicity we will assume the subsidy into perpetuity, thus;

$$\frac{600(.05)}{.15}$$

The resulting present value cash grant equivalent of this form of subsidization for our example is **\$200 Million**.



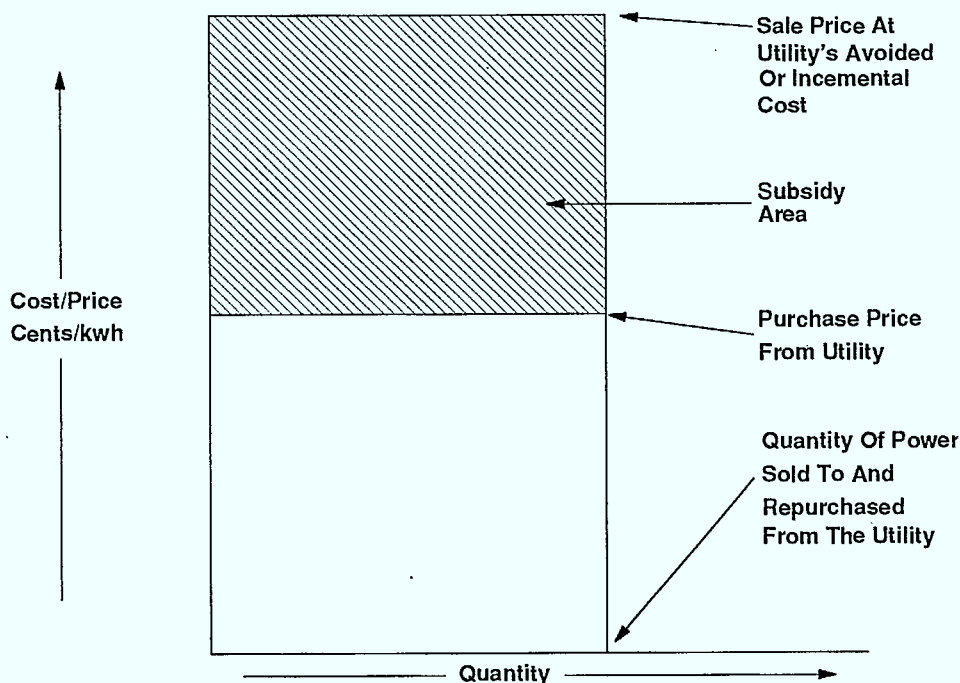
**Subsidies from high leverage financing were approximately \$270.8 million in the 1980s.**

### 4.3.3 Cogeneration

Since the Public Utilities Regulatory Policies Act (PURPA) was passed in 1978, US pulp and paper enterprises have installed extensive cogeneration facilities. The ISTC research focusing on case studies from Maine, demonstrated that cogeneration was beneficial to US mills for two reasons:

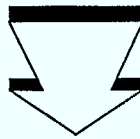
- first, the pulp and paper firms enjoy a natural advantage over the utilities; the mills can produce power at lower cost,
- and second, the pulp and paper enterprises benefit from significant 'cross-hauling' subsidies.

The following diagram illustrates how these 'crosshauling' subsidies can confer appreciable benefits to the US establishments. The utility is required to buy power at the utility's avoided or incremental cost which is then repurchased from the utility at the normal industrial rate. For example, a pulp and paper cogeneration facility could sell at \$.09/kwh and repurchase at \$.05/kwh, the subsidy being the profit on this transaction.





- ¶ Subsidies have the effect of prolonging the life of uneconomic facilities; also, they may bring into existence less-than-economic capacity.
- ¶ Only cogeneration subsidies for Maine have been included in this report. These subsidies were \$253.6 million, approximately one sixth of the total of all the U.S. pulp and paper subsidies.



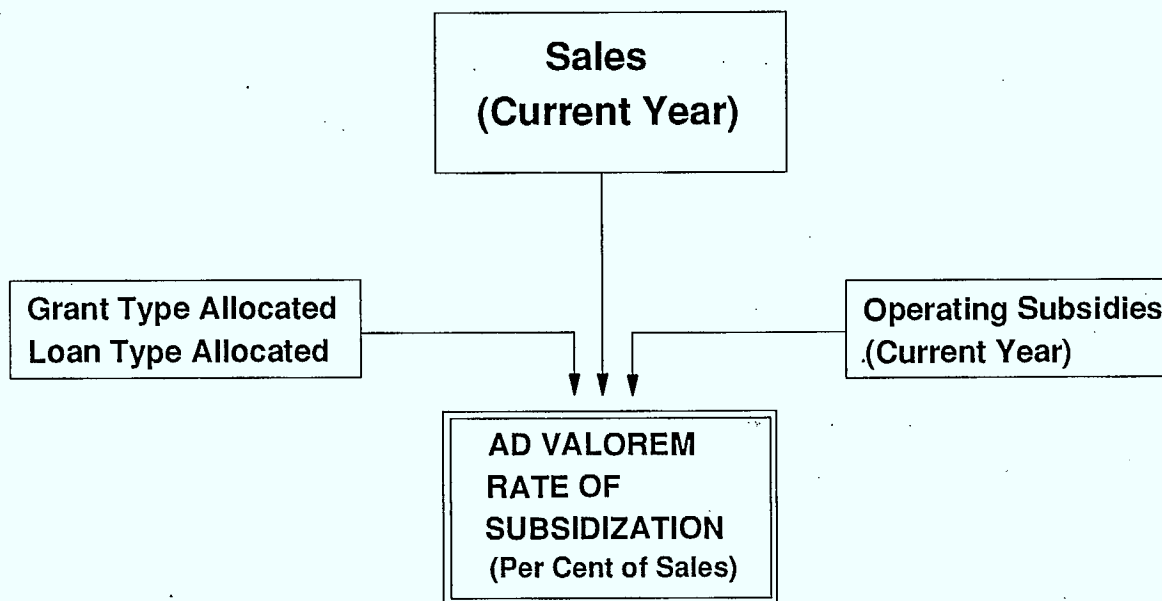
- ¶ **Total Maine cogeneration subsidies included in this report are \$253.6 million.**
- ¶ **There is a high likelihood of extensive cogeneration subsidies in other pulp and paper producing states.**

#### 4.4 Results: Using US DOC Methodology

Earlier, it was illustrated that the US DOC Methodology involved the year-by-year summation of the value of subsidies originating from three general categories:

- Grant Type - lump sum payments allocated over a time period in keeping with IRS tables.
- Loan Type - allocated over the life of the loan.
- Operating Type - calculated and allocated year-by-year.

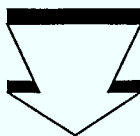
For a particular year the rate of subsidization involves adding the subsidies from these categories and dividing by the sales from that year.



### **The Time Period: Reliability**

Using the US DOC Methodology creates challenges with respect to the time period chosen and the reliability of the results. Focusing on the 1980s, the analysis had to deal with the following problems:

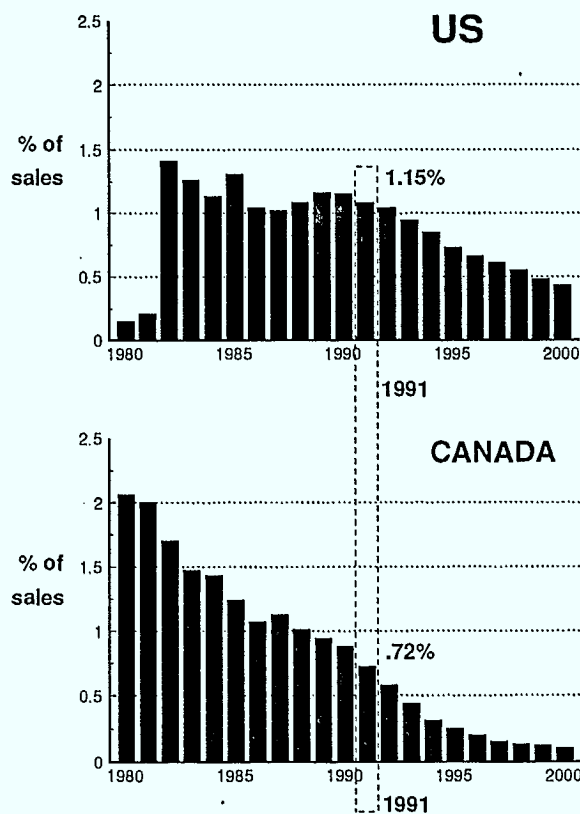
- First, the early years of the period would be unreliable due to the unknown carry over of subsidy allocation from the 1970s.
- Second, projecting the analysis into the 1990s would be only partially reliable since some incremental subsidies would, it is assumed, continue in each country.



Hence, although results are presented for the 1980s and 1990s, the analysis focuses in particular on 1991 when the above distortions are minimized.

## Total Industry Analysis

- ¶ Unlike the analysis performed using the ISTC Methodology, the results using the US DOC Methodology are much less similar. Because of the allocation methods of the DOC we now observe a general trend in yearly benefit for each industry.



- ¶ The difference in the two countries is a result of two factors:
- The timing of subsidies.  
In Canada a larger proportion of the total subsidies were received in the first half of the 1980s.
  - The type of subsidies provided to industry in each country.  
Canada has received more grant type subsidization than the US. Grants are allocated 13 years into the future. US companies have received a higher proportion of their assistance as operating subsidies. These subsidies accrue in the year they are received, have a higher probability of extending past 13 years and are not allocated using a declining balance formula.

- ¶ If a snap-shot of 1991 was taken to examine the ad valorem subsidization we find that the US industry has received \$1.15 in subsidies for each \$100 in sales while the Canadian industry received only 72 cents. In the hypothetical experiment of making the subsidies from the two countries subject to the US countervail procedures, the US Pulp and Paper complement of the 1980's would be significantly more vulnerable.

### Individual Product Analysis

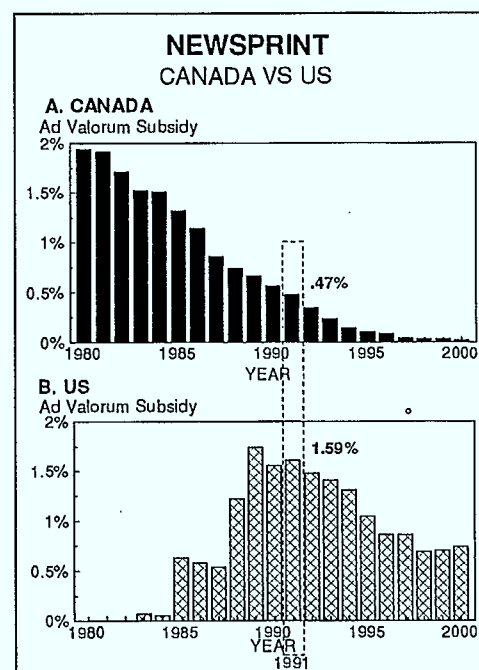
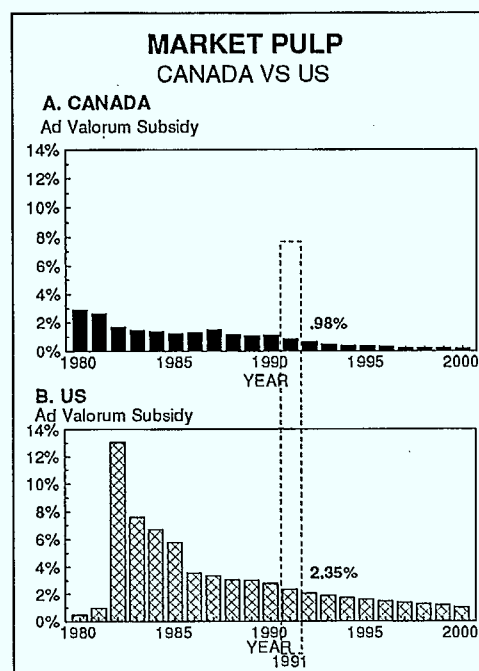
The DOC can also identify individual products within an industry and perform an identical analysis as at the industry level. In fact, this is a more likely occurrence since most allegations of injury are based at the product level and not at the industry level.

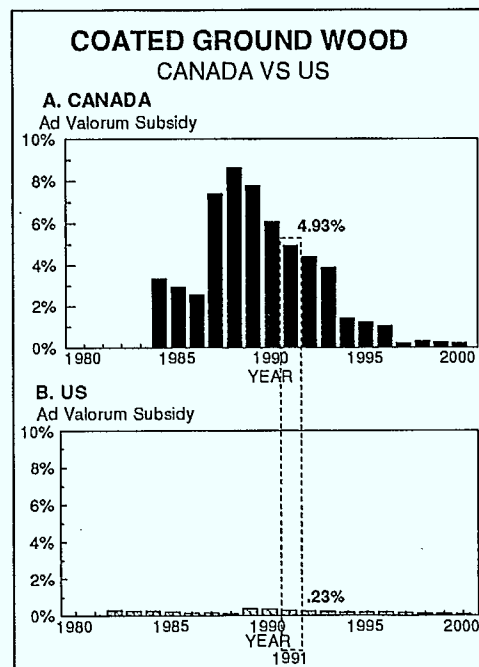
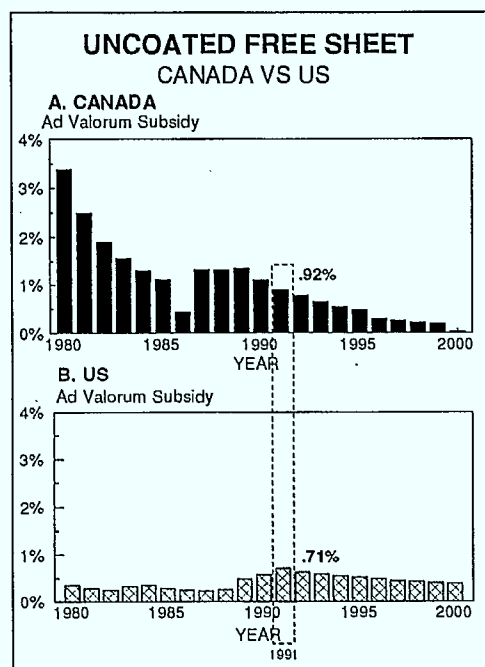
Approximately 70% of Canadian shipments are in two low value added products; newsprint and market pulp. Canada exports 40% of its market pulp and 70% of its newsprint to the US. Thus, their ability to compete with US products is crucial to the future success of the Canadian industry.

A snap-shot of the present 1991 subsidy situation will provide a most representative basis for comparison between the two countries.

In 1991, the US producers of market pulp and newsprint received higher benefit from subsidization than their Canadian counterparts.

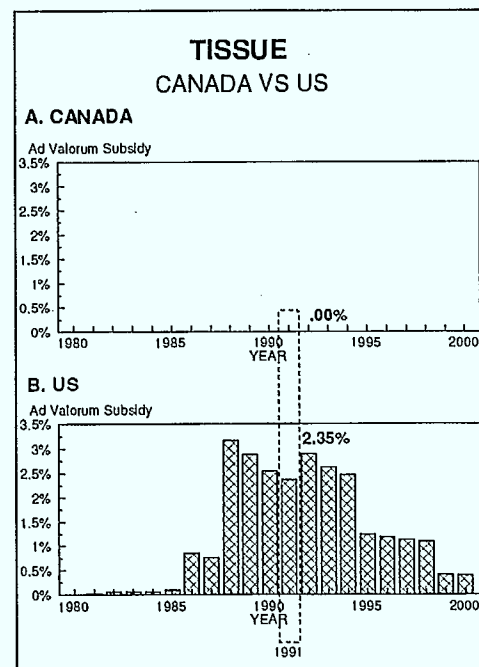
The difference in these levels suggest the average Canadian producer had a one or two percent price disadvantage over their US counterpart.





In two products, coated groundwood and uncoated freesheet, which are higher value added and lower in shipments, the Canadian producers received greater benefit from subsidization than the US producers.

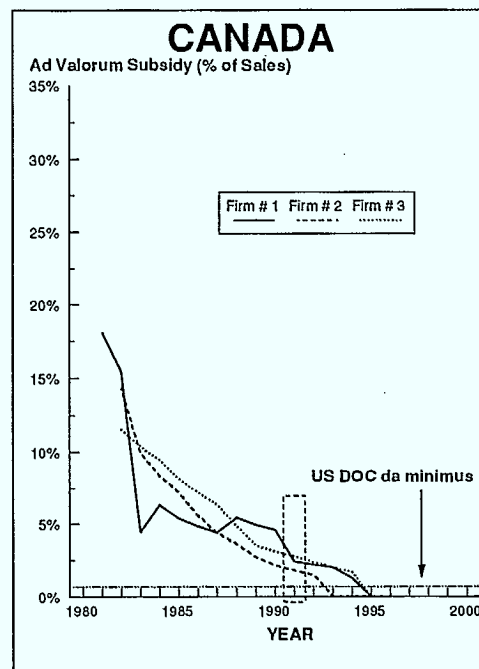
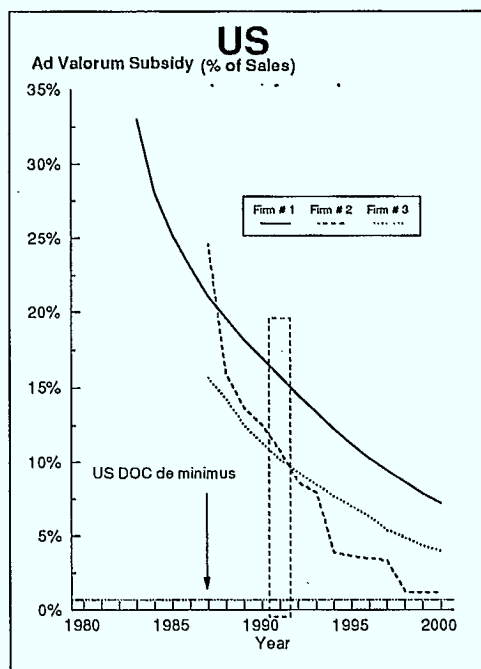
In contrast, the Canadian tissue producers received no subsidy, while US producers received a \$2.35 subsidy for each \$100 in sales.





## Individual Firm Analysis

Under US countervail procedure it is possible for countervailing duty action to be brought against a product line at the industry level. Alternatively, it is possible for countervailing duties to be levied at the product line level for individual firms if the subsidy levels exceed the industry average by a significant amount. The analysis below compares subsidies at the firm level during the 1980's for the three firms that received the highest level of subsidies in the two countries.



These results illustrate that for 1991:

- ¶ The subsidies for the leading three US firms were in the 10 to 15 per cent range.
- ¶ The subsidies for the leading three Canadian firms were in the 3 to 5 per cent range.

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