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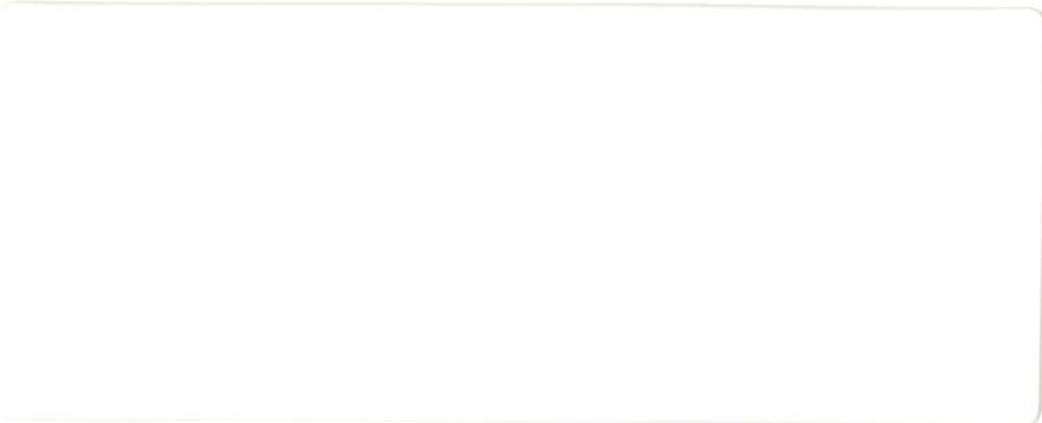
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**COMMODITY SUBSIDIES IN THE CANADIAN  
INPUT-OUTPUT ACCOUNTS, 1986-1989**

**By**

**P.S.K. Murty**

**# 89**

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**Draft**

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Prepared for Net Price Indexes Project for discussion and reference.



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**COMMODITY SUBSIDIES IN THE CANADIAN  
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**BY**  
**P.S.K. Murty<sup>1</sup>**

**I    Purpose**

The purpose of this paper is to identify, as far as possible, the commodity subsidies for the period 1986-1989, and to analyze them in the context of Input-Output Accounts. In the previous paper A New Paradigm to Analyze Commodity Indirect Taxes 1986 - 1989 three extensions to that paradigm were explained. One of those extensions is to classify subsidies into commodity and non-commodity categories and to add those commodity subsidies to the purchaser price values, so that price levels of commodities without reducing them by the commodity subsidy can be estimated. In effect, this paper deals with that extension of the new paradigm (See Chart 1 for details).

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<sup>1</sup> P.S.K. Murty is the Chief of Public Sector in Input-Output division. The author thanks Louis David, David Leblanc, Margot Greenberg, Duane Hayes, Gordon Johnston, and Béa Séguin for their valuable contributions in this project.

## II Definition

In the Canadian System of National Accounts subsidies are defined as follows: "Subsidies represent amounts contributed by governments toward current costs of production"<sup>2</sup>

These subsidies can be classified into "producer subsidies" and "consumer subsidies." Producer subsidies are those which are usually given to industries to encourage production, to assist them from special difficulties (e.g. railway subsidies under National Transportation Act), to protect the producer against a decline in prices (e.g. Canadian Dairy Commission payments), and to support activities which are regarded as normally desirable (e.g. Canadian Broadcasting Corporation). Consumer subsidies are those that are usually paid to industries to offset losses arising from lower prices to consumers.<sup>3</sup>

In both categories, the common factor is that the payments represent amounts contributed by governments toward current costs of production. This definition is consistent with the United Nations definition which states that subsidies are government grants on current account to business establishments (both incorporated and unincorporated) to compensate them for "losses resulting from the price policies of

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<sup>2</sup> National Income and Expenditure Accounts, Volume 3. A guide to the National Income and Expenditure Accounts, Definitions-Concepts-Sources-Methods, Catalogue 13. 549E Occasional, Statistics Canada, Ottawa, p. 77

<sup>3</sup> IBid., p. 77

government."<sup>4</sup>

In the context of the above definition, it is obvious that the industries which receive subsidies are supposed to sell their commodities cheaper to consumers as some of the costs are borne by the government in the form of subsidies. In other words, the payment of subsidy to industries is tantamount to sharing the production costs of the industries concerned, so that the prices fixed by those industries would be lower to the extent of those subsidies. It follows, then, that if the government does not give the subsidies to industries, the production costs and also sale prices would be that much higher.

In the Input-Output Accounts, subsidies are allocated to industries but not to commodities. For this proposed extension, they should be classified into commodity subsidies and noncommodity subsidies. The commodity subsidies are those that are associated with specific commodities. Examples of this category are: subsidies given to milk producers, Canada Post Corporation, Canadian Broadcasting Corporation, etc.

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<sup>4</sup> United Nations "National Income Statistics: Main Aggregate and Detailed Tables, 1984, New York, PXVI.

In contrast, non-commodity subsidies are not associated with specific commodities and the industries which received them can offset their total operating costs irrespective of the level of prices paid for input-commodities or prices received for output commodities. There is no relationship between subsidies and commodity prices paid or received in this case. Examples of this category are: subsidies given to industries to train workers, to give relief for disasters or drought, to offset high interest costs, etc. Thus, the purchaser price values of commodities have no relationship to the level of non-commodity subsidies.

Commodity subsidies, however, can be related to purchaser price values as the purpose of such subsidies is to reduce the level of prices of commodities produced by the receiving industries. These commodity subsidies can be expressed as rates to purchaser price values in the same way as commodity indirect taxes. As the commodities produced by industries and their values are known from the Input-Output Accounts, it could be assumed that industries are using subsidies as a deduction to their original prices and selling at lower prices. Based on this assumption, commodity subsidies could be prorated to all commodities produced by the industries concerned. In cases, where actual data of subsidies are available, they should be used to replace the estimates of the proration method.

Thus, commodity subsidies could be allocated to the relevant commodities of the industries concerned. These data could then be incorporated into the extended paradigm as follows:

<u>Industry and Final Demand Category</u>	<u>Commodity</u>	<u>Purchaser Price value</u>	<u>Commodity Subsidy</u>
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$$\text{Rate of Commodity to Purchaser Price Values} = \frac{\text{Commodity Subsidy}}{\text{Purchaser Price Values}} \times 100$$

As already mentioned, commodity subsidies are supposed to reduce purchaser prices or market prices. Based on the rate of commodity subsidy to purchaser prices calculated in this extension, one could estimate the commodity prices before reducing them by subsidies. In other words, the purchaser price values would be increased by adding the relevant estimated amount of subsidy. Then, the producer prices before deducting subsidies can be calculated as follows:

<u>Industry and Final Demand Category</u>	<u>Purchaser Price Values (which excludes commodity subsidy)</u>	<u>Overall - Indirect Taxes</u>	<u>Net Price after deducting overall indirect taxes and (which excludes commodity subsidy)</u>	<u>Add: Commodity Subsidy</u>
<u>Commodity</u>	<u>Commodity</u>	<u>Non-Commodity</u>	<u>Sub-Total indirect taxes</u>	
(1)	(2)	(3)	(4)	(5)
			= (3) + (4)	(6)
			= (2) - (5)	(7)
			= (6) + (7)	(8)

The last column "net price after deducting overall indirect taxes and after adding commodity subsidy" represents the price that producers fix for the commodity concerned.

The three extensions mentioned above are presented in Chart 1.

Chart 1: New Paradigm and Three Extensions

New Paradigm  
To analyze Commodity Indirect Taxes

Extensions

First Extension	Second Extension	Third Extension
To allocate Non-Commodity Indirect Taxes to Output-Commodities of Paying Industries and Final Demand Categories	To allocate Commodity Taxes of Input-Commodities such as gasoline to Output-Commodities	To classify subsidies into Commodity and Non-Commodity categories

To Allocate Commodity Subsidies to Output-Commodities

**III METHOD OF IDENTIFYING COMMODITY SUBSIDIES**

**A. FEDERAL**

The basic source of information for the federal subsidies is the Public Accounts of Canada. The subsidy programs are reviewed and assigned to I/O industries. These programs are further analyzed and classified to commodity and non-commodity types. The commodity subsidies are allocated to specific commodities produced by the industries concerned based on the definition mentioned in section I of this paper.

This exercise is completed for fiscal years 1987-88 and 1988-89. This analysis is then converted to calendar year values by a ratio derived from the quarterly subsidy data of (PID).

Calendar year federal subsidy totals for 1986 and 1987 are benchmarked in the I/O Division to only include the subsidies as defined by SNA. The 1988 and 1989 subsidy values given by I/E in their publication is not benchmarked by I/O. An analysis of ~4 content by I/O must be made to exclude items such as capital assistance which do not conform to SNA concepts of subsidies.

The value of capital assistance for 1989 is estimated since the 1989-90<sup>~</sup> Public Accounts of Canada are not available. The commodity subsidies for 1989 are estimated using the distribution to industry and commodity of 1987.

The industry and commodity allocation of subsidies are completed using only the basic source information of the Public Accounts of Canada and reports from Supply and Services Canada. No additional information is requested from the data supplier due to time constraints.

## **B. Provincial**

The provincial subsidies information is taken from data supplied in the Public Accounts of each province. As is the case for federal subsidies, provincial subsidies are reviewed and assied to an I/O industry. These subsidies are further classified to either commodity or non-commodity. The commodity subsidies are allocated to specific commodities produced by industry concerned based on the definition mentioned earlier.

The data for the 1987-88 and 1988-89 fiscal year are taken from the various provincial Public Accounts. The fiscal values are converted to calendar year by using ratios derived from quarterly information available from the (PID). The calendar year subsidy totals of I/E for 1986 and 1987 are benchmark totals given by-I/O. The 1988 and 1989 subsidy totals of I/E are not benchmarked. For 1988 I/O must analyze this total as to its content and exclude any items that are not subsidies according to SNA concepts (eg. capital assistance). The adjustment to the 1989 subsidy total is estimated based on 1987. The commodity subsidies are also estimated based on the 1987 industry and commodity subsidy distribution.

The procedure of allocating the subsidies to the proper industry and commodity is completed with only the use of source information. No additional information is requested due to time constraints

### C. Municipal

The basic data source for municipal subsidies is the Public Institutions Division (PID). They are transportation and utility subsidies and hence they are commodity specific.

These subsidies are then allocated to the appropriate commodity that is produced by the industry concerned.

### IV Summary

Based upon the above described procedures, we have identified subsidies for the commodities as shown in table I. This table gives subsidies by commodity for each level of government. The percentages of commodity and non-commodity subsidies to total subsidies are also shown in this table. The majority of both federal (95%) and municipal subsidies (100%) are classified as commodity subsidies. On the other hand, the majority of provincial subsidies (95%) are classified to noncommodity subsidies. The lack of better detail for provincial government subsidies is most likely the cause of this discrepancy. Additional research and information is needed to improve the accuracy of the allocation of provincial subsidies to commodities.

Table II gives a summary of total government subsidies. In this table the total columns from table III are shown in timeseries format from 1986 to 1989. In all years, over 50% of total government subsidies are coded to commodity subsidies.

Table I

Number	Commodity Description	1986			1987			Municipal	Provincial	Federal	Total	Total
		Federal	Provincial	Municipal	Federal	Provincial	Municipal					
001	Cattle, calves	6,167	40,610		46,777	5,828		38,220		44,048		44,048
002	Sheep and lambs		441		441	4,609		4,115		4,115		4,115
003	Hogs	24,732	24,877		49,609	23,374		23,413		46,787		46,787
007	Wheat, unmilled	1,014,083	12,696		1,026,779	2,327,927		11,949		2,339,876		2,339,876
008	Barley, oats, rye, corn, grain, n.e.s.	191,897			191,897	440,518				440,518		440,518
009	Milk, whole, fluid, unprocessed	296,270			296,270	280,000	0			280,000		280,000
012	Nuts, edible, not shelled	0										
013	Fruits, fresh, ex tropical		1,051		1,051	0		306		39		989
014	Vegetables, fresh			42		42						306
016	Seeds, ex. oil & seed grades					7,536	0	4,795				39
020	Tobacco, raw					784		4,991		7,092		4,795
023	Service incidental to agriculture & forestry					646				738		7,092
029	Fish Landings					203,799	209,300	1,629		608		5,729
030	Hunting & trapping products					452	93					608
067	Milks, whole, fluid, processed					1,296	1,296					210,929
075	Fish product					1,129	1,129					518
078	Vegetable frozen, dried & preserved					14,409	14,602					1,220
085	Primary or concentrated feeds					0	1,818					1,062
087	Feeds, grain origin, n.e.s.					405	9,112					14,602
091	Meal & flour of other cereal & vegetable					1,046	1,046					1,818
229	Book, pamphlets, maps, pictures					10,963	10,963					9,493
530	Air transportation					2,724	2,724					985
531	Other transportation					772,001	1,038,165					10,318
533	Railway transportation					59,249	62,273					3,126
535	Truck transportation					655,615						1,038,165
536	Urban transit					823,690	741,400					685,691
538	Radio & television broadcasting					155,900	338,100					742,640
543	Postal services					28,948						338,100
545	Electric power					967,154	1,205,937					27,451
546	Cash residential rent					12,367						82,463
558	Other recreational services					247						11,640
565	Services to business management					461						232
566	Advertising services					1,650	1,650					434
567	Other services to business & persons											153
576												
	Total-commodity subsidies	4,438,176	240,161	657,000	5,335,337	6,709,100		224,630		687,200		7,620,930
	Control total	4,873,790	4,980,000	657,000	10,510,790	7,149,871		4,687,000		687,200		12,526,071
	Difference-non-commodity subsidies	4,355,614	4,739,839	0	5,175,453	440,771		4,462,370		0		4,903,141
	% of total subsidies											
	A. Commodity	91.06	4.82	100.00	50.76	93.84		4.79		100.00		60.85
	B. Non-Commodity	8.94	95.18	0.00	49.24	6.16		95.21		0.00		39.15
	C. Total	100.00	100.00	100.00	100.00	100.00		100.00		100.00		100.00

Number	Commodity Description	1988			1989			
		Federal	Provincial	Municipal	Total	Federal	Provincial	Municipal
001	Cattle, calves	37,344		37,344	40,081			40,081
002	Sheep and Lambs	452		452	485			485
003	Hogs	24,698		24,698	26,508			26,508
007	Wheat, unmilled	13,014		1,918,841	1,547,814			1,561,782
008	Barley, oats, rye, corn, grain, n.e.s.	260,857		260,857	211,831			211,831
009	Milk, whole, fluid, unprocessed	289,400		289,400	278,000			278,000
012	Nuts, edible, not shelled	4,800		4,800	3,782			3,782
013	Fruits, fresh, ex tropical	12,550		13,627	9,889			11,045
014	Vegetables, fresh							
016	Seeds, ex. oil & seed grades	43		43	46			46
020	Tobacco, raw							
023	Service incidental to agriculture & forestry							
029	Fish Landings	7,408		7,408	7,950			7,950
030	Hunting & trapping products	10,595		11,306	15,245			16,072
067	Milks, whole, fluid, processed	202,000		203,664	194,000			195,785
075	Fish product	93		451	544			617
078	Vegetable frozen, dried & preserved			1,328	1,328			1,426
085	Primary or concentrated feeds			1,126	1,126			1,208
087	Feeds, grain origin, n.e.s.							15,120
091	Meal & Flour of other cereal & vegetable	16,276		16,276	15,120			
229	Book, pamphlets, maps, pictures	2,024		2,024	1,881			1,881
530	Air transportation	5,727		415	6,142			7,684
531	Other transportation			10,535	10,535			11,307
533	Water transportation	643		2,717	3,360			3,495
535	Railway transportation	921,715		921,715	680,364			680,364
536	Truck transportation	71,243		492	71,735			64,586
538	Urban transit			392	731,971			788,237
543	Radio & television broadcasting	828,180		1,350	829,530			846,852
545	Postal services	262,774			262,774			324,888
546	Electric power			26,773	2,029			
558	Cash residential rent	1,010,331		92,771	1,103,102			1,154,570
565	Other recreational services			11,985	11,985			
566	Services to business management			240	240			257
567	Advertising services			448	448			480
576	Other services to business & persons			1,638	1,638			1,759
	Total-commodity subsidies	5,805,035		240,743	734,000			790,000
	Control total	6,127,249		4,309,699	734,000			6,303,673
	Difference-non-commodity subsidies	322,214		4,068,956	0	4,391,170		11,268,531
	% of total subsidies							0
A.	Commodity	94.74		5.59	100	60.69		55.94
B.	Non-Commodity	5.26		94.41	0.00	39		44.06
C.	Total	100.00		100.00	100.00	100.00		100.00

**Table 118**  
**Summary of Federal, Provincial & Municipal Subsidies, 1986-1989**

(\$000)

Number	Commodity Description	1986	1987	1988	1989
001	Cattle, calves	46,777	44,048	37,344	40,081
002	Sheep and Lambs	441	415	452	485
003	Hogs	49,609	46,678	24,698	26,508
007	Wheat, unmilled	1,026,779	1,918,841	1,561,782	1,561,782
008	Barley, oats, rye, corn, grain, n.e.s.	191,897	2,339,876	280,518	211,831
009	Milk, whole, fluid, unprocessed	296,270	289,400	280,000	278,000
012	Nuts, edible, not shelled	0	0	0	4,800
013	Fruits, fresh, ex tropical	1,051	989	3,782	3,782
014	Vegetables, fresh	0	306	13,627	11,045
016	Seeds, ex. oil & seed grades	42	39	0	0
020	Tobacco, raw	0	43	46	46
023	Service incidental to agriculture & forestry	7,536	7,092	0	0
029	Fish landings	784	5,729	7,408	7,950
030	Hunting & trapping products	646	608	11,366	16,072
067	Milks, whole, fluid, processed	203,799	210,929	627	673
075	Fish product	452	518	203,664	195,785
078	Vegetable frozen, dried & preserved	1,296	1,220	554	617
085	Primary or concentrated feeds	1,290	1,328	1,328	1,426
087	Feeds, grain origin, n.e.s.	1,129	1,062	1,126	1,208
091	Meal & flour of other cereal & vegetable	14,409	14,602	16,276	15,120
229	Book, pamphlets, maps, pictures	0	0	1,818	2,024
530	Air transportation	405	9,493	6,142	7,684
531	Other transportation	1,046	985	1,044	1,120
533	Water transportation	10,963	10,318	10,535	11,307
535	Railway transportation	2,724	3,126	3,360	3,495
536	Urban transit	772,001	1,038,165	921,715	680,364
538	Radio & television broadcasting	59,249	62,752	71,735	64,586
543	Postal services	655,615	685,691	732,363	788,237
545	Electric power	823,690	742,640	829,530	846,852
546	Cash residential rent	155,900	338,100	262,774	324,888
558	Other recreational services	28,948	27,451	28,802	30,919
565	Services to business management	967,154	1,298,400	1,103,102	1,154,570
566	Advertising services	12,367	11,640	11,985	12,863
567	Other services to business & persons	267	232	240	257
576		461	434	448	448
		1,650	153	1,759	1,759
	Total-commodity subsidies	5,335,337	7,620,930	6,779,838	6,703,673
	Control total	10,510,790	12,524,071	11,170,948	11,268,531
	Difference-non-commodity subsidies	5,175,453	4,903,141	4,391,110	4,964,858
	% of total subsidies				
	A. Commodity	50.76	60.85	60.69	55.94
	B. Non-Commodity	49.24	39.15	39.31	44.06
	C. Total	100.00	100.00	100.00	100.00



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