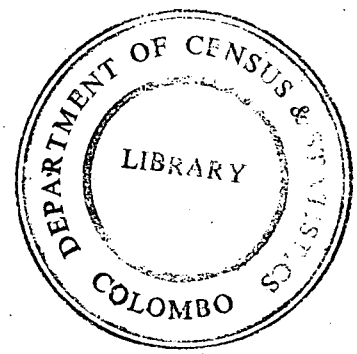
THE EFFECTS OF CHANGES IN FUEL PRICES ON COMMODITY PRICES



PREFACE

This publication is a study which was undertaken by Mr. D. Amarasinghe, Assistant Director, to highlight the impact on commodities of Colombo Consumers' Price Index due to actual and hypothetical fuel pricing. This was done using the Input-Output techniques and the Input-Output tables for 1983. It is important that energy planners should know the implications of production activities of the economy as well as the final consumption in respect to fuel pricing. This would be another approach in capturing the whole economic impact arising from changes in a specific variable. This study may be taken as a model and also filling gaps in analysis of energy statistics.

Acknowledgement is due to Mr. R. Vithana, Assistant Director and Mr. K.A.D.N. Dharmathilake, Programmer of the Data Processing Division who were responsible for processing the data.

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THE EFFECTS OF CHANGES IN FUEL PRICES ON COMMODITY PRICES PARTICULARLY IN THE URBAN MARKET

1.1 INTRODUCTION

The one and a half decades old fuel problem in developing countries, that depend heavily on imported fuel, has assumed alarming proportions during the last few years. Recurrent upward price revisions of fuel prices have been largely responsible for this situation.[1/] Expenditure on imports of crude oil was 25% to 30% of the total expenditure on imports, and about 50% of the total export earnings of the country during the last few years [2,3/] Due to unavailability of indigenous oil resources, Sri Lanka is heavily dependant on imported crude oil to meet the domestic energy requirements.

Oil provides approximately 24% of the energy needs of the country, whilst 9% is provided by electricity. Fuelwood provides almost the entire balance 67% of the energy needs of the country. Contribution from new and renewable source of energy sector is negligible. In 1983, fuel accounted for about two third of the total value of Rs. 13,642.1 million expenditure on gross energy (output) in Sri Lanka. The remainder was almost entirely contributed by Electricity and Fuelwood etc.

Sri Lanka is predominately an agricultural country. Agriculture contributes about 26% of the Gross Domestic Product (GDP), and 60% of the value of export earnings, and employes 55% of the workforce. It is obvious that the commodities in common use are basically products of agricultural origin. The production of commodities require fuel, fuel based products and transportation as intermediate inputs. Finally, commodities need transport facilities which are based on fuel for distribution of commodities to various parts of the country. Therefore, any change in fuel prices affect directly and/or indirectly the level of commodity prices and therefore the economy as a whole.

The weight of food commodities in the Colombo Consumers' Price Index (CCPI) is 62% of the "consumer basket" of a household. The officially approved Country's Cost of Living Index is the Colombo Consumers' Price Index, which has its base year 1952 = 100. A number of interim revisions have been made to update the base consumer "basket of goods" of the CCPI so that the Index would more sensitively reflect the effects of current changes in prices on consumption expenditure.

1.2 OBJECTIVES

The objectives of this study are the following:

1. to isolate (if possible) the effects of changes in fuel prices on commodity prices, using historical data for selected years and statistical methods.

2. to identify the magnitude of the fuel component of the cost structure for important commodities in the CCPI of this country.

3. to illustrate the full impact of changes in fuel prices on commodity prices, using a "cost price analysis" in input output techniques.

TABLE - 1

Household Expenditure Value and Weights Per Month

Commodity Group	1952 = 100 Base year			1977=100 Base year Weights %	1982=100 Base year Weights %
	Weights %	Expenditure value - July, 1985 Rs. Cts.	Index July 1985		
1. Food	61.9	788.11	605.18	67.2	74.7
A. Rice & Cereals		228.78	857.05		
B. Beverages		105.96	517.55		
C. Meat, Fresh & Dried Fish		173.98	-		
D. Condiments		66.01	505.51		
E. Vegetables		84.44	439.74		
F. Other		128.94	-		
2. Clothing	9.4	61.05	320.46	5.6	2.4
3. Fuel and lights	4.3	115.92	1345.60	6.0	6.4
4. Rent	5.7	12.64	109.75	5.1	4.9
5. Liquer & Tobacco	18.7	166.01	523.12	5.1	4.2
6. Miscellaneous				11.0	7.4
Total	100.0	1143.73	565.6	100.0	100.0

Source: Department of Census & Statistics.

PRICE CHANGES IN FUEL AND COMMODITIES

2.1 COMMODITIES AND CCPI

There are two types of terminology on commodity which should be noted. First "commodities" used in any consumers basket which do not include intermediate goods which are used by manufactures as raw materials. In general, commodity means the products which are of agricultural origin for household consumption.[4] The second terminology on commodity refers to raw semi-processed goods, processed goods and services and defined in the "System of National Accounts" (SNA).[5] (In this case commodities are goods and services normally intended for sale on the market at a price that covers their cost of production - SNA). Hence, the discussion in this paper deals with the commodities which are relevant to the households rather than to the producers of goods and services. A list of commodities used by households is selected from the Colombo Consumers' "basket of goods".

A striking feature in the Colombo Urban Family consumption "basket of goods" is the high "food ratio" reported for lower income households.

The percentage of total household expenditure incurred for food items, according to the urban family budget surveys, are 62.0% in 1952, 67.2% in 1977 and 72.7% in New Urban Consumers' Price Index (UCPI) which was based on 1980/81 Labour Force and Socio-Economic Survey.[6,7,8] This pattern has also been observed in many of the recent consumer Finance Surveys undertaken by Central Bank of Ceylon.[9] The "basket of goods" which was obtained from the Family Budget survey results, were revalued to arrive at the expenditure weights by major commodity groups for the 1952 base year of the C.C.P.I., the 1977 Base year of Revised Consumers' Price Index (R.C.P.I.) and the 1982 Base year of the Urban Consumers' Price Index (U.C.P.I.) are given below in Table I.

The significant characteristic of the high food group dominance in CCPI is confirmed by the weights and expenditure values of food group as shown in Table 1. Prices are collected to compute the C.C.P.I. from seven main market centres in Colombo City. Therefore the commodity prices of CCPI are more representative of commodity prices in the urban market. Commodity prices are also available from U.C.P.I. which are collected from selected representative Urban Markets of the entire country from 1977 onwards. Hence, these two sets of data on commodity prices are used in, this paper. The CCPI which represents the Colombo City has a more historical series of data, than the UCPI which is more representative of the Island.

This paper focusses on commodity prices in the urban market, since it is the urban market prices that are mostly sensitive to fuel price changes. Prices of commodities are relatively low in producing areas of commodities, because they do not have the additional components due to transport and trade costs. On the other hand the additional cost on account of trade and transportation makes the selling price of such commodities about 50% to 75% higher than this corresponding farm gate prices. In case of chillies, potatoes and rice the selling prices are 20% to 40% higher than their farm gate prices, while cereals are about 20% to 50% higher.

TABLE 2

FUEL & CCPI PRICE INDICES, 1970=100

Year	Petrol Price	Diesel Price	CCPI Food Group Index	CCPI All Item Index
1	2	3	4	5
1970	100.0	100.0	100.0	100.0
1971 March	107.1	125.8	99.4	100.7
1971 October	131.9	125.8	104.0	104.5
1972 February	136.9	151.6	106.0	107.6
1972 December	150.0	151.6	110.0	111.0
1973	171.4	193.5	121.6	119.6
1974	327.3	338.7	138.8	134.4
1975	347.6	374.2	149.5	143.4
1978	440.4	374.2	173.8	164.8
1979	784.5	729.0	192.7	182.5
1980 January	981.0	958.0	213.6	201.3
June	1046.4	1490.0	254.0	231.8
1981 January	1111.9	1912.9	263.4	250.1
April	1190.5	1912.9	283.3	264.9
1983 March	1428.6	2177.4	350.1	325.6
July	1607.1	2622.5	374.3	345.2
1985 July	1607.1	2622.5	443.0	409.3

Source: Department of Census & Statistics.

TABLE 3

Change in Fuel Prices and behaviour of Colombo Consumers' Price Index

Year		Petrol Price Rs./litre	Rate of increase %	Diesel price	Rate of increase %	Food group Index 1952=100	Rate of increase %	All item Index 1952=100	Rate of increase %
1		2	3	4	5	6	7	8	9
1970		0.84	-	0.31	-	136.6	-	138.2	-
1971	March	0.90	7.1	0.39	8.3	135.8	-0.6	139.3	0.8
	Oct.	1.10	22.2	0.39	-	142.2	4.7	144.4	3.6
1972	Feb.	1.15	4.5	0.47	2.05	144.8	1.8	148.8	3.0
	Dec.	1.26	9.5	0.47	-	150.2	3.7	153.5	3.1
1973		1.44	14.3	0.60	27.6	166.2	10.6	165.4	7.7
1974		2.75	90.9	1.05	75.0	189.7	14.1	185.8	12.3
1975		2.92	6.2	1.16	10.5	204.3	7.6	198.3	6.7
1978		4.40	50.7	1.16	-	237.5	16.2	227.8	14.8
1979		6.59	50.0	2.26	94.8	266.3	10.9	252.3	10.8
1980	January	8.24	25.0	2.97	31.4	291.8	10.8	278.3	10.3
	June	8.79	6.7	4.62	55.5	347.0	18.9	320.4	15.1
1981	January	9.34	6.3	5.93	28.4	359.9	3.7	345.7	7.9
	April	10.00	7.1	5.93	-	387.1	7.6	366.1	6.0
1983	March	12.00	20.0	6.75	13.8	478.3	23.5	450.0	23.0
	July	13.50	12.5	8.13	20.4	511.4	6.9	477.1	6.0

Source: Department of Census & Statistics.

2.2 PRICE CHANGES IN FUEL AND COMMODITIES

2.2.1 Fuel Prices

An upward price revisions of fuel began in March 1971 in the domestic market of Sri Lanka. Fuel price indices are computed to illustrate increases of fuel prices during last fifteen years. (The Fuel index for the base year 1970 is considered as 100.0). The diesel price index for July 1983 is 26 times as high as 1970 level.

The price of diesel has risen to remarkably high levels in 1973, 1974,1979, June 1980 and July 1983. Petrol prices increased remarkably for the same period as in the case of diesel prices.

These petrol and diesel price changes are shown in columns two and three of Table 2. Column three and five of Table 3 show the rate of price increases as percentages of the previous value. The high "rate of increase" in fuel prices demonstrates the high price increase of fuel. The prices of Petrol and diesel were Rs. 0.84 and Rs. 0.31 per litre respectively in 1970.

The Annual average price increases of petrol and diesel for the period 1970 to 1983 were 123.6% and 201.0% respectively. For the period 1975 to 1983 the increase was 87.6% and 57.8% for diesel and petrol respectively. No price changes were introduced after July 1983 for diesel and petrol in the domestic market.

2.2.2 Fuel Prices and CCPI

During the last one and a half decades prices of the commodities in the food group has been sensitive to the changes in the prices of fuel. The food index of CCPI for the month of July 1983 shows a four fold increase from the value of the food group index for 1970 while a 26 fold increase is indicated in July 1983 by the diesel price index. The trend of increase in the price indices of the food group has been paralleled to that of the indices of diesel price. Table 2 shows food group indices and fuel price indices for 1970-1985, taking 1970 as the Base Year. As shown by the data in Col. 4 of Table 2 and Col. 6 of Table 3 increases were recorded in food group index as 10.6%, 14.1%, 10.9%, 18.9% and 23.5% for the periods of 1973, 1974, 1979, June 1980 and March 1983 respectively in relation to the values of food group index for the previous periods.

The correlation coefficient of changes in diesel price index and food group CCPI index is 0.95.[10/] The value "1" of correlation coefficient describes a perfect positive relationship among the two variables. It means that the points (Values of two variables x = food gorup index, y = diesel price index) lie on straight line and the value of one variable increases with the other. Therefore a correlation coefficient of 0.95 between indices of food gorup and diesel, indicates a strong relationship between food prices and diesel prices. The correlation coefficient between petrol price and food group index is slightly less at 0.92 perhaps because food items production depends more on diesel than petrol.

Increasing fuel prices has always resulted in an overall increase in the food group index of CCPI, but relative price changes in the food group index are not in proportion with the price changes in fuel. Annual average percentage price increases in diesel and petrol were 201.0% and 123.6% respectively for the period of 1970 to 1983 but that of the food group index and the all items (CCPI) index were 21.1% and 18.8% respectively for the same period.

TABLE 4

Commodity Price Index 1970 = 100

Group/Commodity	1970 Dec.	1974 Dec.	1979 Dec.	1980 June	1980 Dec.	1983 July	1983 Dec.
Food							
(A) Rice(open market price)	100.0	-	88.0	100.2	100.2	165.8	174.4
Wheat flour	100.0	290.9	378.7	621.2	621.2	848.5	848.5
(B) Beverages							
Tea & Coffee	100.0	119.7	261.5	261.5	269.0	985.8	1123.8
Sugar - white	100.0	115.3	195.8	391.6	430.5	784.7	798.6
Milk powder	100.0	102.2	128.2	128.2	153.7	586.3	586.3
(C) Condiment							
Chillies Dried	100.0	213.0	251.7	268.5	285.2	492.6	490.6
Condiments other	100.0	80.0	89.5	89.0	89.5	423.5	447.9
Tamarind	100.0	46.7	97.3	97.3	97.3	230.0	260.2
Onions	100.0	206.8	310.3	893.1	893.1	2037.9	2255.2
(D) Pulses	100.0	144.1	144.1	144.1	144.1	1221.6	1231.5
(E) Vegetables							
Up country	100.0	106.6	242.6	292.0	354.6	492.0	372.0
low country	100.0	121.6	228.3	271.6	423.3	496.7	410.0
leaves	100.0	120.0	271.4	314.2	382.9	568.6	834.3
(F) Fruits							
Banana	100.0	100.0	140.0	140.0	140.0	840.0	880.0
(G) Fats & Oil							
Coconut Oil	100.0	163.5	274.6	297.6	317.5	859.5	1406.3
Margarine	-	-	-	-	-	-	-
(H) Groceries							
Butter & Cheese	100.0	166.3	213.2	239.8	239.8	933.0	978.7
Biscuits	100.0	259.2	333.3	333.3	422.2	577.7	577.7
(I) Meat	100.0	154.3	237.0	217.3	252.5	1004.3	1075.3
(J) Fish & Dried fish	100.0	139.6	191.3	205.4	230.0	942.9	963.5
(K) Miscellaneous							
Coconuts	100.0	173.1	269.2	269.2	300.0	684.6	1430.7
Papadam	100.0	165.1	183.5	183.5	183.5	809.6	809.6
Eggs	100.0	132.6	132.6	303.7	303.7	470.3	488.8
Potatoes	100.0	113.5	246.9	246.9	277.7	819.7	729.6

Source: Department of Census & Statistics

The average (annual) percentage increases in the food group index of CCPI and that for all items in the CCPI increased by 18.7% and 17.6% respectively for the period of 1975 to 1983. This is nearly a 25% increase in relation to price increase in diesel for the same period.

All of this increase may not have been caused by increases in fuel prices, although the contribution by fuel price increases is definitely a major component, given the fact that fuel and fuel base products are the major inputs of the production and transportation of food items.

2.2.3 Fuel Prices and Commodities

The magnitude of the impact of fuel price changes on commodity price change, from one commodity to another, depends on the relative cost of fuel in its production. Table 4 shows the price increases as indices, for a detailed list of commodities which are more appropriate to the urban rather than the rural and estate sectors of the economy.

According to the price indices indicated in Table 4, rice has shown the lowest price increase of 74.4% and onions have shown the highest price increase as 2155.2% for the period of 1970 to 1983. It may be noted that price increases of all listed items are considerably less than the percentage of the price increase of diesel.

(A) Coconut, Coconut Oil, Pulses, Tea and Coffee have shown the highest price increase ranging from 1000% to 1400%.

(B) Meat, Fresh fish and Dried fish, Wheat flour, Papadam, Potatoes, Sugar, Banana, Vegetable leaves, Butter and Cheese have shown price increase in between 500% to 1000%.

(C) Other commodities such as Milk Powder, Dried Chillies, Condiments, Rice, Tamarind, Vegetables and Eggs etc. have shown below 500% price increases for the period under review.

A striking feature of price changes in commodities during the period is that the proportionately high degree of price increases have shown for the last three years 1980-1983 period.

(A) The commodities such as Coconut, Coconut Oil, Tea and Coffee which have shown the highest price increases ranging from 1000% to 1400%, indicated only 50% to 170% price increases for the period of 1970 to 1980. The rest of price increases occurred during the period of 1980 to 1983.

(B) The second commodity group of Meat, Fresh fish and Dried fish, Wheat Flour, Papadam, Potatoes, Sugar, Banana, Vegetable leaves, Butter and Cheese which have shown the price increases between 500% to 1000%, showed only 40% to 280% price increases for the period of 1970 to 1980 and the rest of price increases indicated during the last 3 years of the period.

(C) The third commodity group of Milk Powder, Dried Chillies, Condiments, Rice, Tamarind, Vegetables and Eggs etc. have shown price increases below 500% for the whole period. But these price changes ranged from 11.0% to 200.0% for the period of 1970 to 1980.

TABLE 5

Cost of Production of Commodities

Commodity	Fisheries	Paddy	Tea	Coconut	Other food crops	Livestock
1	2	3	4	5	6	7
1. Paddy	-	0.0603	-	-	-	-
2. Other food crops	-	-	-	-	0.0048	-
3. Miscellaneous agriculture products	-	-	-	0.0018	-	0.0906
4. Livestock	-	0.0175	0.0008	0.0014	0.0103	0.0002
5. Firewood and Forestry	-	-	0.0037	0.0027	-	-
6. Fisheries	0.0997	-	-	-	-	-
7. Mining and Quarrying	0.0040	-	-	0.0007	-	-
8. Coconut processing						0.0619
9. Factory industry	0.1279	0.0738	0.1266	0.0189	0.0756	0.1008
10. Cottage industry	0.0093	-	0.0090	-	0.0086	-
11. Construction	-	0.0067	0.0190	0.0129	0.0030	-
12. Electricity and gas	0.0010	-	-	-	-	0.0013
13. Wholesale and retail trade	0.0504	0.0483	0.0359	0.0136	0.0304	0.0544
14. Transport and communication	0.0294	0.0048	0.0210	0.0057	0.0178	0.0318
15. Banking insurance	0.0571	0.0481	0.0230	0.0191	-	-
16. Private services	0.0518	-	0.0089	0.0010	-	0.0022
A) Total intermediate inputs	0.4306	0.2594	0.2477	0.0779	0.1505	0.3432
B) Primary inputs	0.5694	0.7406	0.7523	0.9221	0.8495	0.6568
C) Total input/output	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Source: Direct input coefficients - 1983 Input-output table

This is, also the pattern of changes in fuel prices. The diesel price increases was 2522.5% for the entire period of 1970 to 1983. But during the period 1970 - 1980 the increase was 629.0% while in the next 4 years, the increase was 1900.0 percent. Petrol prices during this period behaved in a very similar manner.

3

FUEL COMPONENT IN COST STRUCTURE OF SELECTED COMMODITIES

3.1 Cost of Production

In this section, an attempt is made to identify the fuel component in the cost structures of selected important commodities.

3.1.1 Rice

Rice is the staple food of the country. The importance of the commodity of rice is reflected by the fact that on the average, 20.0% of the expenditure of a family is for rice alone, and this accounts for 29.0% of the total expenditure on food. The Paddy Sector itself contributes 35.0% to the value added of agriculture sector and its contribution to gross domestic product (GDP) is 8.2% [11/] Therefore, any impact which fuel prices have on paddy prices will bear heavily on the family budget.

Column 2 of Table 5 shows the cost structure of Paddy Production. Column 1 of Table 5 shows the description of inputs, (or the selling sectors of the inputs). This table gives the input coefficients for the production of one rupee worth of products from each commodity.

Row 'A' of Table 5 presents the total coefficient value of intermediate inputs which have been used to produce various commodities. Row 'B' shows the coefficient value of primary inputs or the payment for the factors of production (land, labour, enterprenuership, capital). Row 'C' shows the total input value or the value of output for each commodity.*

In keeping with objectives of the study, the important required inputs are taken from Factory industry and Transport and Communication sector. Transport and Communication sector shows the direct cost consumption of fuel for transportation of the commodity. Factory industry shows the value incurred on fertilizer, and chemicals in relation to agriculture commodities except fisheries and livestock. In 1983, 28.4% of the expenditure on paddy production was on intermediate inputs of fertilizer and chemicals etc. which are considered as fuel based products. Expenditure on transport alone is 2.0%. Therefore more than 30% of inputs are based on fuel directly and/or indirectly. Because of heavy dependance on fuel, the cost of production of paddy is sensitive to changes in fuel prices.

3.1.2 Other Food Crops

Other food crops considered are Vegetables Fruits, and Cereals. These commodities are mainly for domestic use. These food crops contribute about 20.0% to the value added of the agriculture sector. More than 25.0% of the average expenditure of a family is made on these commodities alone, and this accounts for about 35.0% of the expenditure on food. The average family expenditure on vegetables alone is 10.6% of the total food expenditure.

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* *Direct input coefficients - Input-output table 1983.*

The fuel involvement in the production of these commodities is very significant in respect of cost of production of these commodities specially for vegetables. In 1983 the expenditure on non-organic fertilizer and chemicals etc. on other food crops was 50.2% and expenditure on transport alone was 11.8% as shown in column 6 of Table 5. i.e. 62.0% of expenditure is on fuel and fuel based products 75% to 90% in the production of chillies; 50% to 90% in the production of Potatoes and Cabbages and 90% in the production of onions.[12] Prices of Household consumption items are therefore more sensitive to prices of fuel based items and hence to those of fuel.

3.1.3 Tea

Tea is the main export oriented plantation crop. Its contribution to total export earnings is 33% in 1983. Tea is also a main common beverage in the country. In production, expenditure on non-organic fertilizer and chemicals is 51% and that on transportation 8.5 percent. This high contribution of fuel based inputs will cause high price increases in respect to changes in prices of fuel.

3.1.4 Coconut

The other export oriented plantation crop is coconut and its contribution to total export earnings is 8% in 1983. But household consumption of coconut is completely different from that of tea. In fact , around 75% of coconut production is for domestic household consumption, whilst 90% of tea production is for exports. Coconut production consumes 24.3% of non-organic fertilizer and chemicals and 7.3% of transport cost for its production cost. Coconut could be expected to bear fuel price effects due to high expenditure on fuel and fuel-based products on inputs.

3.1.5 Fisheries and Livestock

The average family expenditure on meat, fresh fish, dried fish is about 22.0% of the total expenditure on food. The sectors of livestock and fisheries also contribute 10% to the value added of agricultural products. The livestock sector annual expenditure on animal feed is nearly 29.4% which is an indirect consumption of fuel and other energy resources and its input expenditure on transport is 9.3%. The Fisheries sector expends 6.8% of its total expenditure on transport. Therefore, fisheries and livestock prices are also liable to be affected by fuel prices.

4

IMPACT OF CHANGES IN FUEL PRICES ON COMMODITIES

4.1 Objective and Methodology

The objective of this section is to outline the magnitude of immediate impact of fuel price changes on commodities particularly in the urban market and secondly on the overall economy. The impact that an increase in price of fuel would have on the various commodity producing sectors of the economy has been measured using "cost price analysis" of input-output techniques. Tables 6 and 7 show the rate of increase of each industrial sector. This analysis is based

TABLE 6

GROSS OUTPUT VALUE AND PROJECTED GROSS OUTPUT VALUE

AFTER 20% CHANGES IN FUEL PRICES - 1983

Sector	Rate of increase in price as a percentage	Gross Output at producers' price Rs. Mn.	Projected additional gross output Rs. Mn.	Increased additional gross output Rs. Mn.
1. Coconut and Toddy	0.11	4136.8	4141.4	4.6
2. Tea growing	0.48	4437.4	4458.7	21.3
3. Rubber growing	0.38	1680.0	1685.0	5.0
4. Minor export crops	0.21	1339.9	1342.7	2.8
5. Paddy	0.21	8530	8548.2	17.9
6. Other food crops	0.35	10487.3	10524.0	36.7
7. Tobacco	0.34	209.2	209.9	0.9
8. Betel and arcanuts	0.06	370.7	270.9	0.2
9. Miscellaneous agriculture crops	0.11	564	565.2	0.6
10. Livestock	0.55	1941.2	1951.8	10.6
11. Plantation development	0.10	1670.1	1671.7	1.6
12. Firewood and forestry	0.04	1299.7	1299.7	0.5
13. Fisheries	0.62	3043.1	3061.9	18.8
14. Mining and quarrying	0.21	1633.2	1636.6	3.4
15. Coconut processing	0.34	4656.0	4671.8	15.8
16. Tea processing	1.59	9232.4	9338.6	106.2
17. Rubber processing	0.30	3000.9	3009.9	9.0
18. Factory industry	1.71	35460.0	36066.4	606.4
19. Cottage industry	0.49	10694.7	10746.9	52.4
20. Construction	1.14	15974.7	16156.8	182.1
21. Electricity and gas	0.90	4145.0	4182.3	37.3
22. Wholesale and retail trade	0.13	28428.2	28445.1	36.9
23. Transport and communication	11.19	23710.7	26363.5	2652.8
24. Banking insurance and real estate etc.				
Ownership of dwellings	0.14	7475.3	7479.1	3.8
25. Private services				
Public administration and defence	0.23	11847.6	121515.7	304.1
Total		195,948.5	200,079.8	4131.5

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TABLE 7

ADDITIONAL GAIN OR LOSS ON INDUSTRIAL SECTORS AFTER THE CHANGE(20%) IN FUEL PRICES ON TRANSPORT - 1983

(Rs. Million)

Sector	Additional Increase in Value of output	Additional Increase in Value of Intermediate input	Increase or Decrease in operating surplus
1	2	3	4
1. Coconut and toddy	4.6	5.4	-0.8
2. Tea growing	21.3	19.5	1.8
3. Rubber growing	5.0	4.5	0.5
4. Minor export crops	2.8	2.1	0.7
5. Paddy	17.9	40.3	-22.4
6. Other food crops	36.7	32.6	4.1
7. Tobacco	0.7	1.0	-0.3
8. Betel and arecanuts	0.2	0.0	0.2
9. Miscellaneous agriculture products	0.6	0.0	0.6
10. Livestock	10.6	14.3	-3.7
11. Plantation development	1.6	14.4	-12.9
12. Firewood and forestry	0.5	3.6	-3.1
13. Fisheries	18.8	17.0	1.8
14. Mining and quarrying	3.4	4.5	-1.1
15. Coconut processing	15.8	15.3	0.5
16. Tea processing	106.2	50.8	55.4
17. Rubber processing	9.0	7.6	1.4
18. Factory industry	606.4	553.8	52.6
19. Cottage industry	52.4	53.2	-0.8
20. Construction	182.1	158.5	23.6
21. Electricity and gas	37.3	71.0	-33.7
22. Wholesale and retain trade	36.9	144.4	-107.5
23. Transport and communication	2652.8	287.0	2365.8
24. Banking insurance and real estate) Ownership of dwelling)	3.2	9.2	-5.4
25. Public administration and defence) Private services	304.1	24.3	279.8
Total	4131.5	1534.3	2597.2

on the 1983 input output table using alternative price levels.[13/] The alternative price level is a price, 20% higher than the existing price of transport due to fuel prices.

The following assumptions are made under "cost price analysis".

(a) The prices of all sectors other than Transport and Communication sector remained constant. (1983 prices)

(b) The input price of transport sector alone is raised by 20% in order to analyse the impact of transport prices on commodities.

(c) This cost price analysis application was carried out to foresee the questions arising from the existing economic conditions.

4.2 Impact on Overall Economy

Taking the economy as a whole, the value of the gross domestic output will go up by Rs. 4131.5 million if fuel on transportation is priced by 20% higher than the 1983 price as shown in Table 6. The value increase in production in the whole economy will be 2.1% and gross domestic product (GDP) will increase by 2.2 percent. This inflationary characteristic of price increase is relatively small for the economy as a whole, but the impact on certain individual sectors is quite substantial.

The degree of price increases in a particular industry will depend on the level of its inter-dependance with the other industries in the economy. The substantial impact of fuel prices on these industries could be brought about by the inter-dependance on transport industries, the industries which produce fuel-based products and other industries.

The striking feature of the impact of fuel price changes on transport is that all commodity producing industries would affect adversly if fuel prices are raised. The high price increases are shown by sectors of Factory industry, Tea processing industry, Construction industry and Transport and Communication industry. Table 7 shows the rate of increases of output value and the gain or loss of operating surplus of each industrial sector.

The impact on individual commodities are discussed below:

4.2.1 Paddy

Since transportation cost on paddy is not very significant increasing, the cost of transportation may appear to cause little increases on its output value. But the additional expenditure on its input would result in a loss of operating surplus by Rs. 22.4 million as shown in Table 7. This would lead to price increases of paddy.

4.2.2 Other Food Crops

Column 4 of Table 6 shows the rate of increase in output value (gross domestic production). The increases are 0.35% for commodities of vegetables, fruits and cereals etc. (other food crops). The expected estimated additional increase in value of output is Rs. 32.6 million in 1983, which is an increase in value added of Rs. 4.1 million as a result of increased fuel cost in transportation.

An important feature of this commodity is that 90.0% of its output is used for private consumption. Thus the increase in the price of these commodities would have a direct inflationary effect for consumers.

4.2.3 Coconut and Toddy

Expected price increase in the commodity of coconut as a result of transport fuel price hike is 0.1% and in absolute value terms is Rs. 4.6 million. The additional expenditure that this industry has to meet on intermediate inputs would have been Rs. 5.4 million. So this commodity producing sector of coconut industry would have a loss of about Rs. 0.8 million in its operating surplus.

4.2.4 Coconut Processing

This industry includes the commodity of coconut oil which is specially important for private consumption and soap manufacturers.

This industry is expected to have 0.34% price increase in coconut oil, desiccated coconut, copra, ropes, brooms, brushes etc. Expected proportionate value increase is Rs. 15.8 million and expected expenditure increase on inputs is Rs. 15.3 million. Thus, this industry would have an increase of about Rs. 0.5 million in its operating surplus.

4.2.5 Tea Processing

This industry produces the commodity of black tea. Eventhough fuel is seemingly of little importance in the cost of production of Tea, the additional expenditure on intermediate inputs of this industry would have been Rs. 50.8 million, and output value would increase by Rs. 106.2 million. This would cause to increase the operating surplus by Rs. 55.4 million. This price increase could be pruned by the enterpreneurs. However, this price increase might probably lead to rise in the selling price of tea which is already quite high.

4.2.6 Fisheries

Commodities of fisheries industry would increase Rs. 1.8 million in primary inputs due to fuel increases on transportation. These commodities show a rate of increase by 0.62% in its output value, but the expenditure on its intermediate inputs would have risen by Rs. 17.0 million against the value increase of Rs. 18.8 million for the production.

4.2.7 Livestock

This industry shows a rate of increase of 0.55% in output value as a result of fuel price increase in transportation. Eventhough this is a insignificant rate of price increase, this industry would also suffer from a decrease of Rs. 3.7 million on operating surplus.

As a result of price change in fuel for transportation the value of gross output would increase by Rs. 80.6 million and intermediate inputs by Rs. 14.3 million.

CONCLUSION

5.1 In the preceding analysis we examined the impact of increased prices of fuel used in the transport industry in 1983, on various commodity prices particularly in the urban market. The analysis was based on statistical methods and cost price analysis of input-output techniques using an input-output Table for 1983.

It has often been pointed out and is being increasingly recognized that some of the major commodity prices in the urban market are affected by policy decision on internal and external trade and constraints of transportation of commodities from the still neglected rural areas where the institutional framework is weak.

Prices of food commodities were strongly correlated to the price changes in diesel and petrol (correlation coefficient of 0.95 and 0.92 respectively) leading evidence to the hypothesis that fuel prices affect commodity prices. Although it is true that other factors may have played a part in the determination of food prices, rising fuel prices could certainly be a major factor.

5.2 The striking feature in the Urban Family consumption "basket of goods" was the high "food ratio" reported for lower incomes had also been confirmed in many recent Socio-Economic Surveys and Consumer Finance Surveys. Price increases of fuel and consequently of transport were shown to have brought about increases in commodity prices and thereby excerting adverse effects on the Family budget. The household expenditure on food alone is by about 70%.

5.3 Consequently the index assigned for the group of food commodities in the computation of CCPI has increased.

Commodities of Coconut, Coconut-oil, Pulses, Tea and Coffee, Onion, have shown the highest price increases, while Meat, Fresh Fish, and Dried Fish, Wheat flour, Papadam, Potatoes, Sugar, Banana, Vegetable leaves, Butter and Cheese have shown the relatively lower price increases.

Milk powder, Dried Chillies, Condiments, Rice, Tamarind, Vegetables, Eggs, have shown the lowest price increases for the period under review.

5.4 Cost structures were analysed on most important commodities in respect to household consumers. Rice,, Coconut, Tea, Vegetables, Fruits, Cereals, Fish, Livestock have shown a substantial dependency on fuel and fuel based products of fertilizer, chemicals which serve as inputs in their production. The production of Commodities of Chillies, Cabbage and Onion has required a 90% of expenditure on inputs of fuel and fuel base-products. Therefore these Commodities expected to have substantial price increase as a result of price hike in fuel transportation.

5.5 Among the industries which would suffer substantially are the production of agriculture commodities of vegetables, Cereals, Fruits, Tea, Paddy, Fisheries, Livestock, Coconut, Tobacco, etc. according to the descending order of the degree of impact of increased price in fuel on commodity prices in Urban Market. These commodities would incur a large additional expenditure on inputs against gross output value under the stipulated price hike. Therefore, those commodity producing industries would loose or decrease their profits.

This expected adverse impact on agriculture products would have to be born by the producer or farmer at least to a certain extent, while he would be able to pass some of it on other intermediaries.

One alternative measure could be to reduce the use of fuel based inputs such as fertilizer and chemicals and/or to reduce labour. This clearly takes the farmer, round a vicious circle from low inputs to low profits.

Increasing of Government expenditure on agricultural commodities by way of increasing subsidy rates given for fertilizer and other agriculture activities may not be possible.

The sectors of Factory industry, Tea processing industry, Construction industry, Private services and Industry of Transport and Communication would benefit by way of increased profits.

Increasing commodity prices in Urban markets resulting from increasing fuel would increase the cost of living index which will call for additional expenditure from government to meet the additional payment on Salaries and Wages.

The food group price indices (1952=100) for the years 1970, 1978 and 1983 were 136.6, 237.5 and 506.3 respectively as shown in Table 3. The substantial price increases in commodities could be seen for the period 1973 to 1983 which was the period that upward revisions of fuel prices were enforced.

Annual rate of increase in food group index was 1.3% for the priod prior to 1971, which was the period when no changes in fuel prices were introduced. But the substantial impact of fuel prices on commodity prices were examplified by the annual rates of price increases of 9.2% and 23.1% for the priod of 1971 to 1978 and 1978 to 1983 respectively. Hence there is an evidence to show the substantial inflationary effects on commodity prices which were mainly due to fuel price changes.

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