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Intersectoral Resource Transfers -
A reply to a reply

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In his reply to my critique of his estimates of inter-sectoral resource flows, Mundle has dismissed the conceptual issues I raised as deriving purely from a misunderstanding and the empirical deficiencies I pointed out as not serious enough in his judgement. I would maintain that Mundle's dismissal has been rather cavilier. Perhaps I should elaborate.

1. Balance of Trade as a Resource Flow Measure

Commenting on my questioning the appropriateness of the balance of trade approach in measuring resource flows, Mundle says:

"......the accounting system which Mody presents in developing this argument is his own accounting system not mine. And if there is any inconsistency then it is in these accounts and definitions which have nothing to do with my exercise". (p2)[1]

Mundle does not appear to have realised that the income-expenditure concepts I used are in no sense independent of his concepts. Indeed, income-expenditure and balance of trade are reverse sides of a coin and the equivalence of his concepts and mine may easily be demonstrated. With intersectoral resource flow denoted by R, agricultural exports by E, agricultural imports by M, total farm income by Y_F, farm income from agriculture by Y_A, farm consumption by C_F and farm investment by I_F, it has been shown that[2]

$$R = E - M = Y_A - C_F - I_F \qquad (1)$$

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1. Page Nos. in the text refer to Mundle's 'Reply'

2. As before, the discussion abstracts from on-farm non-agricultural activities. These may be incorporated into the analysis without altering the results.

Rewriting the question,

$$R = E - M = (Y_A - Y_F) + (Y_F - C_F - I_F)$$

With the savings of the farm households (S_F) equal to $(Y_F - C_F)$,

$$R = E - M = (Y_A - Y_F) + (S_F - I_F) \qquad (2)$$

It is now easy to see that our accounting systems are equivalent. $(S_F - \overset{\bullet}{I}_F)$ represents the net savings or capital transfer, denoted by Mundle as 'K', and $(Y_A - Y_F)$ is the sum of net current transfers, including factor income payments, which Mundle denotes as 'V'. Mundle's equation, $E - M = V + K$ (p3), is therefore the same as equation (2) above.

Before elaborating on the substantive issue regarding the balance of trade approach, I would like to point out that I have not ignored current transfers other than factor income payments (p3)[3]. In the context of agriculture non-agriculture resource flows, the principal current transfers besides net factor income flows (Y_T) are the net direct tax payment (C_T). Therefore,

$$V = (Y_A - Y_F) = C_T + Y_T \qquad (3)$$

and $R = Y_T + C_T + K$ $\qquad (4)$

In as much as net tax payments represent transfers of forced savings, $(C_T + K)$ may be regarded as the effective savings transfer (S_T). Thus,

$$R = Y_T + S_T \qquad (5)$$

Now, in interpreting the balance of trade approach, it must be remembered that the purpose of inter-sectoral resource flow measurements is to estimate the amount of _unrequitted_ transfer of investible resources. The inclusion of net factor payments in the measure of resource flows introduces an inconsistency: in my earlier note I had used a particular expository device to show this. The matter may, however, be put alternatively. If there are no factor income payments, the balance of trade measures only the effective savings transfer. This is a resource transfer without a _quid pro quo_.

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3. I am also unable to understand in what sense I have considered only a net factor income flow and ignored a net factor income outflow (p3). Surely, when I talk of a net flow I do not make any assertion regarding the sign of this flow. It makes no difference to my argument whether the 'outflow' is positive or negative.

and there is no problem with it. However, a net factor income outflow represents a net inflow of _factor services_ and vice versa a net factor income inflow has a counter part in a net outflow of factor services. Thus factor income payments are not unrequitted transfers. At the conceptional level, it is therefore not correct to include, as the balance of trade approach implicitly does, factor income payments in a measure of resource flow.

2. Treatment of Indirect Taxation

I would agree with Mundle that the conceptual issue regarding the treatment of indirect taxation is really quite simple (p6). I, however, do not think he has got it right. Indirect taxes incident on the agricultural sector represent, just like direct taxes, a resource outflow from that sector.[4] Valuing agriculture's imports at prices inclusive of indirect tax creates an anomalous situation. An increase in indirect tax on the agricultural sector's imports would _ceteris paribus_ be reflected by the balance of trade as an _increased inflow_ (or decreased outflow) of resources from the agricultural sector.

Mundle seems to argue that indirect taxes are not a resource outflow from the agricultural sector but a payment for services received from the government, which is a part of the non-agricultural sector (p6). He is surprised that while I refer to the handling of indirect taxes, I do not mention "the exactly analogous problem" of treating distribution margins (p6). I do not consider the questions of indirect taxation and distributive margins to be conceptually the same. While the latter _are_ payments for services, the former are resource outflows. If Mundle insists on regarding indirect

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4. I have discussed this point in my earlier note. Mundle is aware of my position (p5). While he makes no explicit statement, implicitly he rejects this notion. This is further discussed below.

taxation as a payment for services rendered by the government, then to be consistent he must include in agriculture's import bill not only the indirect taxes paid by agriculture on its imports, but also indirect taxes (if any) on goods produced and consumed within the agricultural sector and, more important, the direct taxes paid by agriculture. Indeed, even the inclusion of all taxes in the import bill would not be enough. The total taxes paid by agriculture (i.e direct and indirect taxes) fall far short of government's expenditure in agriculture.[5] Thus if a measure of government services rendered to agriculture is to be added to agriculture's import bill, it should be the total government expenditure on agriculture and not just indirect taxes paid by agriculture on its imports. The inclusion of direct taxes would create the remarkable situation that in Mundle's scheme an increase in direct taxes would be reflected as an increased resource outflow (or decreased inflow), from the agricultural sector, while an increase in indirect taxes (as discussed above) would be reflected as an increased inflow (or decreased outflow) into agriculture (for, in some sense, government services to agriculture would have gone up.)

3.   Estimates of Consumer goods flows

As regards the empirical exercise on consumer goods is concerned, the point being made was that the estimates are very sensitive to changes in the per capita value of the goods traded by the agricultural sector. In addition, it was observed that there existed certain biases in the data used by Mundle which, if adequately accounted for, could well change Mundle's alleged outflow of resources from agriculture into an inflow. Mundle himself

5.   Mody (1979a) pp84-88

recognises the sensitivity of the estimates.[6] He also agrees with the

directional effect on resource flows of the biases pointed out (p7). He

is, however, of the opinion that the biases pointed out by me would not

significantly distort his results (p8). This conclusion, he admits, is

based entirely on his judgement. I think we can do better than that.

Presented below is some evidence on the order of magnitudes involved. But

before looking into the figures, it may be pointed out that the basis of

Mundle's judgement is, at least in part, faulty. For the purpose of

estimating intersectoral commodity flows, it does not matter what proportion

the goods in question are of total consumption expenditure: what matters

is the proportion they form of the goods traded. (See p³). In the following

discussion this point is also illustrated.

For the purpose of comparison, Mundle's 1975 estimates and his final

1977 estimates of consumer goods may be examined. (These were referred to

as M(II) and M(III) respectively in the earlier note). The 1975 estimates

are a useful reference point, because if they had been used in conjunction

with the estimates of producer goods flow, Mundle would have concluded that

there was overall a net inflow of resources into agriculture during the

period studied by him. The estimates are shown in Table 1. In addition,

the implicit per capita agricultural imports (i.e. total agricultural

imports divided by Mundle's estimates of agricultural population[7]) and per

capita non-agricultural imports (i.e total agricultural exports divided by

the non-agricultural population estimates[8]) are shown in Table 2. The per-

centage difference between the estimates of the per capita goods traded

6. Mundle refers to the sensitivity of the estimates in the context of the classification of commodities as agricultural and non-agricultural, which is what determines the per capita value of goods traded. Mundle (1977) p 156.

7. Mundle (1975)

8. Mundle (1975)

has also been computed and is shown in Table 2.

Two features of the percentage differences in the per capita traded goods may be noted: i) The differences are by no means insignificant; and ii) The differences vary considerably from year to year. As was pointed out in the earlier note, these differences arise from two sources: 1) the reclassification of commodities as agricultural and non-agricultural in the 1977 estimates (i.e M(III)); and 2) the adjustment of the NSS based estimates for consistency with the CSO consumption expenditure estimates. Since, till 1962-63 the NSS and CSO aggregate consumption expenditure estimates almost coincided (See Table 3), the differences in the per capita goods traded till that year may be attributed almost entirely to the re-classification of commodities. It is interesting to note that the re-classified commodities (pan, supari and firewood) while accounting for about 5 percent of rural consumption expenditure and less of urban consumption expenditure make an average difference of the order of 15-20 percent to the per capita goods traded. This only serves to illustrate what was pointed out above, namely, that the crucial ratio is not the proportion of total consumption expenditure, but the proportion of goods traded.

Thus, in as much as foodgrains and consumer durables (which includes clothing) constitute very major chunks of the agriculture-non-agriculture trade, even a small underestimation (or overestimation) of the per capita trade of these goods could make an appreciable difference to the aggregates traded. Moreover, the estimational biases are not small, but indeed quite considerable. In Table 4, are shown the per capita estimates of foodgrain consumption according to food balance sheets and NSS data. The years are not strictly comparable, but that the NSS significantly overestimates foodgrain consumption is quite apparent. This bias could well result in an

overestimate of per capita foodgrains exported from agriculture by a margin
of 20-30 percent.. Referring back to Table 2, it may be noted that a differ-
ence in per capita imports and exports of the order of 15-20% (with the
appropriate sign) is sufficient to convert Mundle's alleged outflow into an
inflow of resources into agriculture. Though we don't know the orders of
magnitude involved, an underestimation of per capita expenditure on consumer
durables, would tend to underestimate the imports of agriculture. In view
at least of the figures given on foodgrain consumption, these biases would
substantially exaggerate a resource outflow from agriculture or show a sub-
stantially reduced inflow into agriculture.

But this is really not the whole story. Interestingly enough, while
Mundle questions my ignoring distribution margins at the conceptual level,
he himself does not seem to realise its empirical significance. In view of
the service sectors being a part of non-agriculture, Mundle quite rightly
notes that the exports of the agricultural sector should be valued at
producers prices (i.e. farm prices) while its imports should include the
marketing margins.[9] Mundle states that the consumer goods imports have
been correctly valued at purchasers' price, but the consumer goods exports
could not be valued at farm prices and were therefore valued at purchasers'
price, i.e farm price plus distributive margins.[10] Mundle, however, does
not discuss the direction and extent of bias this would involve. Clearly,
however, the procedure adopted by Mundle (or, perhaps, forced upon him by
data availability) would lead to an overestimation of agriculture's export
and hence to an overestimation of the resource outflow from agriculture.

9.   Mundle (1977) p 157

10.   Mundle (1977) p 157

That this overestimation may again be fairly significant may be seen from Table 5, which shows the range of distributive margins (i.e the difference between the retail and farm prices) for rice across a set of representative states. It will be seen that between the early 1960s and the early 1970s, the distributive margins on rice varied from about 20-30 percent. In other words, in not accounting for distributive margins on exports of consumer goods, Mundle is overvaluing these exports by about 20-30 percent. That this is a very significant order may be seen by referring once again to Table 2.

To recapitulate briefly, Mundle very seriously overestimates the exports of consumer goods from agriculture on account of: 1) an overestimate by the NSS of per capita foodgrain consumption; and 2) not realising the quantitative significance of distributive margins. He also underestimates imports into agriculture by an order I have not been able to ascertain. However, the applying of reasonable correction factors, to get rid of the lacunae I have pointed out, to his 'final' 1977 estimates (M(III)) would increase the net imports of consumer goods by agriculture to a level higher than his 1975 estimates (M(II)). And, as I pointed out earlier, the M(II) level of net imports is sufficient for concluding that there has been an overall resource flow into agriculture and not an outflow, as Mundle claims.

There are some interesting sidelights to the above discussion. Not only is there reason to doubt Mundle's assertion of an outflow from agriculture but also his inverted -U curve of resource flows may be a statistical illusion. In other words, the increasing resource outflow from agriculture (in view of my comments above, this could be rephrased as: a decreasing inflow into agriculture) between the mid-1950s and the mid-1960s and the subsequent decreasing outflow (or increasing inflow) that Mundle talks about, are at least partly the result of his data and methods.

There is some evidence that the distributive margins on foodgrains have been increasing over time. If, therefore, agriculture's consumer goods exports are valued at purchasers (or retail) prices, as Mundle has done, there would be an _increasing_ overestimate of agriculture's exports and hence an _increasing_ overestimate of resource outflow from agriculture. From Table 5, it may be seen that the distributive margins on rice rose in all states considered except Karnataka between 1960-61/1965-66 and 1966-67/1973-74. Of course, it may be argued, that this is not the period over which Mundle demonstrates an increasing outflow, but that the relevant period is from the mid-fifties to the mid-sixties. Although we have no information for the 1950s, we are in a position to make a statement regarding the trend of distributive margins in the first half of the 1960s. In Table 6, are presented the elasticities of the retail-farm price spread with respect to variables that influence the demand and supply of rice. It will be noted that the elasticities of retail-farm price ratios with respect to the price of the substitute are, in general, insignificant. The elasticities with respect to population and per capita income are positive and in some states quite nigh. Thus a growth in population and per capita income would tend to increase the retail-farm price spread. The elasticities with respect to production are, however, negative, so that a growth in production would have the effect of decreasing the price spread. In Table 7, are shown the growth rates of the retail-farm price ratios. These have been computed on the basis of the elasticities in Table 6 and the growth rates of population, per capita income and rice production. It may be seen that over the period 1960-61 to 1964-65 the growth rate of the retail-farm price ratio is positive in all states except Tamil Nadu. We may therefore infer that the retail-farm price spread was increasing over 1960-61 and 1964-65, and this, in view of the discussion above, would at least partly "explain" the increased outflow that Mundle observes in the first half of the sixties.

The decline in the resource outflow (at current prices)[11] after the mid-sixties is largely the product of the adjustment of the NSS based estimates for consistency with the CSO estimates of consumption expenditure. It will be noticed from Table 3 that the NSS consumption expenditure estimates fall _progressively_ below the CSO estimates after 1962-63. Thus when Mundle adjusts the NSS based net imports of consumer goods by the agricultural sector, these estimates are _progressively_ raised. In other words, if no consistency adjustments were made, the sharp increase in the net imports of the agricultural sector after 1963-64 would not be observed (See Table 1, 1975 and 1977 estimates). Correspondingly, a decreased resource outflow from agriculture would either not be observed, or be observed only in a muted form.[12]

There is really little justification for adjusting for consistency, as Mundle has done. It has been shown that even in the years in which there was close correspondence between the aggregate consumption expenditures derived from the two sources, the composition of consumption reflected by the NSS and the CSO varied widely.[13] Thus applying the NSS pattern of consumer expenditure to the CSO estimates of aggregate consumption has little meaning.[14]

In all this, I have tried to make Mundle largely on his own ground. There remain tricky problems such as deciding upon the consumption patterns for the agricultural and non-agricultural populations. Mundle has described Thamarajakshi's assuming the NSS-rural consumption pattern for the urban-agricultural population as a 'bold' assumption.[15] Mundle himself assumes the NSS-urban consumption expenditure pattern for the urban-agricultural

11. Mundle (1977) pp 164-166

12. Ofcourse, the increasing distributive margins over time would tend to bias the estimates in the direction opposite to the bias introduced by "correcting" for consistency with CSO estimates. The observed result is a weighted average of the two biases.

13. P.N. Radhakrishnan (1971)

14. Mody (1979a) p 40

15. Mundle (1975)

population. Clearly neither assumption is accurate, since the NSS gives averages for rural and urban populations and not for components of these populations. What difference the varying assumptions regarding expenditure patterns will make, is difficult to say. It may, however, be pointed out that Thamarajakshi estimates a net resource inflow into agriculture during 1965-66.[16]

Finally, I would concede that the distortion pointed out with regard to agriculture's imports for capital formation would not be quantitatively significant.

16. Thamarajakshi (1969)

TABLE 1

Inter-sectoral Flow of Consumer Goods: Two Estimates

(Rs. crores, current prices)

	1975 Estimates			1977 Estimates		
	Total Import by Agriculture 1	Total Export by Agriculture 2	Net Import by (M(II)) Agriculture 3	Total Import by Agriculture 1	Total Export by Agriculture 2	Net Import by (M(II) Agriculture 3
1951-52	3131.09	1378.76	1752.33	2446.04	1415.94	1030.01
52-53	3015.05	1347.29	1667.76	2415.26	1452.72	962.54
53-54	2464.54	1311.84	1152.70	2329.91	1696.95	632.96
54-55	2270.61	1207.28	1063.33	2037.60	1526.12	511.48
55-56	2621.53	1382.11	1239.42	2096.96	1557.30	539.66
56-57	2454.71	1457.41	997.93	2170.98	1853.59	317.39
57-58	2816.75	1532.23	1284.52	2404.98	1875.36	529.62
58-59	3068.09	1706.74	1361.37	2593.72	2086.08	507.64
59-60	3194.63	1730.92	1463.71	2696.34	2147.99	548.35
60-61	3518.80	1859.89	1659.91	2932.84	2303.81	630.03
61-62	3584.81	2024.46	1560.35	3003.33	2416.11	587.22
62-63				3037.26	2524.88	512.38
63-64	3783.83	2065.15	1718.68	3243.22	2833.15	460.07
64-65	4199.56	2677.35	1522.57	3944.25	3293.82	650.43
65-66				4097.29	3473.87	623.42
66-67	5286.41	3584.32	1702.09	4784.73	4090.61	694.12
67-68				6033.34	5201.88	831.46
68-69				5989.72	5040.26	949.46
69-70				6560.85	5520.86	1039.99
70-71				7014.04	5902.21	1111.83

ource: 1) Mundle (1975) - Table 6

2) Mundle (1977) - Table 2

TABLE 2

Percentage Difference between the Per capita goods trade Implicit in Mundle's Two Estimates

	Per capita Imports of Agriculture* (Rs.)			Per capita Exports of Agriculture* (Rs.)		
	1975 Estimates	1977 Estimates	% Difference	1975 Estimates	1977 Estimates	% Difference
1951-52	121.37	94.82	-21.88	136.80	140.48	+ 2.69
52-53	114.56	91.77	-19.89	130.73	140.96	+ 7.80
53-54	91.79	86.95	- 5.49	124.46	161.00	+29.36
54-55	82.89	74.39	-10.26	112.01	141.60	+26.41
55-56	93.81	75.04	-20.01	125.40	141.29	+12.67
56-57	86.10	76.15	-11.56	129.31	164.46	+27.18
57-58	96.85	82.69	-14.62	132.93	162.69	+22.39
58-59	103.40	87.42	-15.46	144.79	176.97	+22.23
59-60	105.53	89.07	-15.60	143.60	178.20	+24.10
60-61	113.98	95.00	-16.65	150.76	186.66	+23.81
61-62	113.89	95.42	-16.22	160.37	191.39	+19.35
62-63						
63-64	115.45	100.48	-12.97	155.60	213.47	+37.19
64-65	125.58	117.94	- 6.08	196.72	242.01	+23.03
65-66						
66-67						
67-68	148.79	169.81	+ 0.14	244.25	354.47	+45.13

*Agricultural imports were divided by the agricultural population and Agricultural exports by the Non-Agricultural population.

Source: See Table 1; population figures are from Mundle (1975) Table 5.

TABLE 3

Aggregate Consumption Expenditure according to the NSS and the CSO

	Mukerjee & Chatterjee*			Srinivasan, Radhakrishnan and Vaidyanathan		
	NSS (1)	Official (Revised) (2)	(1) / (2)	NSS (3)	Official (4)	(3) / (4)
1954-55	81.3	81.1	1.002	208.9	207.0	0.991
55-56	85.6	82.1	1.043	213.0	211.3	0.992
56-57	93.0	95.2	0.977	242.3	225.4	0.930
57-58	99.0	98.4	1.006	238.0	235.8	0.991
58-59	109.6	109.5	1.001	259.3	254.8	0.983
59-60	113.8	110.2	1.033	257.4	260.9	1.014
60-61	121.6	118.8	1.024	277.6	274.2	0.988
61-62	128.0	125.4	1.021	253.6	282.3	0.995
62-63	134.1	131.1	1.023	289.3	289.0	0.999
63-64	142.0	147.8	0.961	318.6	295.9	0.929
64-65	163.2	176.1	0.927	369.0	339.4	0.920
65-66	175.5	178.4	0.984	369.2	353.3	0.957
66-67	193.8	206.3	0.939	423.2	N.A.	
67-68	219.3	248.7	0.882	489.1	432.9	0.869
68-69	229.2	242.4	0.946	4·7.7	433.1	0.888

* Private consumption expenditure at current market prices in Rs 4bja

**Per capita private consumption expenditure at current prices in Rs

Sources: 1) M. Mukerjee and G.S. Chatterjee (1972): "On the validity of NSS Estimates of Consumption Expenditure", Artha Vijnana, Vol.14, June 1972; Reprinted in T.N. Srinivasan and P.K. Bardhan, ed., (1974): "Poverty and Income Distribution in India".

2) T.N. Srinivasan, P.N. Radhakrishnan and A. Vaidyanathan (1974): "Data on distribution of Consumption expenditure in India: An Evaluation", in Srinivasan and Bardhan (op.cit).

TABLE 4

Per capita Consumption of Foodgrains According to
Food Balance Sheets and NSS Data (K/Year)

Based on Food Balance Sheets		Based on N S S Data	
1960-62	168.0	1961-62	220.7
1970-72	169.4	1972-73	186.4
1975-77	158.9	1973-74	185.3

Source: J.S. Sharma and Shyamal Roy (1979): "Behaviour of
Foodgrain Production and Consumption in India,
1960-77", World Bank Staff Working Paper No.339.

TABLE 5

Retail-Farm Spread of Rice Price in Selected States in India

State	Quarter		Average Price Spread $\left(\dfrac{\text{Retail Price-Farm Price} \times 100}{\text{Farm Price}}\right)$	
			1960–61 to 1965–66	1966–67 to 1973
Andhra Pradesh	I		15	18
	II		17	19
	III		23	25
	IV		24	31
		Average	19.75	23.25
Bihar	I		15	15
	II		23	22
	III		35	36
	IV		24	25
		Average	24.25	24.50
Karnataka	I		14	14
	II		20	16
	III		32	26
	IV		26	23
		Average	?12.00	19.75
Orissa	I		14	15
	II		21	31
	III		22	47
	IV		20	33
		Average	19.25	31.5
Tamil Nadu	I		18	19
	II		20	21
	III		22	22
	IV		22	23
		Average	20.50	21.25
West Bengal	I		27	30
	II		22	28
	III		31	34
	IV		30	33
		Average	27.50	31.25

Note: Quarter I : January to March
      Quarter II : April to June
      Quarter III : July to September
      Quarter IV : October to December

Source: P.K. Joshi and V.K. Sharma (1979): "Retail Farm Price Spread of Rice in Selected States of India", Indian Journal of Agricultural Economics, Vol. XXXIV, No.4, October-December 1979, p 133, Table 1.

TABLE 6

Elasticities of Retail Farm Price Ratio ($C_{PR/PF}$) with respect to Population, Per Capita Income, Price of the Substitute and Production of Rice in Selected States of India.

State	Population (P)	Per Capita Income (I)	Price of Substitute (P_S)	Production (O)
Andhra Pradesh	1.4692	0.7849	0.0353	-0.0054
Bihar	0.1951	0.2441	0.0671	-0.4388
Karnataka	0.2406	1.1003	-0.0863	-0.4437
Orissa	2.2398	0.9730	0.3570	-0.1358
Tamil Nadu	0.2290	0.1143	0.0904	-0.6918
West Bengal	1.3874	1.2477	0.3109	-0.1853

Source. Joshi and Sharma (ibid)

TABLE 7

Rates of Growth of Population, Per capita Income and
Rice Production and Retail Farm Price Spread,
1960-61 to 1964-65

(% per annum)

	Population (G_P)	Per Capita Income (G_I)	Rice Production (G_0)	Retail-Farm Price Spread $(G_{PR/PF})$
Andhra Pradesh	1.89	9.38	3.49	10.12
Bihar	1.84	8.14	2.11	1.43
Karnataka	2.30	7.53	7.30	5.60
Orissa	2.46	12.28	6.45	16.58
Tamil Nadu	2.23	3.76	3.31	-1.35
West Bengal	2.51	6.95	2.21	11.74

Note: 1) The growth rates of population, per capita income and rice
production are averages of annual growth rates.

2) The per capita income growth rates here refer to growth
rates of per capita income at current prices. This is so
because the price elasticities in Table 6 are elasticities
of absolute prices.

3) The growth rate of retail farm price spread has been
computed by the following formula:

$$G_{PR/PF} = G_P \cdot e_{PR/PF}/P + G_I \cdot e_{PR/PF}/I + G_0 \cdot e_{PR/PF}/0$$

where $e_{PR/PF}/X$ represents the elasticity of the retail
farm price spread with respect to the relevant variable, 'X'.

Sources: 1) Reserve Bank of India Bulletin, April 1978, p 288.

2) Estimates of Area, Production and Yield, Directorate of
Economics and Statistics.

3) Table 6 above.

References

Mody, A.	(1979 a) unpublished	"Resource flows between Agriculture and Non-Agriculture - with Special Reference to India since Independence", (M.Phil. thesis, submitted to the Jawaharlal Nehru University.
Mody, A	(1979 b)	"Resource Flows between Agriculture and Non-Agriculture: Critique of an Estimate", <u>Indian Journal of Agricultural Economics</u>, October-December 1979, Vol XXXIV, No.4
Mundle, S	(1975)	"Inter-sectoral Flow of Consumer Goods: Some Preliminary Results", <u>Economic and Political Weekly</u>, Annual No. February 1975.
Mundle, S	(1977)	"Inter-sectoral Resource Flows in Post-colonial India", <u>Indian Economic Review</u>, October 1977.
Mundle, S	(1979)	"Inter-sectoral Resource Transfers: Reply to a Critique, <u>Centre for Development Studies Working Paper No.105.</u>
Radhakrishnan, P.N	(1971)	"Trends in Private Consumption Expenditure: India, 1954-55 to 1968-69", unpublished paper.
Thamarajakshi, R	(1969)	"Inter-sectoral Terms of Trade and the Marketed Surplus of Agricultural Produce", <u>Economic and Political Weekly</u> 23 June 1969.