THE POTENTIAL BENEFITS OF REALLOCATION OF GOVERNMENT SUBSIDIES IN BANGLADESH*

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Abstract: In this study subsidies are treated as both an element of government expenditure and a source of household income. The impacts of reallocating existing subsidy expenditure to selected alternatives are estimated upon factors such as growth, employment, personal saving indirect tax and import using a semi-closed input-output model. The results indicate substantial scope for deriving additional benefits by reallocating the existing subsidies on foreign wage earnings and urban food ration (enjoyed by the richer classes) to fertilizer, foodgrain procurement or rural food rations (enjoyed by the poorer classes). Reallocation of fertilizer or rural food ration subsidies have no benefits. The benefits of reallocation to production activities are higher than for consumption activities.

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INTRODUCTION

The government of Bangladesh has been following World Bank-IMF initiated structural adjustment policies for a long period (see, Matin 1986). For example, the Bangladesh currency has been devalued 19 times during 1974-1988; major industries and financial institutions nationalized in 1972 have been gradually denationalized; subsidies on fertilizer, irrigation and foodgrain rations have been substantially reduced. However, the outcomes of these policies have been poor. Food production has failed to keep pace with population growth; per capita GDP has hardly grown since 1978; income distribution has become more unequal and poverty more widespread; balance of payments deficits have increased, so that dependence on aid has increased.

The main concern of this paper is with the government subsidies which, in the WB-IMF approach, are seen as a source of inefficiency in public sector enterprises, of price distortions, of government budget deficits and of excess demand or overconsumption (see for example, Corbo et al., 1987). Consequently, denationalization and subsidy reduction are routinely recommended for improving efficiency, 'getting prices right', and reducing budget deficits.

In reality, subsidies alone should not be blamed for inefficiency, distortions and deficits, and subsidy reduction as such may not solve these problems.[1] Secular government deficits in a fully monetized economy may indicate the existence of excess demand. Alternatively, however, such deficits (a Keynesian low-level equilibrium) may coexist with widespread underconsumption in a country like Bangladesh where (a) income is very low and highly unequally distributed, (b) a large part of the economy is not yet monetized,[2] (c) there is hoarding, speculative investment, flight of money abroad, (d) substantial public expenditure is directed toward unproductive activities such as expanding the civil and military bureaucracy.

Another aspect of subsidies is that in the WB-IMF approach and studies which follow that approach, subsidisation as a form of government expenditure is emphasized but little attention is given to the income effect on the recipients of subsidies or to the possibility of positive growth effects from income redistribution.[3]

In a situation of widespread poverty and underconsumption such as exists in Bangladesh,[4] reduction of subsidies, particularly those enjoyed by the poorest classes, may further aggravate the problem and retard economic progress from both the supply and demand sides. The progress-retarding effect of poverty may operate from the supply side through reduced ability and incentive to expand production, and from the demand side through reduced market demand for consumption[5] and production goods and for investment opportunities (Myrdal, 1968; Schickele, 1968). Any positive effect

of subsidy reduction on growth and employment through 'price correction' may be more than offset by the negative effects of reduced income and consumption.

On the other hand, the existing pattern of expenditure on subsidies may not be conducive to the general objectives of achieving higher growth and employment. In that case reallocation of subsidies, particularly those enjoyed by the higher income classes to the lower income classes, may result in a more favourable distribution of income which may stimulate long-run growth through increased consumption and investment.[6]

The objective of this study is to assess the likely effects of reallocation of existing subsidies to selected alternatives. The net effect of any reallocation will depend on the types of gainers and losers, and upon changes in consumption and investment. Additional benefits may be derived in the form of increases in GDP, private savings, taxes and employment, and a decrease in imports. If no additional benefits can be derived from reallocation, then the existing pattern of expenditure on subsidies may be said to be effective or efficient.

Any reallocation of subsidies will effectively change the pattern of income distribution. So the consequences of subsidy reallocation i.e., changes in the pattern of public expenditure, may be assumed to be the same as the consequences of changes in income distribution. Under this assumption, a semi-closed input-output model such as that developed by Paukert et al., (1981) for analysing the likely effects of income redistribution will be employed in this study. The model is specified in Section II. The sources and characteristics of the data are described in Section III. The results are presented in Section IV with conclusions at the end.

II. Specification of the Model

The likely effects of income redistribution have been calculated by Paukert et al. (1981) with the help of a semi-closed input-output model of the form:

$$B.Z = D$$

where

B is a partitioned square matrix of model parameters,
Z is a column vector of the endogenous variables, and
D is a column vector of the exogenous variables.

The structure of the B matrix is as follows:

$$B = \begin{bmatrix} I-A & O & -C & O \\ -A'_m & & -C'_m & O \\ O & I & -C'_s & O \\ -A_v & & O & O \\ O & O \quad R & I & O \\ -A'_L & O & O & I \end{bmatrix}$$

where

I = an identity matrix or vector

A = a square matrix of input coefficients for domestically produced inputs

A'_m = a row vector of input coefficients for intermediate imports

A_v = a rectangular matrix of value added coefficients; the last row of this matrix usually contains information on household income which is then linked with the column vector R (income distribution) through the unit scaler in the main diagonal.

A'_L = a row vector of employment coefficients

C = a matrix of the private consumption pattern of domestically produced goods by income/socio-economic classes

C'_m = a row vector of the private consumption pattern of imported goods by income/socio-economic classes

C'_s = a row vector private savings pattern by income/socio-economic classes

R = a column vector of stipulated income distribution by income/socio-economic classes.

Since intermediate deliveries and private consumption have been endogenized in the model, column vector D includes other final uses including public consumption, exports, fixed capital formation and changes in stock. The actual size of the B matrix depends on the number of industries in the input-output table, the number of value added components identified, and the number of income/socio-economic classes used in the analysis.

The stipulated distribution may be purely hypothetical or may result from specific government policy such as reallocation of subsidies and R may be adjusted to examine the effects of policies leading directly to redistribution of income. Naturally any such redistribtuion of income is likely to affect the consumption pattern and savings and through them will affect sectoral and overall production, import and employment. The nature and magnitude of these effects may be estimated in the following ways.

The model solution, i.e., the values of vector Z, may be obtained by simple inversion ($Z = B^{-1}D$) if (i) both production and consumption functions are linear, (ii) the derived demand for capital is automatically adjusted, (iii) there is no balance of payments limitations and (iv) the values of vector D are constant. If the consumption function is non-linear but its parameters are assumed to remain unchanged after marginal redistribution of income, then also the model solution may be obtained by simple inversion. Unchanged parameters of a non-linear consumption function implies that 'each household will consume an amount equal to its previous consumption plus its pre-distribution (*ex ante*) marginal propensity to consume multiplied by its change in income' (Cline, 1972, p.16). However, the effects are not accurately estimated by this procedure if redistribution involves major changes. If the full impact of significant changes in average household income due to redistribution were to be taken into account, and the *ex post* average saving rate is to be used, then the model should be ideally solved by iteration.[7]

In the present study, the general model described above has been applied to quantify the effects of 22 stipulated income distributions resulting from reallocation of different subsidies. Because, as we will show later, redistribution involved only marginal changes, model solutions have been generated by simple inversion. The sources and characteristics of the data used in the model are described in Section III.

III. Sources and Characteristics of Data

Most of the coefficients of the partitioned square matrix B and the values of column vector D have been derived from a social accounting matrix (SAM) prepared for 1984/85 by the Centre for World Food Studies (SOW, 1985). The main advantage of using information from a SAM is that it provides an internally consistent set of data, i.e., the receipts and expenses (row and corresponding column totals of the matrix) are always equal. Moreover, the SAM has been constructed by reconciling and rationalizing data from various sources including the Bangladesh Bureau of Statistics, the Bangladesh Planning Commission, the Bangladesh Bank, the World Bank and the FAO; therefore as a data set this is likely to be more reliable than any single source.

Input-Output Table

Thirty nine commodities or production sectors have been identified in the SAM. In the I-O table of this study, the banking sector has been grouped with transport and trade to leave 38 sectors. The SAM shows figures for total imports for each sector. But, in order to allocate these imports to sectors and to derive the coefficients of row vector A_m, i.e., imported intermediate goods, a simplifying assumption was made. For example, in allocating any imported commodity, say, fertilizer, to various fertilizer using sector, it has been assumed that a particular sector's share of imported total fertilizer is the same as its share in total fertilizer use.

Household Classes and Income

As in the original SAM, households have been divided into ten socio-economic classes on the basis of main economic activity (farm, non-farm) and location (urban, rural) and further according to land ownership/income in 1976/77. Per capita income, share of population and household income enjoyed by various classes are shown in Table 1.

The household classification adopted here shows less between-class differences in per capita income than it would if the households were classified according to income deciles. For example, in 1981/82, the lowest and the highest deciles earned respectively 2.76 per cent and 29.53 per cent of total income; the top 5 per cent earned 18.95 per cent of total income (GOB 1986a, p.20).

Household income includes value added from production, subsidies and government transfers, and remittances from abroad.

Subsidies are given on fertilizers, wages earned abroad and foodgrains.[8] The fertilizers subsidy is the simplest of these subsidies and arises from the fact that the sale price is below the costs of production or import plus wholesale distribution. The subsidy in the wage earners schemes, is generated by the fact that the government encourages remittance of wages from abroad by offering a higher exchange rate in local currency than is available at the normal official exchange rate, thus increasing government expenditure in the manner of a subsidy.[9]

Food subsidies are more complex and operate through the public foodgrain distribution system which sells wheat and rice, and some amount of sugar and edible oil, at lower than the open market prices. There are several systems of sales and several categories of beneficiaries (for details see, Overbosch, 1982). However, these have all been amalgamated into only two main categories:

(a) *Committed rations* which are extended to people living in the cities of Dhaka, Narayangonj, Chittagong, Khulna, Rajshahi, and Rangamati;

to priority groups, e.g., members of the armed forces, civil service, police and inmates of hospitals and jails and to employees of large establishments outside the above cities. Recipients in this category are issued ration cards which allow them to buy periodically a specific volume of wheat, rice, edible oil and sugar at a ration price.

Table 1.
DISTRIBUTION OF POPULATION AND INCOME AMONG SOCIO-ECONOMIC CLASSES, 1984/85

Class	*Per caput Income, TK*[a]	*% Population*[b]	*% Household Income*
1. Landless Labourers	2245	20.05	13.38
2. Small Farmers (0-1.5 acres)	2582	11.50	8.83
3. Medium Farmers (Tenants) (1.5-5 acres)	2940	11.94	10.43
4. Medium Farmers (Owners) (1.5-5 acres)	3367	12.99	13.00
5. Large Farmers (5-10 acres)	4103	10.18	12.41
6. Largest Farmers (over 10 acres)	5952	4.19	7.42
7. Rural Informal[c]	2413	10.51	7.54
8. Rural Formal	5445	7.01	11.35
9. Urban Informal	2783	6.99	5.78
10. Urban Formal	7147	4.64	9.86
All Classes	3364	100.00	100.00

a US$1 = TK 26
b Total population 100.41 million
c For detailed definition of rural and urban formal and informal classes, See Jabbar and Colman, 1988.
Source: SOW (1985).

(b) *Flexibile rations* which include wages paid in kind (mainly wheat) to labourers under the Food for Works programme through which rural roads, canals, dikes, and culverts are constructed; relief and temporary rations given to the poorest and vulnerable groups particularly during/after natural calamities, e.g., floods, cyclones; sales to flour mills for milling and distribution to bakeries; open market sales performed occasionally in order to stop market prices from rising too far.

The foodgrains distributed through the ration system are mainly supplied through international food aid and imports. A small amount is also purchased domestically under the foodgrain procurement scheme whereby wheat and rice are bought at harvest times at a support price. The procurement volumes have always been modest partly because of limited handling capacity and partly because of lack of government interest in the programme (for evidence, see Navin, 1987). Consequently, the volume of subsidy on this account has been small.

Distribution of different subsidies among socio-economic classes and the relative importance of subsidy in household income are shown in Table 2. It appears that all the socio-economic classes enjoy subsidy in one or more forms but overall, the largest shares are enjoyed by the rural formal, landless, and urban formal classes. So the share of household income of each class will be affected differently if any of these subsidies is withdrawn or reallocated to a different head.

Private Consumption and Saving

In the SAM, the volumes of private consumption and saving by socio-economic classes were estimated by assuming that consumption followed an expenditure system in which the volume of consumption of commodity i by class j was a function of total consumption expenditure and prices, and gross savings equalled income minus consumption expenditure. Then a non-linear consumer demand system was specified first for four commodity groups (foodgrains, livestock, other food and non-agriculture), then for individual commodities in each group. The parameters of the specified equations were estimated by combining time-series data for 1966-80 with the Household Expenditure Survey data for 1976/77, and using Full-information Maximum Likelihood estimates. These estimates were then used to estimate the volume of class-specific consumption of different commodities (for details see, Kennes, 1984).

In the present study, a distinction was made between domestic and imported consumption. In deriving the coefficients of row vector C_m, i.e., imported consumption, some simplifying assumptions were made. For

Table 2.

DISTRIBUTION OF VARIOUS SUBSIDIES AMONG SOCIO-ECONOMIC CLASSES, AND SHARE OF SUBSIDY IN CLASS-SPECIFIC INCOME, 1984/85

CLASSES	*TYPES OF SUBSIDY*					
	FLEXIBLE FOOD RATION	*COMMITTED FOOD RATION*	*FERTILIZERS*	*PROCUREMENT OF FOODGRAIN*	*WAGES EARNED ABROAD*	*ALL TYPES*
	% OF SUBSIDY SHARED BY EACH CLASS					
Landless	63.52	–	–	–	–	20.1
Small Farmers	4.15	–	7.68	–	–	2.5
Medium Farmers (tenants)	2.07	–	20.93	6.82	–	3.9
Medium Farmers (owners)	2.33	–	21.97	4.31	–	4.2
Large Farmers	–	–	28.48	40.22	–	4.5
Largest Farmers	–	–	20.95	48.47	–	3.3
Rural Informal	26.11	–	–	–	10.07	11.4
Rural Formal	–	37.80	–	–	58.23	26.4
Urban Informal	1.81	23.01	–	–	3.36	6.5
Urban Formal	–	39.19	–	–	28.34	17.2
All Classes	100.00	100.00	100.00	100.00	100.00	100.00
	% SHARE OF SUBSIDY IN CLASS-SPECIFIC HOUSEHOLD INCOME					
Landless	2.47	–	–	–	–	2.47
Small Farmers	0.24	–	0.22	–	–	0.46
Medium Farmers (tenants)	0.10	–	0.52	0.0010	–	0.621
Medium Farmers (owners)	0.09	–	0.44	0.0005	–	0.53
Large Farmers	–	–	0.59	0.0053	–	0.595
Largest Farmers	–	–	0.73	0.0108	–	0.74
Rural Informal	1.80	–	–	–	0.70	2.50
Rural Formal	–	1.16	–	–	2.68	3.84
Urban Informal	0.16	1.38	–	–	0.30	1.84
Urban Formal	–	1.38	–	–	1.50	2.88
All Classes	0.52	0.35	0.26	0.002	0.52	1.652

Source: SOW 1985.

example, in allocating imported foodgrains among socio-economic classes, it has been assumed that the import content followed the same pattern as the distribution of the foodgrain ration; it has been assumed that imported sugar has been consumed by the urban formal and informal, and the rural formal classes in proportion to their total consumption of sugar.

The class-specific consumption pattern shows that the urban formal, urban informal, rural formal and landless groups respectively spent 26.51, 26.24, 13.94, and 9.39 per cent of their respective income on imported goods. The import content of consumption of the other classes are significantly smaller. Imported food distributed through the ration system has contributed a great deal to this pattern. The lowest income classes also consume a higher proportion of imported second-hand clothing.

The overall gross saving rate was 11.92 per cent of which 1.10 per cent was paid as direct tax, 7.01 per cent was invested by the income classes and the remaining 3.81 per cent was lent to the government. It may be mentioned here that 6.4 times as much government revenue was derived from indirect as from direct taxes.

Stipulated Expenditure Options and Income Distributions

In this study, 22 expenditure options involving reallocation of different subsidies have been considered (Table 3). Each option involved redistribution of less than one per cent of household income. Two or three alternatives have been considered for reallocation of each existing subsidy. In the case of reallocation of any subsidy from one item to another, it has been assumed that the benefits of reallocation will be enjoyed by the relevant classes in the same ratio as they are enjoying the existing subsidy on the relevant item. For example, stipulated expenditure option 51 implies that five farming classes enjoying a fertilizer subsidy will lose while four classes enjoying a procurement subsidy will gain additional benefits in the same proportion as they enjoyed the procurement subsidy before reallocation.

Each expenditure option will result in an income distribution which is different from the existing one. But these stipulated income redistributions can not be arranged in any order (say, progressive redistribution) because they do not necessarily involve income transfer from the richest to the poorest classes. Reading Tables 2 and 3 together will reveal that some expenditure options result in income transfer from urban to rural, or rural to rural, or rich to poor, or more rich to less rich classes.

IV. Results and Discussion

The solution vector Z contains values for all items corresponding to the rows in matrix B. However, in this article the discussion is focussed on five

Table 3.
STIPULATED EXPENDITURE OPTIONS AND RESULTING INCOME DISTRIBUTIONS

DISTRIBUTION CODE	*EXPENDITURE OPTION*
11	WESS reallocated to fertilizer
12	WESS reallocated to foodgrain procurement
13	WESS reallocated to flexible ration of foodgrain
21	CRS reallocated to fertilizer
22	CRS reallocated to foodgrain procurement
23	CRS reallocated to flexible ration of foodgrain
31	FRS reallocated to fertilizer
32	FRS reallocated to foodgrain procurement
33	FRS reallocated to committed ration
41	Foodgrain ration (all) reallocated to fertilizer
42	Foodgrain ration (all) reallocated to foodgrain procurement
51	FS reallocated to foodgrain procurement
52	FS reallocated to foodgrain ration
53	FS reallocated to flexible ration
61	WESS and CRS reallocated to fertilizer
62	WESS and CRS reallocated to foodgrain procurement
63	WESS and CRS reallocated to flexible ration
71	CRS and FS reallocated to foodgrain procurement
72	CRS and FS reallocated to flexible ration
81	WESS and FS reallocated to procurement of foodgrain
82	WESS and FS reallocated to foodgrain ration
83	WESS and FS reallocated to flexible ration

WESS Wage Earners' Scheme Subsidy
CRS Committed Ration Subsidy
FRS Flexible Ration Subsidy
FS Fertilizer Subsidy

indicators of the macro-economy, viz, GDP, personal savings, indirect taxes, imports and employment. Two sets of results are presented for the selected expenditure/income distribution options. First, percentage changes in the five selected indicators are presented (Table 4). These percentages are related to different bases, i.e., they have resulted from reallocation of different amounts of income (subsidies). So the outcomes of different options cannot be accurately compared. In order to make them directly comparable, all the outcomes have been expressed on a per 100 taka basis, i.e.,

$$C_{ij} = \frac{E_{ij}}{S_j} \times 100$$

where i = the indicator (GDP, savings etc.)
j = the expenditure/income distribution option
C = change per 100 Taka
E = change from the original level
S = amount of income (subsidy) reallocated.

In reality, C may be interpretated as a vector of incremental rates of growth, saving, tax, import and employment. These are shown in Table 5.

The results of reallocation presented in Tables 4 and 5 show three general features:

(a) Reallocation of the flexible ration subsidy to fertilizer, foodgrain procurement and committed ration (options 31-33) and the fertilizer subsidy to foodgrain procurement, foodgrain ration and flexible ration (options 51-53) generally produces negative results though in some cases (options 31, 32, 51) effects on net savings, import and employment are marginally positive. All the reallocation options under these two categories create progressively more unequal distributions of income because income is transferred from poorer to richer classes. Thus it appears that, while income redistribution in favour of the rich may increase savings (a generally held contention in the literature on the relationship between income distribution and saving), such saving may not automatically increase output and/or employment.

(b) Reallocation of wage earners' scheme subsidy to fertilizer, foodgrain procurement and flexible ration (options 11-13), the committed ration subsidy to fertilizer, foodgrain procurement and flexible ration (options 21-23) and all ration subsidies to fertilizer and foodgrain procurement (options 41-42) bring substantial additional benefits in terms of increased output and employment, some options also reduce imports and increase net savings (private savings + indirect taxes). All these reallocation options create a slightly more equal distribution of income than the existing one. Reallocation of all these three subsidies to foodgrain procurement (options 12, 22, 42) produces more favourable

Table 4.

PERCENTAGE CHANGES IN SELECTED MACROECONOMIC INDICATORS AS A RESULT OF REALLOCATION OF DIFFERENT SUBSIDIES

EXPENDITURE OPTIONS	*GDP*	*PERSONAL SAVINGS*	*INDIRECT TAX*	*IMPORT*	*EMPLOYMENT*
11	0.43	−0.18	0.36	−0.02	0.52
12	0.36	0.13	0.31	−0.07	0.44
13	0.44	−0.37	0.35	0.15	0.52
21	0.37	−0.06	0.31	−0.04	0.45
22	2.81	4.46	2.08	2.59	2.90
23	0.37	−0.20	0.30	0.08	0.45
31	0.00	0.18	0.01	−0.17	0.07
32	−0.08	0.50	−0.04	−0.22	−0.01
33	−1.05	−0.62	−0.81	−0.67	−1.01
41	0.37	0.12	0.32	−0.21	0.45
42	0.24	0.66	0.23	−0.30	0.32
51	−0.04	0.16	−0.02	−0.02	0.03
52	−0.10	−0.05	−0.09	0.07	−0.04
53	0.00	−0.09	−0.01	0.08	0.06
61	0.82	−0.26	0.68	−0.06	0.92
62	0.69	0.27	0.59	−0.15	0.78
63	0.82	−0.56	0.67	0.22	0.92
71	0.28	0.30	0.25	−0.10	0.36
72	0.38	−0.30	0.30	0.16	0.46
81	0.34	0.28	0.30	−0.10	0.41
82	0.14	−0.29	0.10	0.17	0.20
83	0.46	−0.46	0.37	0.24	0.54

Table 5.

CHANGES IN SELECTED MACROECONOMIC INDICATORS PER 100 TAKA REALLOCATION OF DIFFERENT SUBSIDIES

EXPENDITURE OPTIONS	*GDP*	*PERSONAL SAVINGS*	*INDIRECT TAX*	*IMPORT*	*EMPLOYMENT (MAN-DAYS)*
11	67.04	-2.65	1.84	-0.62	1.48
12	55.76	2.01	1.58	-2.27	1.26
13	67.49	-5.57	1.79	4.88	1.48
21	85.92	-1.25	2.36	-1.89	1.94
22	649.84	100.84	15.79	126.04	12.43
23	85.76	-4.57	2.30	3.67	1.93
31	-0.07	2.76	0.06	5.37	0.19
32	-11.59	7.52	-0.20	-7.05	-0.03
33	-162.85	-9.45	-4.13	-21.66	-2.91
41	33.82	1.09	0.97	-4.10	0.77
42	22.13	6.02	0.71	-5.81	0.55
51	-11.26	5.01	-0.25	-1.63	0.16
52	-30.54	-1.56	-0.89	4.35	-0.22
53	0.32	-2.90	-0.06	5.54	0.37
61	75.81	-2.33	2.08	-1.11	1.58
62	63.70	2.46	1.81	-2.87	1.34
63	76.30	-5.05	2.04	4.27	1.58
71	37.19	3.93	1.09	-2.86	0.88
72	50.21	-3.87	1.32	4.46	1.12
81	34.79	2.84	1.01	-2.11	0.79
82	14.02	-2.98	0.34	3.77	0.39
83	47.79	-4.69	1.25	5.11	1.04

results when the effect on all the five indicators are considered together; this may be assumed to arise because most food is procured from larger farmers who because of higher saving rates convert more of the subsidy into investment and growth. Reallocation of these subsidies to fertilizer or flexible rations produce similar effects on output and employment but the effect on net saving is slightly unfavourable in the case of reallocation to flexible rations. Thus, it appears that reallocation of income in favour of the less rich and poor classes produces significant additional benefits and that reallocation to production activities (fertilizer and foodgrain procurement) is likely to produce more overall benefits than reallocation to consumption subsidy enjoyed by the poorest classes.

This conclusion is further supported by the estimated effects of reallocation on sectoral output. Production of food, clothing and other necessities declines significantly when subsidies enjoyed by the poorer classes are reallocated to the richer classes (options 31-33, for example) and the opposite happens when subsidies enjoyed by the richer classes are reallocated to poorer classes, particularly to production activities.

(c) Reallocation from richest to the less rich and poorer classes (options 13, 21, 23, 61, 63, 72, 83) reduce personal savings but increase GDP and employment. This reflects a phenomenon which was implicit in a hypothesis postulated by Furtado (1965) who argued that in economies suffering from stagnation and lack of consumer demand, income redistribution would stimulate long-run growth because consumption would increase and buoy up investment. Cline (1972) rejected Furtado's hypothesis of 'underconsumption' in the Latin American context mainly on the grounds that (a) acceptance of the hypothesis would mean that 'the negative savings effect of income redistribution becomes a stimulus rather than a hindrance to growth', and (b) Latin American countries were characterized by government deficits, rapid expansion of the money supply and inflation, and these characteristics would make a 'lack of demand' highly improbable, (c) hoarding and leakage through speculative investment was unrealistic in the face of rapid inflation.

In Section 1, we explained why secular government deficits and widespread underconsumption might coexist in the Bangladesh context. Moreover, the apparent contradiction between positive growth and negative saving may be explained by two other characteristics: (i) the expenditure options which involve increased GDP and decreased personal savings also entail increased imports and indirect taxes, so that the net negative effect on saving is smaller than that indicated by personal savings alone; (ii) in this model, no restrictions were imposed on imports, balance of payments and

capital; rather, derived demand for capital was assumed to be automatically adjusted. If these restrictions were imposed, the results might have been different, but the general trend would remain unchanged.

The results described above indicate that the prevailing 'under-consumption' in the country may be transformed into a stimulus for growth and employment through redistribution of income in general, and subsidies in particular. In the exercises presented, the impact of full reallocation of a particular subsidy has been measured. For practical purposes, any reallocation may be done step by step.

V. Summary and Conclusions

The government of Bangladesh for a long time has followed structural adjustment policies initiated by the World Bank and the IMF but with poor results. An important policy has been to reduce production and consumption subsidies in order to 'get prices right', reduce budget deficit and remove 'excess demand'. The contention of this paper is that subsidies alone should not be blamed for the government deficit, a deficit as such does not indicate the existence of excess demand; rather a budget deficit and underconsumption can coexist in the specific conditions of Bangladesh. Moreover, subsidies are a government expenditure as well as a source of household income. Thus in a situation of widespread poverty and underconsumption, any positive effect of subsidy reduction through 'price correction' may be more than offset by negative effects on income and consumption. On the other hand, substantial gains may be derived by reallocating existing subsidies, particularly those enjoyed by the rich to those enjoyed by the poor.

These contentions were tested by measuring the likely consequences of reallocating expenditure on existing subsidies to different alternatives (22 options). Reallocation of subsidies effectively changes the patterns of income distribution, so a semi-closed input-output model capable of measuring the consequences of income redistribution has been used. Data has been derived from a social accounting matrix prepared for 1984/85 by the Centre for World Food Studies, Amsterdam, with modifications wherever needed.

The results indicate substantial scope for deriving additional gains by reallocating the existing subsidies on wages earned abroad and committed rations (enjoyed by the richer classes) to fertilizer, foodgrain procurement or flexible rations (enjoyed by the less rich and poorest classes). Reallocation of fertilizer or flexible ration subsidies appears to have no benefits. The gains appear to be higher when reallocation is done in favour of production rather than consumption activities. Income distribution in favour of the poorest classes generate smaller increases in output, partly because of the higher food

import content in their consumption and partly because of the net negative effect on saving.

The outcome of each expenditure/income distribution option depends on two sets of factors: the types of gainers and losers, and changes in private consumption and inter-industry purchases. Further, the outcomes are subject to the assumption that exports, public consumption and stocks remain unchanged at the base levels. If any of these is allowed to vary or if imports are restricted and domestic production is encouraged to match changed demand after income redistribution, then the magnitude of the results may be somewhat different.

Redistribution of income means making someone poorer in order to make someone else richer. Such reallocative measures may be practically difficult to implement, whether done through redistribution of an income generating asset, such as land, or through direct transfer of income, such as reallocation of subsidies. However, such difficulties have to be overcome if the problems of poverty and unemployment are to be solved. At the very least, measures may be taken to increase production and consumption subsidies that benefit the poor or 'channel additional investments into products that benefit the poor, making them more efficient as producers and better customers as consumers. This requires that additional income is being channelled to low-income groups at a relatively higher rate than to high income groups' (Schickele, 1968, p.48).

The solution to the problem of budget deficit should be sought not only in reducing government subsidies but also elsewhere in taxes and other revenue raising and expenditure saving measures.

NOTES

1. In Bangladesh, denationalisation has neither improved efficiency in all cases nor could the industries concerned survive without government subsidies.
2. In 1984/85, gross marketable surpluses for rice, wheat, pulses, potato and oilseeds were estimated respectively as 38.7, 62.9, 54.1, 38.5 and 72.5 per cent of production (GOB, 1986c).
3. A large part of the subsidy is government expenditure only in the accounting sense. Commodities received as grant aid, for example food under US PL480, is sold in the local market at lower than market price, so a subsidy is given but it is also a source of government revenue. A reduction of such subsidy increases government revenue but decreases household income. So a government disinterested in taxing the rich may find (accounting) subsidy reduction as an easy means of raising revenue.

4. The 1981/82 Household Expenditure Survey showed that 73 per cent of the population consumed below the average requirement of 2200 kcals, 45 per cent consumed below 1800 kcals, and 30 per cent consumed less than 1600 kcals (GOB, 1986a).

5. Price and income elasticities of demand for both food and non-food commodities are quite high. For example, income elasticities for rice, poultry and fish are 0.35, 2.05 and 1.20 (SOW, 1985).

6. For various hypotheses about the effects of progressive income redistribution on consumption, saving, growth and employment, see among others, Furtado (1965), Cline (1972), Sinha et al. (1979), Paukert et al. (1981). For a critical review of the studies on the consequences of income redistribution, see Colman and Nixson (1985).

7. Cline (1972, p.16-17) has shown that with non-linear consumption functions, aggregate savings decline after progressive redistribution but the extent of decline is greater when the *ex ante* MPC approach is used than when the *ex post* average saving rate is used. Paukert et al. (1981) used both simple and iterative procedures for estimating impacts of progressive redistribution in four countries. They found that the simple version gave higher values but they were not significantly higher even when the stipulated income distribution was much more equal than the original distribution.

8. In the SAM, subsidies given to the jute textile industry have been treated as negative indirect taxes and those given on irrigation equipment have been ignored.

9. For 1984/85 it is estimated that around 85 per cent of remittances were exchanged at the special higher official rate, the remaining 15 per cent being sold through auction and the black market. In the SAM this 15 per cent of remittances is treated as inter-class payments.

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