Import Substitution in Bangladesh : Some Evidence

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1. Introduction

At the time of independence in 1947, Bangladesh (erstwhile East Pakistan) had a large agricultural sector and a very small industrial sector. In 1949-50 the agricultural sector contributed about 65.3 per cent to GDP while the contribution of the manufacturing sector to GDP was only 3.0 per cent [Alamgir and Berlage, 1974, p. 170]. Then the Pakistan government adopted industrialization as one of the main strategies of development. The first industrial policy of Pakistan was announced in 1948 stating the objectives and priorities of the industrial development. It was effective until the end of 1958 with modifications from time to time. Another industrial policy was issued in February 1959 which was effective throughout the pre-liberation period.

The major objectives of the industrial policy of 1959 were (i) use of indigenous raw materials, (ii) ability to earn or save foreign exchange, (iii) speeding up of further production of relativey more essential goods [SFYP[1], 1960 pp. 221-223]. Agencies such as East Pakistan Industrial Development Corporation (EPIDC), East Pakistan Small Industries Corporation (EPSIC),

Investment Promotion Bureau (IPB), Industrial Development Bank of Pakistan (IDBP), Pakistan Industrial Credit and Investment Corporation (PICIC), and Department of Industries in East Pakistan were made responsible for supervision as well as for undertaking and managing a wide range of industrial enterprises except those reserved for state management.[2] The private sector was given a fiexible role to operate within the framework of development plans and the Industrial Investment Schedules. The private sector industries were provided various incentives such as tax-holidays, accelerated depreciation allowances, exemption of the reinvested profits from both corporation and personal income taxes, heavy protection in the form of under pricing of industrial inputs and machineries and over pricing of industrial output (in terms of domestic currency) through the import licensing system and the Export Bonus Schemes (EBS). The export-oriented industries were also exempted from domestic sales and excise taxes, and enjoyed income tax rebates on the proportion of income earned from exports and other export promotional measures [Lewis, 1970]. Since Bangladesh was one of the less developed regions in Pakistan, additional incentives were given to those investing in the manufacturing sector of this region. Generally, the identifiable feature of Bangladesh industrialization was the goal of import substitution in the pre-liberation period. Only in 1966-67 and 1967-68 the investment schedule for the private sector was revised with a greater emphasis on the export -oriented industries and less on import substitution,

In order to incorporate the bias towards the export -oriented industries the applications seeking permission from the Department of Industries for them were processed and scrutinized less rigorously than those for import substitution industries [Islam, 1981 p, 143]. In addition, foreign private investment was also encouraged in the domestic market oriented induitries.

Immediately after liberation, the government of Bangladesh nationalized a number of large scale industries and had to undertake management of industrial units deserted by the West Pakistani entrepreneurs. As a result, in 1972-73 about 90 per cent of the modern industrial sector was brought under the control and ownership of the public sector [Ahmad, 1978, p. 403]. Almost all the nationalized industries with the exception of jute were essentially domestic market oriented.[3] Since the ruling polititical party, Awami League, was constitutionally committed to establish socialism, the industrial policies of June 1972 and June 1974 were against the expansion of the private sector. The industrial policy of December 1975, revised by the then military government attached a greater role to the private sector's participation in industrization and encouraged private investors to invest in the import substituting and export-oriented industeies through providing various incentives. It also attracted foreign private investment towards export-oriented industries compared to the pre-liberation period.

of the post-liberation period were (i) utilization of indigenous resources, (ii) expansion and diversification of exports and (iii) the setting up of import subs-

tituting industries for balance of payments supports [FFYP,[4] 1973, pp. 208-209 and TYP,[5] 1978, pp. 154-156]. The public sector investment in the industrial sector was directed towards 'balancing, modernization, and replacement (BMR), of the existing units, completion of on-going projects in some industries such as sugar, jute manufactures, paper and paper board, engineering, shipbuilding, etc. and creation of new capacity in industries such as food and allied products, textiles, chemicals, petro-chemicals, minerals, iron and steel, etc. Thus the industrialization of Bangladesh in the post-liberation period was mainly concentrated in import substitution with a very little expansion of export capabilities.

Even though in 1947 agriculture contributed more than 60 per cent of GDP, Bengladesh was the food deficit province of Pakistan. A portion of food imports in Bangladesh came from West Pakistan without any payment in foreign exchange and the rest was purchased from abroad with foreign exchange. In the post liberation period, Bangladesh had a larger deficit in food relative to the pre-liberation period because firstly, it had a larger population, secondly the growth of agriculture was less than the population growth, and thirdly, imports of foodgrains from West Pakistan without payment in foreign exchange was stopped. Because of increasing food-deficit in Bangladesh, achievement of self-sufficiency in foodgrain production was one of the aims of the Bangladesh development plans throughout the pre and post-liberation periods [SFYP, 1960, p. 127 and FFYP, 1973, p. 87]. The

government undertook various policies such as more liberal taxes on agricultural incomes relative to other incomes, subsidies on agricultural extension services, irrigation, seeds, pesticides and fertilizers, rural credit at low interest rates from the financial institutions, etc. to attain this objective in the agricultural sector.

However, one of the main objectives of the industrial policies in Bangladesh was import substitution with little emphasis on export promotion. Of course, more importance was attached to the export oriented industries in the post-liberation period compared to the pre-liberation period. Furthermore, self-sufficiency in foodgrains through import substitution was another objective of the agricultural development.

Since import substitution was the policy for both the agriculural snd industrial development of Bangladesh during the sixties and seventies,[6] it is, therefore, worthwhile to examine two questions. Firstly, has import substitution took place in the agricultural and industrial products in Bangladesh? Secondly, if so, what is the extent of such import substitution? Our present study deals with the first question only due to paucity of resources and time.

We have discussed the formula for measurement of import substitution in Section II. The commodities, both agricultural and industrial, are classified into three groups: (i) consumer goods, (ii) raw materials and intermediate goods (in short, intermediate goods,) and (iii) capital goods. We have examined whether import subtitution took place in these three groups of commodities in Section III-V. Finally, some conclusions are

drawn in Section VI.

II. Measurement of Import Substitution

Basically there are two alternative types of measurement of import substitution : (i) those refer to some notion of optimality and (ii) those are purely descriptive of changes in the actual pattern of imports, exports and domestic production regardless of any refernce to whether actual situation is optimal or not.[7]

Apparently the first type of measurement of import substitution follows naturally from the application of trade-theoretic welfare economics to policy problems involving choice between domestic production and imports. But with these measurement criteria it is possible for the import-availability[8] ratio to be the same in both the sub-optimal and optimal situations. As a result, it is quite possible that each of these measurement formula may show zero import substitution suggesting optimality when the actual situation is, in fact, sub-optimal. This is because, both production and consumption may change, as a result of distorting policies, to sub-optimal levels while the joint effect of these changes on the import-availability ratio is neutralized. This underlies the fact that any measurement formulae describing any shorthand description of departures from optimality, which falls short of detailing the sub-optimal levels of production and consumption (and hence imports) is bound to be unsatisfactory and misleading.

Given the difficulties with the first type of measurement formula it is better to use the second type of measurement formula to measure the import substitution.

The second type of measurement formula are of purely statistical description of actual situations. Even if these measurement formula are based on the assumption of balanced growth of imports and production, they are capable of describing the actual situations when production and imports grow in an unbalanced way.[9]

One in the second type of measurement formula is called actual measurement. It measures import substitution through comparison of actual situations taking the difference between the directly observed import-availability ratios in the two sub-periods. In measuring the import substitution, one can take either the absolute change or the percentage change of the ratios. If M_1 and S_1 are the imports and total supplies during the period 1, and M_2 and S_2 are the imports and total supplies during the period 2, the actual measurement of import substitution is

$$\frac{M_2}{S_2} - \frac{M_1}{S_1} \tag{2.1}$$

and in percentage terms, it is

$$\left(\frac{M_2}{S_2} - \frac{M_1}{S_1}\right) \Big/ \frac{M_1}{S_1} \tag{2.2}$$

Noting that $S_1 = Q_1 + M_1$ and $S_2 = Q_2 + M_2$ where Q = domestic Production & M = total imports, for zero import substitution, the following equality holds

$$\frac{M_2}{Q_2 + M_2} = \frac{M_1}{Q_1 + M_1}$$

$$\text{or} \qquad \frac{Q_2 + M_2}{M_2} = \frac{Q_1 + M_1}{M_1}$$

$$\text{or} \qquad \frac{Q_2}{M_2} = \frac{Q_1}{M_1}$$

$$\text{or} \qquad \frac{Q_2}{Q_2 + M_2} = \frac{Q_1}{Q_1 + M_1}$$

$$\text{or} \qquad \frac{Q_2}{S_2} = \frac{Q_1}{S_1}$$

$$\frac{Q_2}{S_2} - \frac{Q_1}{S_1} \begin{matrix} > \\ = \\ < \end{matrix} O \qquad (2.3)$$

which will indicate the positive, zero and negative import substitution.

Chenery [1960] indirectly measured import substitution by takine the departure from the initial period's import-availability ratio. Accordingly he defined it as the 'difference between growth in output with no change in import-ratio and the actual growth' [Chenery, 1960 p. 27]. Thus consider the basic identity :

$$Q + M = R + D + E \qquad (2.4)$$

where Q = domestic production, M = total imports, R = intermediate demand, D = final domestic demand (including inventory accumulation), and E = total export From relation (2.4), the identity for incremental values is obtained as

$$\Delta Q + \Delta M = \Delta R + \Delta D + \Delta E \qquad (2.5)$$

Since $S = Q + M =$ total supplies (availability), then

$$\Delta S = \Delta Q + \Delta M = \Delta R + \Delta D + \Delta E \qquad (2.6)$$

Let $v_1 = Q_1/S_1$ in the base year.

If v_1 remain fixed, the change in domestic production ($\triangle Q$) is given by v_1. $\triangle S$ or v_1 ($\triangle R + \triangle D + \triangle E$) provided there had been no import substitution.

The change in domestic production ascribed to 'import substitution' is the change in domestic production implied by changes in the proportion of total supply imported when total demand is held constant. Total increase in domestic production is given by

$$\triangle Q = v_1 (\triangle R + \triangle D) + v_1 \triangle E + (v_2 - v_1) S_2 \qquad (2.7)$$

where $v_2 = Q_2/S_2$ = the ratio of domestic production to total supply in period 2.

The relationship (2.7) decomposes the change in domestic production into three comports :

(i) $v_1 (\triangle R + \triangle D)$ for intermediate and final demand use on the assumption that the ratio of domestic production to total supply remain unchanged.

(ii) $V_1 (\triangle E)$ for exports on the assumption that the ratio of domestic production to total supply remains unaltered.

(iii) $(v_2 - v_1)S_2$ which is the change of domestic production implied by the actual change in the ratio of domestic production to total supply.

The term (iii) is the measure of change in domestic production which would result exclusively from a change in the ratio of domestic production to total supply. This is the Chenery's measure of import substitution.

In percentage terms, then Chenery's formula for measurement of import substitution is equal to :

$$\frac{(v_2 - v_1)S_2}{\triangle Q} = \frac{1}{\triangle Q} \left(Q_2 - \frac{S_2}{S_1} Q_1\right) \qquad (2.8)$$

According to Chenery, for zero import substitution the following equality should hold :

$$(v_2 - v_1)\ S_2 = 0$$

$$\text{or} \quad v_2 - v_1 = 0$$

$$\text{or} \quad \frac{Q_2}{S_2} - \frac{Q_1}{S_1} = 0$$

Hence

$$\frac{Q_2}{S_2} - \frac{Q_1}{S_1} \gtreqless 0 \qquad (2.9)$$

which shows the presence, zero and absence of import substitution.

Khan [1963] has also provided a formulae to measure import substitution. His formulae is based on the following arguments. He has argued that for increased growth, an increased marginal saving rate has to be achieved.

An increased marginal saving rate means that the growth of aggregate consumption has to be limited which in turn implies that the domestic consumption of individual commodities must be limited to some "normal" level. This normal level of consumption (absorption) for a commodity can be calculated on the basis of the permissible increase of aggregate consumption expenditure together with the "normal" expenditure elasticity of demand for that commodity. If in the process of import substitution, the domestic production of a consumption commodity becomes so large that normal domestic absorption is exceeded, we say that domestic absorption of this commodity is being liberalized.

Similar arguments may also hold in an export industry. The domestic production of the export industry may increase much more rapidly than exports with the result that normal domestic absorption is exceeded. This again would mean liberalization of domestic consumption (absorption) for the exportable commodity.

Khan put his arguments more precisely using an accounting relationship : change in domestic production ($\triangle Q$) plus change in imports ($\triangle M$) of any commodity equals change in domestic absorption ($\triangle A$) plus change in exports ($\triangle E$) i.e.

$$\triangle Q + \triangle M = \triangle A + \triangle E \qquad (2.10)$$

Change in domestic absorption ($\triangle A$) is the sum of changes in 'normal' absoption ($\triangle A_n$) and liberalized absorpton (A_1) i.e.

$$\triangle A = \triangle A_n + A_1 \qquad (2.11)$$

Substituting (2.11) into (2.10) and making some rearrangements, we can obtain

$$\triangle Q = (\triangle A_n - \triangle M) + A_1 + \triangle E \qquad (2.12)$$

The first term of the right hand side of relation (2.12) shows the amount of import substitution, the second term shows the liberalization of domestic absorption and the third term shows export expansion.

Thus according to Khan [1963, p. 206], a change in the output (domestic production) of an import-competing industry will mean import substitution as long as it does not exceed the change in normal absorption less the change in imports i. e. for import substitution, the following inequality holds,

$$\triangle Q \leq \triangle A_n - \triangle M$$

or $$\triangle Q + \triangle M \leq \triangle A_n$$

$$\text{or} \quad \frac{\Delta Q+\Delta M}{\Delta Q} \leq \frac{\Delta A_n}{\Delta Q}$$

$$\text{or} \quad \frac{\Delta S}{\Delta Q} \leq \frac{\Delta A_n}{\Delta Q}$$

$$\text{or} \quad \frac{\Delta Q}{\Delta S} \geq \frac{\Delta Q}{\Delta A_n} \qquad (2.13)$$

Since Q and A_n change in the same direction, $\Delta Q/\Delta A_n$ is non-negative. Hence $\Delta Q/\Delta S$ is also non-negative i.e.

$$\frac{\Delta Q}{\Delta S} \geq 0 \qquad (2.14)$$

The relation (2.14) happens when Q increased from period 1 to period 2 i.e. when the following relations hold,

$$\frac{Q_2}{S_2} - \frac{Q_1}{S_1} \geqq 0 \qquad (2.15)$$

It is, therfore, evident from the relations (2.3), (2.9) and (2.15) that the necessary condition for presence of import substitution is

$$\frac{Q_2}{S_2} - \frac{Q_1}{S_1} \geqq 0 \qquad (2.16)$$

The formulae for "the actual measurement" of import substitution is simble and conceptually clear while the Chenery's and Khan's formula for measurement to of import substitution are not so simple but conceptually complicated.

In Chenery's definition, import substitution is measured by the additional domestic production which results exclusively from the change in ratio of domestic production to total supply. In Khan's definition, domestic production that meets normal absorption is import

substitution and domestic production in excess of normal absorption (if consumed domestically and not exported) is consumption liberalization. The main difference in these two definitions (whenever the share of domestic production to total supply is rising), is that Khan's formula would call 'consumption liberalization' part of what the Chenery's formulae lebels domestic demand and the Khan's measure would generally not attribute as much growth to import substitution as would the Chenery's measure.

Winston [1957] observes that Khan's measure differs essentially by adopting a different definition of 'what would have been' in the absence of import substitution. The Chenery's measure suggests that both domestic production and imports would rise in the same porportion to fiill any increase in total demand without import substitution whereas the Khan's measure assumes that without import substitution, any increase in demand would be met from increased imports. However, Lewis [1969, p. 14] observes that the Chenery's measure apparently more liberally attributes growth to import substitution when import substitution, according to this definition, takes place whereas after the Chenery's import substitution process is completed it continues to go on in the Khan's definition.

However, following the relation (2.16) we can define import substitution as an increase in the proportion of domestic production in total supply of a commodity. If the domestic production of the commodity increases faster than its imports, it is an evidence on the presence of import substitution while the increase of imports

more rapidly than the domestic production indicates the opposite of import substitution. Let us call our definition the 'first measure' of import substitution.

Production data for a large number of agricultural and manufactured commodities are available but we do not have data on the quantity of imports for the individual commodities. Consequently, the first measure of import substitution cannot be used for these commodities. In such cases to indicate the existence of import substitution the following formulae has been used :

$$W_i = Q_i/(Q_i+M_i - X_i) \qquad (2.17)$$

Where W_i = the ratio of domestic production to total supply for ith commodity group, Q_i = gross value of domestic production in the ith commodity group, M_i = c. i. f. value of imports of the ith commodity group, and X_i = f. o. b. value of exports of the ith commodity group. All the variables are measured in constant prices. Let us call it the "second measure" of import substitution.

III. Import Substitution in Consumer Goods

Consumer goods consist of both agricultural and manufactured commodities. Import substitution in both types of commodities are discussed below.

The main agricultural commodity imports for consumption were rice and wheat. Because of the self-sufficiency goal of Bangladesh development plans in foodgrain production along with various incentives provided to the farmers, foodgrain production had an increasing trend with year to year fluctuations during 1960-

61/1979-80 period [SDB,[10] 1971, pp. 64-63 and 1980 SYB", 1981, p. 216]. Even though there was a continuous rise in demand for foodgrains caused by the rapid growth of population, foodgrain imports in Bangladesh were high or low depending on bad or good harvests of food crops. Both production and import data are available for rice and wheat. For this reason the 'first measure' is used to indicate the presence of import substitution in them. The percentage ratio of domestic production to total supply for rice and wheat for the poriod 1959-60/1979-90 are given in Table-1, Appendix-A. Linear trend lines are fitted to these ratios and are given in Table-1. The coefficient of T in the estimated trend lines of the ratios for rice is significant at the 5 per cent level suggesting that there was significant import substitution in rice. The coefficient of T in relation (2) is insignificant at the 10 percent but that in relation (3) is insignificant and in relation (4) is significant at the 1 per cent level. These coefficients of T in the trend lines of the ratios for wheat indicate that import substitution in wheat was greater in the post-liberation period. However, there was import substitution in foodgrain production as a whole.

Using the second measure an attempt is made to find out whether import substitution has occurred in manufactured consumer goods. The second measure is used because import data on individual manufactured commodities from the published sources are not available. The ratios of domestic production to total supply for the manufactured consumer goods as a group are

Table 1: Linear Trend Lines of the Ratios of Domestic Production to Total Supply for Rice and Wheat Estimated by the Ordinary Least Squares (OLS)

(1) $R^r = 93.67 + 1.71D + 0.20T$ $R^2 = 0.17$ DW = 1.82
($t = 49.77$)[a] ($t = 1.30$) ($t = 2.81$)[b] 1959-60/1979-80

(2) $R^w = 3.19 + 0.49D + 0.80T$ $R^2 = 0.30$ DW = 1.55
($t = 0.35$) ($t = 0.11$) ($t = 1.76$)[c] 1959-60/1970-80

(3) $R^w = 11.64 - 0.50T$ $R^2 = 0.22$ DW = 1.29
($t = 5.53$)[a] ($t = 1.61$) 1959-60/1969-70

(4) $R^w = -32.04 + 3.03T$ $R^2 = 0.63$ DW = 1.17
($t = -2.49$)[b] ($t = 3.74$)[a] 1972-73/1979-80

Where R = ratios of domestic production to total supply r = rice, w = wheat, D = dummy variable (taking 1 for a year in pre-liberation and o, otherwise), T = time, Pre-liberation period = 1959-60/1969-70 and Post-liberation period = 1972-73/1979-80.

a = significant at the 1 percent level
b = significant at the 5 percent level
c = significant at the 10 percent level

calculated as shown in Table 2, Appendix A. The linear trend lines are fitted to these ratios. The estimated trend lines for the group of consumer goods are given in Table 2. The coefficient of T in these trend lines (5), (6) and (7) are statistically insignificant at the 5 per cent level. They suggests that there was

apparently no significant import substitution in the group of manufactured consumer goods. The coefficient of T in relation (6) is negative and in relation (7) is positive. The signs of these coefficients do not rule out the possibility of some import substitution in the post-liberation period.

Even though the insignificance of the coefficients of T is suggestive of 'no significant' overall import substitution in the manufactured consumer goods, it should not be interpreted as evidence of 'no import substitution" at all. It is most likely that import substitution took place in some of the individual manufactured commodities.

The main tradeable items among the manufactured consumer goods are sugar, edible oil, textiles, fabrics, cigarettes, drugs and medicines, fish and shrimps, matches, specialized textiles, readymade garments etc. The first six commodities are importables and the last four are exportables. It is most likely that import substitution took place in sugar, edible oil and textile fabrics, because production of these commodities increased over time (Table 3, Appendix A). The level of production for cigarettes was lower in the post-liberation period relative to the pre-liberation years (Table 3, Appendix A), but the cottage and small scale industries also produced local cigarettes (bidi) in the post-liboration period which might have replaced imported cigarettes. Thus one can see a possibility of import substitution in cigarettes. Pharmaceutical industries set up by local and foreign investors were domestic market oriented which suggested some import

Table 2 : The Linear Trend Lines of the Ratio of Domestic Production to Total Supply of the Group of Consumer Goods Estimated by OLS Method.

(5)	$R^c = 93.24$	$-16.37D$	$-0.25T$	$R^2 = 0.20$ DW = 2.36
	$(t = 3.41)^a$	$(t = -0.92)$	$(t = -0.16)$	1959-60/1979-80
(6)	$R^c = 80.11$		$-0.73T$	$R^2 = 0.06$ DW = 2.15
	$(t = 10.22)^a$		$(t = -0.69)$	1959-60/1969-80
(7)	$R^c = 32.06$		$+ 7.34T$	$R^2 = 0.18$ DW = 2.11
	$(t = 0.18)^a$		$(t = 0.66)$	1972-73/1979-80

where C = the group of consumer goods and other variables are defined as before

a = significant at the1per cent level
b = significant at the 5 per cent level
c = significant at the 10 per cent level.

substitution in drugs and medicines.

In 1969-70 the contribution of the small scale and cottage industries to GDP was 4.13 per cent and that of large scale industries was 3.64 per cent in 1959-60 constant prices [Alamgir and Berlage, 1974, p.171]. In 1979-80 it was 4.4 per cent for small and cottage industries and was 6 per cent for large scale industries in 1972-73 constant prices [MSBB,[12] July 1981, p. 233]. Furthermore, there was a large number of unregistered small scale and cottage industries in Bangladesh. The products of the small scale and cottage industries were domestic market oriented. The contribution of these industries to domestic production of non-food consumption, say, cloth, was over 80 per cent [Ahmad, 1978, p. 411]. They also produced handloom products, raw sugar (gur), local cigarettes (bidi), etc. which perhaps replaced some imports of manufactured consumer goods.

It is also clear from Table 3, Appendix A that production of sugar, edible oil, and cotton clothes was higher in the post-liberation period than the pre-liberation period, indicating the possibility of greater import substituion in the post-liberation period. The quantity (Mc-Xc) was also much less in the post-liberation period compared to the pre-liberation period [Table 2, Appendix A]. A fall in the imports of manufactured consumer goods was perhaps the main reason for this.[13] Consequently, in the post-liberation period there was an excess demand for manufactured consumer goods which was partially satisfied by imports and partly by increased domestic production in response

to unsatisfied excess demand. Thus, on the one hand, imports of manufactured consumer goods were reduced while on the other hand, domestic production of these commodities increased resulting in higher import substitution in the post-liberation years.

IV. Import Substitution in Intermediate Goods

Bangladesh was an agrarian economy. Its agrarian character did not change very much over the twenty years under study. It is evident from the fact that the share of agriculture in GDP was reduced to 51 per cent in 1979–80 from 60 per cent in 1959-60 whereas the share of the manufacturing sector increased from only 6.26 per cent in 1959-60 to 7.94 per cent in 1979-80. Furthermore, the traditional technolgy was dominant in agriculture and only about 12 per cent of cultivable land was under HYV seed-fertilizer-water technology. Floods, droughts, hailstorm, pests attacks, regular occurance of coastal flooding in a number of districts were threats to agricultural production every year. Most of the industries were based on indigenous raw materials. Mainly the intermediate and capital goods industries were import dependent for raw materials [Lewis, 1969, p. 129. Table 31].

The rate of change in income originating from the industrial, trade and transport sector in Bangladesh was highly correlated with the rate of change of output in the agricultural sector [Islam, 1977, p. 137]. Probably the main reason for this was that industry was based mainly on activities processing agricultural raw materials whereas trade and transport activities to a large extent

related to the movement of and trade in agricultural products. Consequently, the growth of agriculture had a dominant influence on the growth of GDP both beause it was the largest sector and because it affected the growth rate of these other sectors.

Given these characteristics of the Bangladesh economy it is most likely that import-GDP ratio for intermediate goods did not decline during the sixties and seventies. Probably it increased. Perhaps the following factors are responsible for this. Firstly, to attain self-suffiency in foodgrain productien an increasing area of cultivable land was brought under HYV seed-fertilizer-water technolgy. This enhanced the need for agricultural inputs. Some of these inputs were supplied by some import substituting industires. Furthermore, to increase production, the manufacturing sector also required increased raw materials and intermediate products. Probably agriculture supplied most to the raw materials and intermediate goods required in the agro-based industries. But for the other industries such as capital goods industries and some intermediate goods industries, intermediate goods were mostly imported. As a result of the self-sufficiency strategy in the Bangladesh economy, the import-GDP ratio for intermediate goods perhaps was not reduced. Secondly, project assistance usually made Bangladesh dependent on donor countries as sources of intermediate goods for the completed aid-financed porjects in different sectors of the economy. This fact along with increased inflow of assistance might have made it difficult for Bangladesh to reduce such dependence on imported intermediate goods.

However, the view that import-GDP ratio for intermediate goods did not decrease seems to be supported by the differnce between the imports and exports of intermediate goods as a whole, calculated for using the second measure of import substitution [Table 4, Appendix-A].

The absolute difference between imports and exports for a group of intermediate goods declined in the post-liberation period. Some might argue, such small differences in the post-liberation period relative to the pre-liberation period might indicate exhaustion of import substitution possibilities in intermediate goods. However, such an argument was not valid in the case of Bangladesh because the decreased differences were caused by a greater fall in exports of intermediate goods than their imports. Since these differences were negative throughout the period, net imports appeared to have increased over time and the proportion of gross value of domestic production for the group of intermediate goods to total supply should be greater than unity. It might be an indication of overall negative import substitution in intermediate goods in Bangladesh. No conclusive statement about it can be made in the absence of information on their porduction data. However, it is also not proper to think of no import substitution in some indivdual intermediate goods.

The main exports of intermediate goods from Bangladesh were raw jute, jute manufactures, jute yarn, raw hides and skins, leather, paper, paper-board and paper-pulp whereas the main imports consisted of rubber products, contton yarn, raw cotton, oilseeds,

tobacco, disinfectants and pesticides, sulphuric acid, caustic soda, chlorine gas, paints and varnishes, petroleum products, etc. Production of oil seeds and raw cotton is shown in Table 6, Appennix A. There was significant import substitution in oilseeds particularly in the post-liberation period and probably little or no import substitution in raw cotton [Tbele 1, Appendix-A]. The production of tobacco shows a slightly increasing treand throughout the period (Table 1, Appendix-A). We do not have import data on tobacco. In the absence of import data it is not possible to say anything about import substitution in this commodity.

Production of petroleum products, cycle tyres and tubes, paint and varnishes, sulphuric acid, caustic soda and chlorine gas increased during the period 1959-60/1979-80 [Table 6, Appendix-A]. There was some import substitution in petroleum products in the post-liberation period [Table 1, Appendix-A]. One might also expect some import substitution in rubber and chemical products. Bangladesh started producing synthetic fibres only in the post-liberation period. It was a substitute for cotton yarn. Imports of yarn were expected to fall implying an import substitution in yarn for cloth production. Availability of gas in large quantities reduced the need for imports of raw materials for fertilizers, synthetic fibres, P.V.C., some chemical products, electrical generation, etc. Capital goods industries except fertilizers and cement were highly dependent on imported intermediate goods [Islam, 1963, p. 4, Table 2]. It is most unlikely that significant import substitution took

place in raw materials for capital goods during the period under study.

V. Import Substitution In Capital Goods

We have used the second measure for showing the presence of import substitution in capital goods.[14] The percentage ratios of the domestic production to total supply for the group of capital goods are given in Table 5, Appendix-A. Three linear trend lines corresponding to periods 1959-60/1979-80, 1959-60/1969-70 and 1972-73/1979-80 are estimated and given in Table 3. The coefficient of T in (8) is insignificant at the 5 per cent level indicating little import substitution in capital goods during the sixties and seuenties. The coefficient of T in (9) for the pre-liberation period is also insignificant but the coefficien of T in (10) for the post-liberation period is significant at the 1 per cent level. Hence it suggests that there was import substitution in the group of capital goods during the post-liberation period.

The percentage ratios of domestic production to total supply for fertilizers and cement for the years 1975-76/1979-80 are calculated on the basis of the first measure of import substitution [Table 1, Appendix-A]. These ratios do not show import substitution in these two commodities to a significant extent. What happened in these cases is that imports increased a bit faster than the domestic production. In addition, production of steel ingots, billets, B.P. sheets in the basic metal industry' production of electric fans, bulbs, and tube lights, ratios, televisions, and telephone sets

Table 3 : Linear Trend Lines of the Ration of the Domeitic Production to Total Sypply for the Group of Capital Goods Estimated by OLS Mcthod.

(8)	$R^k = 41.09$	$-20.00D$	$+0.52T$	$R^2 = 0.70$ DW = 1.21
	$(t = 2.53)^a$	$(t = -1.90)$	$(t = 0.55)$	1959-60/1979-80
(9)	$R^k = 25.47$		$-0.13T$	$R^2 = 0.008$ DW = 2.22
	$(t = 6.10)^a$		$(t = -0.23)$	1959-60/1969-70
(10)	$R^k = 128{\cdot}74$		$+ 10.81T$	$R^2 = 0.98$ DW = 2.54
	$(t = -7.87)^a$		$(t = 10.93)^a$	1972-73/1979-80

where k = the group of capital goods and other variables are as before

a = significant at the 1 per cent level

b = significant at the 5 per cent level

in the electrical machiney industry, production of bicycles, motor cycles, and buses in the transport equipment industry, and production of machineries, pumps and diesel engines in the machinary industry increased throughout the period [SDB, 1971, p. 94, Table 6.7 and 1980 SYB, 1981, pp. 316-320, Table, 5.27]. Furthermore, production of these capital goods was much higher in the post-liberation period than in the pre-liberation period. Even though the trend line (10) suggests some import substitution in the group of capital goods in the post-liberation period, we could not show import substitution in individual capital goods due to lack of import data.

Like the manufactured consumer goods, import substitution in capital goods seems to be higher in the post-liberation perod relative to the pre-liberation period. This may be due to the main factor described below. Firstly, since imports of capital goods from West Pakistan involved payments in foreign exchange in the post-liberatton period, they fell relative to the pre-liberation period in the face of foreign exchange crisis. Consequently, excess demand was created in the post-liberation period. This excess demand for capital goods was met partly by imports and partly by increaeing domestic production. Secondly, the production of capital goods might have been higher in the post-liberation period in comparison with the pre-liberation period because the capital goods sector in Bangladesh had a very low capacity at the beginning of the sixties[15] and additional capacity was created in this sector at the end of the TFYP of Pakistan and was utilized only after liberation.

VI. Conclusions

The main goals of industrialization and agricultural development were import substitution and self-sufficiency in foodgrain production respectfully. To achieve these goals, the government undertook various policies. As a result, some import substitution is found to occur in both agricultural and industrial porducts.

Evidence suggests that there were import substitution in foodgrains. The other agricultural porducts in which import substitution took place were oilseeds and raw cotton.

Available evidence also indicates that the most likely manufactured consumer goods in which import substitution occurred were edidle oil, sugar, textiles fabrics, cigarettes, drugs and medicines, etc. In the capital goods sectors import substitution took place perhaps in porducts like steel ingots, billets, B. P. sheets, electric fans, bulbs, and tube lights, radios, televisions, telephone sets, bicycles, motor cycles, buses, machineries, pumps, diesel engines. The intermediate porducts experiencing import substitution possibly were petroleum products, cycle tyres and tubes, paint and varnishes, sulphuric acid, caustic soda, chlorine gas, yarn for cloth production, raw materials for fertilizers, P. V. C., chemical products and electric power generators.

Given these facts, it is also worthwhile to measure the extent of import substitution that took place in different products/industries. The knowledge of the extent of import substitution will identify the products /industries whose growth should attract the attention of the policy makers to increase the production in

the economy. Further study may be undertaken to estimate the extent of import substitution in consumer goods, intermediate goods and capital goods.

Footnotes

1. SFYP stands for *Second Five Year Plan.*
2. Industries reserved for state management were (i) railways, (ii) air transport, (iii) communications, (iv) atomic energy, (v) arms and ammunition.
3. A few industrial enterprises in export-oriented industries (e. g., leather tanning, tea, canned and preserved food) came under the state management immediately after liberation. They were not nationalized by the order of March 26, 1972. The government had to undertake their management because they were abandoned units. Some of these units were already transferred to private hands in 1975. Consequently, the percentage of modern industrial sector under state management was much less than 90 per cent after 1975.
4. FFYP Stands for *First Five Year Plan.*
5. TYP Stands for *Two Years Plan.*
6. We have chosen the period 1960-61/1979-80 because we have data for this peirod on all the relevant variables for this study. Even though we did not include in this study some years of early eighties, the trend of import substitution in Bangladesh for the early eighties is unexpected to be different from the trend of import substitution in the seventies.
7. The distinction between the two types of measurement formula was developed through the standard two-commodity trade-theoretic diagram illustrating the general equilibrium situation for an open economy by Desai [1972,pp. 19-23].
8. Availability of a commodity equals its domestic production and imports.
9. For details of this p int see Desai [1972, p. 23-24].

: *Domestic Production as Percentages of Total Supply for Rice, Wheat, Edible Oil, Fertilizer, Cement, Oilseeds, Raw Cotton and Petroleum in Banagladesh* : 1959-60/ 1979-80.

Years	Rice (R^r)	Wheat (R^w)	Edible Oil (R^E)	Fertilizer (R^F)	Cement (R^{CT})	Oil seeds (R^O)	Raw cotton (R^R)	Petroleum products (R^P)
1959-60	95.09	14.65						
1960-61	96.16	14.95						
1961-62	96.79	10.03						
1962-63	95.43	5.79						
1963-64	96.32	5.64						
1964-65	97.99	5.29						
1965-66	97.16	5.08						
1966-67	96.02	8.18						
1967-68	97.71	7.07						
1968-69	97.96	9.52						
1969-70	95.92	8.97						
1970-71	95.29	11.94						
1971-72	93·29	9.99						
1972-73	96.56	3.62						
1973-74	99.27	6.51						
1974-75	97.68	5.37						
1975-76	96.91	16.73	23.8	46.1	41.4	76.79	2.22	67.7
1976-77	98.72	27.87	37.9	88.3	59.3	96.60	1.96	79.7
1977-78	97.70	20.38	27.6	38.0	52.1	84.89	2.15	75.9
1978-79	99.57	30.15	24.7	35.5	42.0	94.29	3.23	73.0
1979-80	94.58	28.19	28.4	42.8	40.7	91.11	—	71.4

Sources and Notes

(i) *Rice* : Domestic production of Rice for the period 1959-60 / 1969-70 are taken from SDB, 1971, pp. 44-45, Table 4.2 and for the period 1970-71 / 1979-80 from BES, 1981, p, 268, Table 2.1. Import figures for Rice are obtained for the period 1959-60 / 1968-69 from SDB, 1971, p. 172, Table 10.5, and for the period 1969-70/ 1974-75 MSBB, January 1976, p. 4, Table 1.4 and for the period 1975-76 / 1979-80 from BES, 1981, p. 314, Table 8.6.

(ii) *Wheat* : Domestic production for Wheat for the period 1959-60 / 1969-70 are taken from SDB, 1971, p. 47 Table 4 3 and for the period 1970-71 / 1979-80 from BES, 1981, p. 270, Table 2 5. Imports of Wheat for the period 1959-60 / 1968-69 are estimated figures using the information obtained from SDB, 1971, p. 172, Table 10.5, and sources for the period 1969-70 / 1979-80 are the same as the sources of import of Rice.

(iii) *Edible Oil* : Production figures for Edible Oil are taken from MSBB, July 1981, p. 173 and imports of Edible Oil are taken from BES, 1981, p. 314, Table 8.6.

(iv) *Fertilizer* : Production figures for fertilizers are taken from MSBB, July 1981, p. 176 and import figures are taken from BES, 1981, p. 314, Table 8.6.

(v) *Cement* : Production figures for Cement are taken from MSBB, July 1981, p. 183, Table 7.17 and figures for import from BES, 1981, p. 314, Table 8.6.

(vi) *Oilseeds* : Sources of the production figures are mentioned in Table 6, Appendix A. Import figures for oil-seeds are taken from BES, 1981, p. 314, Table 8.6.

(vii) *Petroleum Products* : Production figures are taken from 1980 SYB, 1981. pp. 318-319 and import figures are taken from BES, 1981, p. 314, Table 8.6.

(viii) *Raw Cotton* : Production figures for raw cotton for the period 1975-76 / 1978-79 are taken from *1980 SYB* 1981, p. 221, Table 4.85 and the import figures are taken from *BES*, 1981, p. 314, Table 8.6.

Table : 2 *Import Substitution in Manufactued Consumer Goods (MCG) in Bangladesh* : 1959-60/1979-80.

Years	Value of gross domestic production of MCG (Tk million/ 1959/60 conts. Free Trade prices) D_c	Value of imports of MCG. (Tk. millions/1959/60 const prices/ 1959/60 constant exchange Rate) M_c	Value of exports of MCG. (Tk. millions/1959/60 cont-prices/ 1959/60 const. Exchange Rate) X_c	Net imports (Tk. millions/1959/ 60 const. prices) M_c-X_c	Total supply (Tk. millions/ '590/60 const. prices) $D_c+M_c-X_c$	$R^c = \frac{D_c}{D_c+M_c-X}$ %
1959-60	301.60	211.05	192.76	18.29	319.89	94.3
1960-61	—	431.21	149.12	282.09	—	—
1961-62	—	427.27	183.12	244.15	—	—
1962-63	526.81	523.81	207.25	316.56	843.37	62.5
1963-64	609.14	434.06	215.27	218.79	827.93	73.6
1964-65	724.60	595.99	234.84	361.15	1085.75	66.7
1965-66	781.41	530.84	298.38	232.46	1013.87	77.1
1966-67	769.69	658.29	336.37	321.89	1019.58	70.5
1967-68	831.72	479.51	268.84	210.67	1042.39	79.8
1968-69	857.73	548.37	319.99	228.38	1086.11	79.0
1969-70	800.74	603.36	305.74	297.62	1098.36	72.9
1970-71	—	—	—	—	—	—
1971-72	—	—	—	—	—	—
1972-73	350.00	178.75	—	—	—	—
1973-74	688.47	862.09	385.81	476.28	1164.75	59.1
1974-75	599.51	191.19	238.73	-47.54	551.97	108.6
1975-76	969.45	232.80	262.38	-29.55	939.87	103.1
1976-77	1156.50	552.59	354.13	198.46	1354.96	85.4
1977-78	987.31	437.00	336.13	100.87	1088.18	90.7
1978-79	1168.27	335.79	323.45	22.25	1180.61	98.9
1979-80	1216.02	340.55	318.09	22.46	12 3848	98.1

Sources and Notes

(i) *Value of Gross Domestic Production of MCG* : Gross value of output in the consumer goods industries is taken from Table 7, Appendix-A. Then these figures are deflated by the wholesale price index for consumer goods obtained from Ahmad [1983, p. 487, Table 46, Appendix-C, Column 4] to obtain values at 1959-60 constant prices. Then these deflated figures are again deflated by 1.63 to obtain value of gross output of consumer goods at the free trade prices of 1959-60, because the average rate of import duty on consumer goods imports was about 63% of cif prices of imports [Radhu, 1964].

(ii) *Imports of MCG* : Imports of consumer goods are obtained from Ahmad [1983, p. 498, Table 51, Appendix-C]. These figures are adjusted for imports of rice and wheat to obtain imports of manufactured consumer goods.

(iii) *Exports of MCG* : Basic data for computing exports of MCG for the period 1959-60 / 1969-70 are taken from Alamgir and Berlage [1974, pp. 140-141, Table 22] and for the period 1974-75 / 1978-79 from 1979 SYB, 1979, pp. 274-277 and 1980 SYB, 1981, pp. 341-342, Table 6.4. The figure of 1979-80 is estimated. Exports of MCG at current prices are converted to US $ by conversion factor for exports (fob) and then deflated by the index for unit value of imports for Bangladesh and then converted into taka by the 1959-60 excnange rate. The conversion factor for exports (fob), the index for unit value of imports (cif) and the exchange rates are taken from Ahmad [1983, p. 487, Table 46, Appendix-C].

Table : 3 *Production of Sugar, Edible Oil, Cigarettes, and Textile, Fabrics in Bangladesh :* 1959-60/1979-80

Years	Sugar ('000' tons)	Edible Oil ('000' tons)	Cigarettes (million sticks)	Cotton Clothes (million yards)
1959-60				
1960-61				
1961-62				
1962-63	75		3729	55
1963-64	88		4885	48
1964-65	77		5537	49
1965-66	84		9576	40
1966-67	113		13134	55
1967-68	110		14905	52
1968 69	57		16851	61
1969-70	88	12	17729	59
1970-71	99	—	15000	52
1971-72	18	—	10917	23
1972-73	19	15	11202	58
1973-74	88	19	11895	79
1974-75	98	16	10441	84
1975-76	87	19	11907	74
1976-77	140	25	11634	68
1977-78	175	27	11974	83
1978-79	131	23	13531	85
1979-80	93	31	13830	88

Sources : (i) SDB, 1971, p. 94, Table 6. 7.
(ii) 1980 SYB, 1981, pp. 316-320, Table 5. 27.

Table : 4 *Net Imports of Intermediate Goods in Bangladesh : 1959-60/1979-80*
(Tk. million/1959-60 const. prices/1959-60 exchange rate)

Years	Imports of Intermediate Goods (M_r)	Exports of Intermediate Goods (X_r)	Net Imports of Intermediate Goods (M_r-X_r)
1959-60	592.68	1226.67	—633.99
1960-61	793.61	1597.90	—804.29
1961-62	782.83	2014.00	— 1231.17
1962-63	680.91	2468.10	— 1787.19
1963-64	856.24	2632.47	— 1776.23
1964-65	873.25	2452.17	— 1578.92
1965-66	931.85	2786.29	— 1854.44
1966-67	966.28	3023.55	— 2057.27
1967-68	1204.54	2686.94	— 1482.40
1968-69	1113.12	2785.24	— 1672.12
1969-70	1145.46	3133.96	— 1988-56
1970-71	—	—	—
1971-72	—	—	—
1972-73	358.50	1097.02	—738.52
1973-74	853.21	1025.69	—172.48
1974-75	657.69	636.03	21.66
1975-76	814.03	970.27	—156.24
1976-77	696.92	998.71	—301.79
1977-78	848.08	1014.34	—166.26
1978-79	920.07	1261.43	—341.36
1979-80	845.61	1280.52	—434.91

Sources and Notes

(i) *Imports of Intermediate Goods*. These figures at 1959-60 constant prices and constant exchange rate are taken from Ahmad (1983), p. 498, Table 51, Appendix-C).

(ii) *Exports of Intermediate Goods* : Basic data for computing exports of intermediate goods at current prices for the period 1959-60/1969-70 are taken from Alamgir and Berlage (1974, pp. 140-141, Table 22) and for the period 1974-75/1978-79 from 1979 SYB, 1979, pp. 274-277, Table 6.4 and 1980 SYB, 1981, pp. 341-342, Table 6. 4.

The figures at current prices for 1972-73, 1973-74 and 1979-80 are estimated ones. Exports of intermediate goods are converted into US by the conversion factor for exports (fob) and then deflated by the index for unit value of exports for Bangladesh and then converted into kaka by 1959-60 exchange rate. The conversion factor for exports (fob), and exchange rate are taken from Ahmad (1983, p. 487, Table 46, Appendix-C.) The index of unit value of exports (fob) is timated from the basic data obtained from *Handbook of international Trade and Development Statistics Supplement 1980*, (UNCTAD. United Nations, New York, 1980, p. 421, Table 7.2) using the procedure which was used in estimating the index of unit value of imports (cif) for Bangladesh as in Ahmad (1983, p. 487, Table 46, Appendix-C).

Table : 5 *Import Substitution in Capital Goods (KG) in Bangladesh* : 1959-60/1979-80

Years	Value of gross output of KG industries (Tk. million/1959-60 const. free trade price D_k	Value of Imports of KG (Tk. million 1959-60 const. prices, 1959-60 const. exchange rate) M_k	Value of Exports of KG. (Tk. million/ 1959 60 const. prices, 1959-60 const. exchange rate X_k	Net Imports of KG. (Tk. million/59-60 const. prices, 1959-60 const. exc. rate) M_k-X_k	Total Supply (Tk. million/ 1959-60 const prices $D_k+M_k-X_k$	R^k— $\frac{D_k}{D_k+M_k-X_k}$ %
1959-60	72.11	298.47		298.47	370.58	19.5
1960-61	—	367.67		367.67	—	—
1961 62	—	448.88		448.88	—	—
1962-63	150.44	300.66		300.66	451.10	33.3
1963 64	288.51	672.22		672.22	960.73	30.0
1964 65	240.79	912.38		912.38	1153.17	20.8
1965-66	236.75	685.80		685.80	922.55	25.7
1966-67	183.16	736.95		736.95	920.11	19.9
1967-68	250.44	790.76		790.76	1041.20	24.1
1968-69	265.00	943.48		943.48	1208.48	21.9
1969-70	284.30	804.62		804.62	1088.92	26.1
1970-71	—	—		—	—	—
1971-72	—	—		—	—	—
1972-73	64 39	335.80	6.03	329.77	394.16	16.3
1973-74	200.00	389.61	4.80	384.81	584.81	34.2
1974-75	205.18	262 05	4.46	257.59	462.77	44.3
1975-76	434.04	396.02	3.80	392.22	826.26	52.5
1976-77	666.58	323.03	3.28	319.75	986.33	67.5
1967-78	537.80	374.27	3.00	371.27	909.07	59.1
1978-79	729.13	630.81	7.31	623.50	1358.63	53.9
1979-80	835.14	532.22	5.41	526.81	1365.95	61.3

Sources and Notes :

(i) *Value of gross output of KG* : Value of gross output of capital goods industries is taken from Table 7, Appendix A These figures are deflated by the wholesale price index for capital goods obtained from Ahmad (1983, p. 487, Table 46, Appendix C) to obtain values at 1959-60 constant prices. Then the gross value of output of capital goods at 1959-60 constant prices are deflated by 1. 14 to obtain figures at 1959-60 free trade prices, because the average rate of import duty on imported capital goods was 14 per cent of the import (cif) price (Radhu, 1964).

(ii) *Imports of KG* : Imports of KG at 1959-60 constant prices and 1959-60 constant exchange rate are taken from Ahmad (1983, p. 498, Table 51, Appendix-C).

(iii) *Exports of KG* : Literature suggests that there was hardly any export of capital goods from Bangladesh during the pre-liberation period. For the post-liberation period basic data are taken from 1979 SYB, 1979, pp. 274-277, Table 6. 4 and 1980 SYB, 1981, pp. 341-342, Table 6. 4. The current price export figures of capital goods for the years 1972-73, 1973-74 and 1979-80 are estimated ones.

Exports of capital goods at current prices are converted to US $ by the conversion factor for exports (fob) and then deflated by index of unit value of imports for Bangladesh and then converted into Taka by 1959-60 exchange rate. The conversion factor for exports (fob), index for unit value of imports (cif), and exchange rate aretaken from Ahmad (1983, p. 487, Table 46, Appendix-C).

Table 6 : *Production of Oilseeds, Raw Cotton, Raw Tobacco, Petroleum Products, Cycle Tyres and Tubes. Paint and Varnishes, Sulphuric Acid, Caustic Soda and Chlorine Gas in Bangladesh* : 1959-60/1979 80.

Year	Oil seeds ('000' tons)	Raw cotton ('000' bales)	Raw tobacco ('000' tons	Petroleum products ('000' tons)	Cycle Tyres and Tubes ('000' no.)	Paint and Varnish ('000' gals)	Sulphuric Acid (tons)	Caustic Soda (tons)	Calorine Gas (tons)
1959 60	182.3	18	27						
1960-61	177.8	19	25						
1961-62	202.8	17	31						
1962-63	205.6	16	29		2417	70	1511	1340	1202
1963-64	187.9	15	28		3167	96	1956	1602	1413
1964-65	196.7	15	269		5416	93	1963	1453	1309
1965-66	228.2	16	27		8833	775	2377	3262	2860
1966 67	272.2	15	38		13833	71	2401	3197	2729
1967-68	291.2	15	39		19250	72	5485	3661	3201
1968-69	385.3	13	40		27333	72	5482	3732	3294
1969-70	376.2	13	40	767	3840	76	6659	3278	2993
1970-71	273.6	7	39	—	—		4328	2711	2338
1971-72	240.2	10	34				352	2066	1767
1972-73	225.2	8	39	698	3175		5712	3877	2699
1973-74	215.2	6	41	341	26000	233	6410	3794	2267
1974-75	236.2	64	40	773	31740	223	5407	4265	8087
1975-76	238.2	5	45	847	37344	202	4028	4122	3517
1976-77	227.0	4	63	1075	29615	260	3205	5719	2906
1977-78	264.0	5	49	1017	31889	224	4507	5606	3747
1978-79	264.0	7	43	1032	17158	463	12318	5475	3841
1979-80	246.0	6	39	1181	14702	479	4127	5598	3282

Sources and Notes :

(i) *Oilseeds* : Production figures for oilseeds for the period 1959-60 / 1969-70 are taken from SDB, 1971, p. 53, Table 4. 7, and for the pariod 1970-71/1978-79 from 1979-80 SYB, 1981, p. 239, Table 4. 101 and for the year 1979-80 from MSBB, July 1981, p. 70, Table 4. 24.

(ii) *Raw Cotton* : Production figures for raw cotton for the period 1959-60/1969/70 are taken from SDB, 1971, p. 57, Table 4.9 and for the pariod 1970-71/1978-79 from 1980 SYB, 1981, p. 221, Table 4. 85.

(iii) *Raw Tobacco* : Production figures of tobacco for the period 1959-60/1969-70 are taken from SDB, 1971, p. 59, Table 4.11 and for the period 1970-71/1978-79 from 19 0 SYB, 1981, p. 247, Table 4.109.

(iv) *Petroleum Products* : Production figures for petroleum products are taken from 1980 SYB, 1981, pp. 318-319.

(v) Production figures for cycle tyres and tubes, paints and varnishes sulphuric acid, caustic soda, chlorine gas are taken from SDB, 1971, pp. 94-95, Table 6.7 and 1980 SYB, 1981, pp. 316-320, Table 5.27.

Table 7 : *Gross Value of Output in Consumer, Intermediate and Capital Goods Industries in Bangladesh* : 1959/1979-80 (*Tk. millions/current prices*).

Year	Consumer goods industries	Intermediate goods industries	Capital goods industries	Total Gross output
1959-60	491.6	593.1	82.2	1166.9
1962-63	915.8	836.4	176.3	1928.5
1963-64	1028.7	887.0	266.1	2181.8
1964-65	1300.2	951.9	293.6	2545.7
1965-66	1539.4	1189.6	311.7	3040.7
1966-67	1739.2	1277.6	241.5	3258.3
1967-68	1758.0	1415.3	330.8	3504.1
1968-69	1949.7	1770.2	368.9	4089 0
1969-70	1885 0	1352.2	399.6	3637.8
1970-71	1748.9	1278.7	282.0	3309.6
1971-72	1140.1	1035.1	177.7	2352.9
1972-73	1759.9	1134.2	199 0	3093.1
1973-74	4436.9	2416.5	875.9	7729.3
1974-75	7138.2	3252.0	1345.9	11736.1
1975-76	9464.1	4333.3	2473.9	16271.3
1976-77	11049.6	4728.7	3699.9	19378.2
1977-78	10042.1	6473.2	3163.1	19678.4
1978-79	12957.3	7614.1	4605.8	25177.2
1979-80	15256.1	9806.3	5275.5	30337.9

Sources and Notes :

Basic data on gross value of output for major industrial groups are taken from 1980 SYB (1981, pp. 314-318). These are decomposed in to gross value of output for three types of industries using the proportions from Table 8, Appendix A.

Table 8 : *Classification of Major Industrial Groups into Consumer, Intermediate and Capital Goods Industries in Bangladesh.*

(figures in percentages)

Code	Major Industrial Groups	CMI 1962-63			CMI 1972-73		
		Con.	Int.	Cap.	Con.	Int.	Cap.
20	Food	100			100		
21	Beverages	100			100		
22	Tobacco	100			100		
23	Textiles	33	67		47	53	
24	Footwear, other wearing apparel and made-up textiles goods	100			100		
25	Wood, cork and allied products		100			100	
26	Furniture and fixture	100			100		
27	Paper and paper products		100			100	
28	Printing, publishing and allied products	96		4	100		
29	Leather and leather products		100			100	
30	Manufactures of rubber		100			100	
31	Chemical and chemical products	69	6	25	86	6	8
32	Non-metallic mineral products	25		75	18		82
33	Basic metal			100			100
34	Metal products except machinery and transport equipment.		52	48		64	36
35	Machinery except electric appliances			100			100
36	Electric machinery			100			100
37	Transport equpment			100			100
38	Miscellaneous manufacturing	3	96	1	4	96	

Sources and Notes

Our main purpose is to estimate the gross value of output for the three types of industries on the basis of data on gross value of output for major industrial groups. To do this we have followed the classification of the *Census of Manufacturing Industries in East Pakistan 1952-63* (1967). In this classification, it is found that industrial enterprises in one major industrial group fall into more than one type of industry, i. e., some units belong to the consumer goods type industries, some units in intermediate goods type industries and some in the capital goods type industries. In such a situation, we have decomposed the gross value of output of one major industrial group into gross value of output for the three types of industries in the proportions shown in this table. These proportions are estimated on the basis of the gross value of output of industrial units in one type to total gross value of output of the major industrial groups to which these units belong. Gross value of output of such industrial units as well as of the major industrial groups are obtained from the *Census of Manufacturing Industries in East Pakistan*, 1962-63 (1967, pp. 48-53) and *Detailed Report on the Census of Manufacturing Industries in Bangladesh 1972-73*, (1978, pp. 192-201).

10. SDB Stands for *Statistical Digest of Bangladesh.*
11. SYB Stands for *Statistical Yearbook of Bangladesh.*
12. MSBB stands for *Monthly Statistical Bulletin of Bangladesh.*
13. A fall in imports was brought about by scarcity of foreign exchange, because in the pre-liberation period about 55 per cent of total imports of consumer goods came from West Pakistan with payments in domestic currency but after liberation it involves payments in foreign exchange.
14. The manufactured goods are classified into consumer, intermediate and capital goods following the definition of the *Census of Manufacturing Industries of East Pakistan* [1967, pp. 6-7]. In this definition, consumer goods are included in the group of capital goods, and fertilizer in the group of intermediate goods. But in this study fertilizers are treated as capital goods following Islam [1967].
15. Of total number of industrial establishment in Pakistan, only 4 per cent in the basic metal industry, 6 per cent in electrical machinery, 15 per cent in non-metaelic minerals, 15 per cent in metal products and 16 per cent in the transport equipment industry were located in Bangladesh [Islam, 1963, p, 3, Table 1].

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