Some Comments on the Export Bonus, Export Promotion and Investment Criteria

by

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INTRODUCTION

One of the principal elements in the Third Five Year Plan strategy is to shift the pattern of investment in favour of export-oriented industries [7]. According to the Plan targets, exports are to increase at a rate of 9.5 per cent per annum over the period 1964/65 to 1969/70, a rate of growth which exceeds the target rate of growth for G.N.P., estimated at 6.5 per cent per annum. Furthermore, the increase in exports is expected mainly in manufactured goods and in non-traditional items such as rice and fish [7]. Put in other terms, the Plan targets propose to divert to exports 10 per cent of additional manufacturing output produced during the Third Plan period. This target contrasts sharply with the actual experience of the Second Five Year Plan, when only 3 per cent of the additional output of the manufacturing sector was exported.

Numerous policies have been used to stimulate exports. Some of these are tax incentives and export performance licensing which entitles certain export industries to additional import licences on the basis of their export performance. The key instrument in the export promotion strategy however, and the one which has received the most attention from economists, is the export bonus scheme. The scheme, first introduced in 1959 and scheduled to run till the end of the Second Plan period, has now been extended to cover the Third Plan as well. The main features of the scheme can be briefly summarized as follows: for those commodities for which bonus vouchers are given (practically all manufactured goods, but only some raw materials) the exporter, upon surrendering his

foreign exchange to the State Bank at the official rate of exchange, receives a voucher that entitles its owner to purchase foreign exchange equal in value to a specified percentage, depending upon the commodity exported, of the amount earned. The voucher is, therefore, a ration coupon honoured by the State Bank for obtaining foreign exchange for use in importing a wide range of goods[1]. The voucher is freely transferable and may be sold in the market at a price determined by the market.

The proportion of the foreign exchange earned by the exporter and given to him in the form of bonus vouchers is called the *bonus rate*. Currently, there are two basic rates under the bonus scheme: 20 per cent and 30 per cent[2]. With the notable exception of jute textiles, practically all manufactured goods are given the 30 per cent rate. The market price of the bonus voucher, called the *premium*, has fluctuated, depending on the supply of vouchers available, which reflects the level of the bonus rates and the amount of export earnings u nder the scheme, and the demand for vouchers, which is a function of the number of items for which vouchers can be utilized and the demand that exists for such items in excess of the supply available from domestic prod uction and licensed imports. In recent years the bonus premium has fluctuated between Rs. 135 and Rs. 170, *i.e.*, vouchers which would permit the owner to purchase Rs. 100 in foreign exchange at the official rate could be purchased for a price ranging between Rs. 135 to Rs. 170 [5].

The export bonus scheme has been subject to some criticism by economists. The criticism centres around the fact that the export bonus system is, in effect, a multiple exchange rate system where exports are subject to a more favourable exchange rate (from the viewpoint of exporters) than the official rate at which the bulk of goods are imported. Further, exports are subject to different rates depending on the commodity involved. It is argued that the bonus system distorts the pattern of resource use towards a less efficient allocation and reduces foreign exchange earnings.

Ghulam Mohammad [3] has shown that the introduction of the b onus scheme for rice has led to a shift in the relative acreage from cotton to rice even though foreign exchange earnings per acre of land and per cusec of water are higher for cotton than for rice[3]. Mallon [4] has considered the relative advantages of

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[1] For a more detailed discussion of the operation of the export bonus scheme, *see* Bruton and Bose [2] and Ahmad [1].

[2] This implies of course three rates: zero, 20 and 30 per cent.

[3] We omit here all other considerations which might make a change in the cropping pattern in the Punjab more or less desirable. Thus, for example, Ghulam Mohammad notes that rice is important for reclaiming saline lands in the irrigated portions of West Pakistan but that continued cultivation of rice leads to a rise in the ground watertable because seepage from rice fields tends to be much higher than watertable from fields under other crops [3].

exporting raw cotton and jute as compared with their manufactures. He concludes that foreign exchange earnings are higher when the former are exported but that the pattern of exports has been biased in favour of cotton and jute textiles since the export of these commodities are subject to a bonus whereas the export of raw cotton and raw jute receive no bonus and in addition are subject to an export tax.

The essence of the arguments put forth by Ghulam Mohammad and Mallon is that the differential rates of bonus cause a loss in foreign exchange because they distort the pattern of exports and resource use in favour of commodities which earn relatively less foreign exchange.

Thomas [9] has speculated further that the bonus system could have the effect of losing foreign exchange in a much more direct sense. In his argument, foreign exchange is lost when the total imported inputs, direct as well as indirect, embodied in the exported goods, exceed the foreign exchange earnings of the exported goods. Such a loss of foreign exchange is compatible with a rupee profit to the exporter because the bonus system in effect converts earnings at the rate of roughly Rs. 12.00 per US $1.00[4], whereas imported inputs are priced, except for those purchased with bonus vouchers, at the official rate of exchange of Rs. 4.76 per US dollar.

In calculating the foreign exchange loss, Thomas, unlike Mallon and Ghulam Mohammad, does not consider the opportunity costs of those domestic resources which, like land and water, could be used to produce other exportable commodities or which in the case of cotton and jute could be exported directly without conversion into some other product. As a result, Thomas' test of "export profitability" will be "weaker" than the Mallon-Ghulam Mohammad test in the sense that some industries, which according to the Thomas measure have large net foreign earnings, might have negative earnings when alternative uses of domestic resources are taken into account. On the other hand, if there is a foreign exchange loss according to the Thomas test, then there will also be a loss by the Mallon-Ghulam Mohammad measure.

The largest divergence between the results of the two tests of "export profitability" will be in those industries the output of which embodies a high component of domestically produced inputs having a ready export alternative. The best examples are those industries in the cotton-jute textile group. Indeed, these are probably the only manufacturing industries for which there is likely to be any significant divergence. The domestically produced input component in most

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4 The actual conversion rate depends of course on the premium for bonus vouchers prevailing in the market at the time the vouchers are sold.

other industries in Pakistan consists chiefly of such "national" sectors as trade, banking, government services and transportation which have no export alternative.

Another criticism of the export bonus scheme put forth by Thomas is that export bonuses may not be successful as a means for increasing the level of exports because of uncertainties regarding the life span of the scheme, changes in the bonus rates and fluctuations in the bonus premium[5]. With respect to the latter he says:

> ...The bonus voucher price can fluctuate within wide limits, so that the exporter, at the time he contracts his sale, cannot know what his gross revenue, including bonus, will be. Further, the government has changed the rate of bonus, and even though commitments were honoured at the previous rate, this raises serious questions about the future policy and future export profitability [9].

In this paper we have calculated net foreign exchange earnings as defined by Thomas for forty-three manufacturing industries. Although this measure excludes the export alternative of domestically produced inputs, it nevertheless will be an approximation to the net foreign exchange earnings concept of Mallon and Ghulam Mohammad, except for those industries which are intensive users of raw cotton and jute. We have also compared the total import component, direct and indirect, of exports under the bonus scheme with the degree of export subsidy afforded by the bonus scheme.

To evaluate the sensitivity of the export earnings of exporters to changes in the bonus rate and bonus premium we have derived the relevant elasticity concepts and have computed their value for currently prevailing values of the bonus rate and bonus premium.

In the last part of the paper we raise the question of what should be the criteria for determining the industries in which investment should be encouraged and more specifically, for determining which industries should be given priority from the point of view of meeting the export and foreign exchange earning targets of the Third Five Year Plan.

II. NET FOREIGN EXCHANGE EARNINGS FOR EXPORTS OF MANUFACTURES

The method we have used to compute the net foreign exchange earnings received by the economy when exports take place under the bonus scheme is

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[5] This aspect of the bonus scheme is not necessarily a disadvantage. If, in fact, there is a foreign exchange loss on commodities exported on bonus, the constraint imposed on the expansion of bonus exports by these uncertainties has the beneficial effect of limiting the extent of the foreign exchange loss.

as follows. Let:

E_j = the export value (f.o.b.), expressed in rupees, of one rupee worth of output from industry j at domestic market prices;

b_j = the percentage of E_j earned as a bonus voucher;

p = the premium earned on the sale of bonus vouchers expressed as a percentage of the amount of foreign exchange that the voucher entitles one to purchase;

and D_j = the rupee earnings of the exporter which result from exporting one rupee worth of commodity j measured at domestic market prices, including bonus.

Then $$D_j = E_j + E_j pb_j \qquad (1)$$
                          or
                               $$D_j = E_j (1 + pb_j) \qquad (1a)$$

We have assumed in what follows that the exporter passes on the benefits of tax exemptions and the export bonus to the foreign buyer. This would be true only in a purely competitive market structure where marginal revenue is equal to price. If the exporter faces a downward sloping demand curve either in the domestic or foreign market then it would no longer be correct to assume that the difference between the foreign and domestic price was equal to the domestic tax and export bonus[6].

In those cases where exports are exempted from domestic indirect taxes a rupee worth of output at domestic market prices would be exported, if the return to the exporter were equal to one rupee minus indirect taxes. Hence:

$$D_j = (1 - t_j) \qquad (2)$$

where t_j is the domestic indirect taxes per rupee unit of output on commodity j.

Substituting (2) into (1a) and solving (1a) for E_j, we get:

$$E_j = \frac{1 - t_j}{1 + pb_j} \qquad (3)$$

Total foreign exchange costs of exports are easily calculated from the inverse of the Tims-Stern input-output table, prepared for the Planning

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[6] In general, the domestic demand curve facing a particular firm will be more inelastic than the foreign demand curve; thus, the difference between domestic market and export price will exceed the amount of export bonus and indirect tax levied on domestic sales. In this case, our analysis would overestimate the marginal revenue in the domestic market and the minimum price at which the domestic producer would be willing to export. The net foreign exchange earnings which we calculate using the assumption of pure competition in both markets will be biased upwards with the bias greatest for those industries in which the domestic demand curve is the more inelastic relative to the foreign demand curve.

Commission [6][7]. Let A represent the matrix inverse, then a_{ij} is the amount by which output of industry i must be increased for the production of one unit of final demand of commodity j, and let m_i be the value of direct imports per rupee of output of commodity i. The *total* imports embodied in one unit of final demand of commodity j is then given by:

$$M_j = \sum_{i=1}^{n} a_{ij} m_i \quad (4)$$

The net foreign exchange earnings is the difference between the price paid by the foreign importer and the total cost, direct as well as indirect, of imports embodied in the export of one unit of final demand. Thus net foreign exchange earnings for the economy are:

$$V_j = E_j - M_j \quad (5)$$

The net foreign exchange earnings as given by equation (5) and shown in Table I as a per cent of export (f.o.b.) value, are a function of the bonus rate, the bonus premium and domestic indirect taxes. For our calculations we have assumed a bonus premium of Rs. 150.00 or that $p = 150$ per cent. The industries have been ranked according to their net foreign exchange earnings.

The net foreign exchange earnings range from a high of 99.8 per cent for raw jute to a low of 32.3 per cent for basic metals and 25.1 per cent for perfumes, cosmetics and soap. Net foreign exchange earnings tend to be highest for consumer goods and intermediate goods, lowest for capital and related products. This relative ranking follows from the fact that i) many consumer goods industries are relatively intensive in their use of indigenous raw materials and intermediate inputs, and hence, have low import components, while all capital and related goods industries are based on imported raw materials; and ii) the bonus rates are lowest for consumer goods industries.

None of the industries studied[8] has a net foreign exchange loss in the "Thomas" sense. The problem which he raises, that the bonus system could have the effect of losing foreign exchange in the sense of allowing the exporter to lower his export price to such a level that the foreign exchange earned per unit of export does not cover the cost of the direct as well as indirect imports em-

[8] We have omitted those industries which are prohibited from exporting under the P.L. 480 agreement. These are grain milling, other than rice, and edible oils and fats. Small scale industries have also been omitted since, in the Tims-Stern input-output table, this sector included small-scale grain milling which falls under the P.L. 480 prohibition on exports of like commodities.

TABLE I

NET FOREIGN EXCHANGE EARNINGS

AS A PERCENTAGE OF EXPORT (F.O.B.) VALUE

Rank	Industry	V_j^* (per cent)
1.	Jute pressing	99.75
2.	Cotton ginning	97.07
3.	Chemical fertilizers	96.04
4.	Tea	89.25
5.	Rice milling	75.73
6.	Sugar	69.30
7.	Sports goods	68.42
8.	Dyeing, printing and finishing of textiles	67.28
9.	Jute textiles	67.43
10.	Knitting	64.32
11.	Thread and threadball making	62.08
12.	Wood, cork and furniture	61.84
13.	Pens, pencils and related products	59.61
14.	Footwear	59.38
15.	Tanning and leather finishing	58.60
16.	Printing and publishing	57.15
17.	Cotton textiles	55.62
18.	Bakery products and confectionary	55.31
19.	Articles of paper and board	54.74
20.	Non-metallic mineral products	53.26
21.	Pharmaceuticals and miscellaneous chemicals	52.71
22.	Cigarettes and tobacco products	51.96
23.	Manufacture of paper and board	50.71
24.	Optical goods	49.75
25.	Matches	49.71
26.	Coal and petroleum products	49.64
27.	Silk and art silk	49.58
28.	Transport equipment	47.64
29.	Woollen textiles	47.37
30.	Non-electrical machinery	46.21
31.	Canning and preserving of fruits and vegetables	45.86
32.	Salt	45.32
33.	Leather goods	45.28
34.	Rubber and rubber products	44.94
35.	Alcoholic beverages	44.19
36.	Metal goods	43.27
37.	Electrical machinery and appliances	43.22
38.	Wearing apparel	42.64
39.	Plastic products	41.88
40.	Paints and varnishes	39.04
41.	Non-alcoholic beverages	33.67
42.	Basic metals	32.28
43.	Perfumes, cosmetics and soaps	25.13

* For p = 150 per cent

bodied in the exported good, does not seem to be relevant[9] with the present level and composition of exports. Conceivably, the problem would become a real one if Pakistan tries to expand her exports for commodities where the foreign demand is inelastic. In order to expand exports of these commodities, further subsidies, whether in the form of increased bonus or some other form, must be given to permit Pakistani exporters to lower their export price. However, this situation is extremely unlikely given any reasonable assumption about foreign demand elasticities and the kind of export subsidies which are likely to be given.

Although we find that there is no foreign exchange loss in the "Thomas" sense there may be a substantial loss in the "Mallon" sense. As we have already pointed out above, our analysis has only considered the alternative uses of imported intermediate inputs. In order to analyze Mallon's thesis fully we would also have to consider the alternative uses of domestically produced intermediate inputs. These could be either exported directly, as in the case of raw cotton or raw jute, or be used to produce manufactured goods. Although we have not attempted to answer Mallon's proposition fully we believe that for many industries, the inclusion of alternative uses of domestically produced intermediate inputs probably would not change our results significantly.

Another consideration which we have also neglected is the impo ___ ponent of capital inputs. Our analysis has only included imported inputs of intermediate goods. Unfortunately, we do not know what the capital coefficients for each industry are, let alone the coefficients of imported capital. One thing we can say, however, is that the inclusion of capital inputs would increase the foreign exchange cost and decrease the net foreign exchange earnings for all industries. We are inclined to believe that heavy industries such as fertilizers, basic chemicals, basic metals and machinery industries, tend to be relatively capital intensive and would be affected by the adjustment more than the consumer goods oriented industries and raw material processing industries.

III. THE ELASTICITY OF EXPORT VALUES AND EXPORT EARNINGS

In order to get some idea of the sensitivity of the export value of one rupee worth of output and of the rupee earnings to the exporter to changes in the bonus rate and bonus premium, we have calculated the relevant elasticities.

The exporter, in setting the export value of a rupee worth of output, must take into account some average premium for the bonus vouchers he will earn.

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[9] Our analysis is confined to net earnings after taking into account the effect of the export bonus scheme. No attempt has been made to include the effects of export performance licensing and other incentives to exporting industries which are mentioned by Thomas [9].

This average premium will reflect past performance of the voucher market and the exporter's expectation as to future behaviour. Thus, the manufacturer's decision as to the minimum price at which he can export takes the bonus premium as given and depends on the bonus rate applicable to his product. The elasticity (e) of the export value of one rupee worth of output (E_j) with respect to changes in the bonus rate (b_j) is given by[10]:

$$e_{E_j \cdot b_j} = \frac{-pb_j}{(1+pb_j)} \qquad (6)$$

The elasticity for the export value of a rupee worth of output is a function of both the bonus rate and the premium. The value of the elasticity is relatively small for values of p and b_j which have prevailed in the past. For example, if the premium is taken as $p = 150\%$ and the bonus rate as $b_j = 40\%$ then the elasticity, $e_{E_j \cdot b_j}$, is —0.37. Thus each percentage change in the bonus rate would give rise to a change of only 0.37 per cent in the export price. However, changes in the bonus rate are a much greater source of uncertainty than the relatively low value of the elasticity would indicate because such changes are made by government fiat in relatively large discrete amounts. The bonus rate of most manufactured goods, for example, was recently reduced from 40 per cent to 30 per cent. This amounted to a 25 per cent reduction of the bonus rate and would give rise to an increase of more than 9 per cent in the export price, if the exporter chooses not to absorb any part of the reduction in subsidy following from the reduction in export bonus. Consequently, he would be placed in a less competitive position in the world export market. Those exporters who had entered the export market

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[10] The elasticity is derived as follows. From (2) we have that:

$$E_j = -\frac{D_j}{(1 + pb_j)}$$

Then the elasticity of E_j with respect to b_j is defined as:

$$e_{E_j \cdot b_j} = \frac{d}{db_j}\left[\frac{D}{(1+pb_j)}\right] \cdot \frac{b_j}{E_j}$$

Taking the derivative:

$$e_{E_j \cdot b_j} = \frac{-D_j p}{(1+pb_j)^2} \cdot \frac{b_j}{E_j}$$

Substituting for D_j from (1a) we have:

$$e_{E_j \cdot b_j} = \frac{-E_j(1+pb_j)p}{(1+pb_j)^2} \cdot \frac{b_j}{E_j}$$

and simplifying:

$$e_{E_j \cdot b_j} = \frac{-pb_j}{(1+pb_j)}$$

after calculating their returns on investment using the higher bonus rate naturally suffered a loss when the change was made. Frequent changes in the bonus rate would cause substantial uncertainty for exporters and probably would hinder the orderly development of the export market.

Changes in the bonus premium affect the rupee earnings of the exporter (D_j). Once the exporter has set his export price, given the rate of bonus applicable to his commodity, fluctuations in the market for vouchers will alter his expected return. The elasticity (e) of the rupee earnings of the exporter (D_j) with respect to changes in the bonus premium, is given by[11]:

$$e_{D_j \cdot p} = \frac{pb_j}{(1+pb_j)} \qquad (7)$$

Again the elasticity $e_{D_j \cdot p}$ is a function of both the bonus rate and bonus premium and is relatively small for realistic values of p and b_j. For example, if $b = 20\%$ and $p = 150\%$, then $e_{D_j \cdot p} = 0.23$. A one per cent change in the bonus premium will give rise to only a 0.23 per cent change in the earnings of the exporter while 10 per cent change in the bonus premium would lead to a 2.3 per cent change in the exporter's earnings. A 10 per cent change in the bonus premium when $p = 150\%$ would be equel to a change of ± 15 percentage points. On the basis of past experience the monthly average of the bonus premium does not often fluctuate within a range of more than 15 percentage points. If the average premium is 150 per cent then the exporter can anticipate a gain or loss of at most 2.3 per cent[12]. Even if the price of bonus vouchers should fall below the "normal" range, the loss of the exporter is not likely to be greater than a few per cent. It is unlikely that the possibility of such a small loss would be much of a deterrent to exporters, particularly when we remember that the risk of unplanned losses will be offset, over time, by unplanned gains.

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[11] The elasticity is derived as follows. From (1) we have:

$$D_j = E_j + E_j pb_j$$

The elasticity of D_j with respect to p is given by:

$$e_{D_j \cdot p} = \frac{d}{db} \left[E_j + E_j pb_j \right] \cdot \frac{p}{D_j}$$

Taking derivatives:

$$e_{D_j \cdot p} = E_j pb_j \frac{p}{D_j}$$

Substituting for D_j and solving we get:

$$e_{D_j \cdot p} = \frac{pb_j}{(1 + pb_j)}$$

[12] The exporter can also avail himself of the market in future bonus vouchers which will tend to reduce the risk of fluctuations in the bonus premium and in his export earnings.

The argument that Thomas puts forth that the export bonus scheme may not succeed in increasing the level of exports because of uncertainties introduced by changes in the bonus rate and fluctuations in the bonus premium must be qualified. Given a reasonable assumption about the fluctuations in the bonus voucher market and the elasticity of export earnings with respect to changes in the bonus premium, it seems unlikely that the small losses or gains resulting from such fluctuations will have a great effect on the development of the export market. On the other hand, the fact that changes in the bonus rate tend to be relatively large and consequently have a more serious effect on the returns on investment of the exporter lead us to conclude that frequent changes in the bonus rate will hinder the orderly development of the export market.

IV. EXPORT BONUS AND IMPORT COEFFICIENTS

The export bonus scheme is in effect a partial devaluation of the rupee. By maintaining several different rates of bonus the government is able to maintain what is in effect a multiple exchange rate system.

The devaluation of the rupee was a necessary step since the official rate of exchange was substantially below the real scarcity price and exports were less than optimal. Differential bonus rates were set to increase foreign exchange earnings and presumably were set to reflect *i*) differences in the elasticity of foreign demand for different exports and *ii*) differences in the elasticity of export supply of Pakistani goods.

The argument for discrimination against those exports facing an inelastic foreign demand is well known and needs little discussion here. If exports of these goods were increased, foreign exchange earnings would decline; hence these goods should be given no export subsidy. Such is the case with raw jute. Since Pakistan is the only major exporter of raw jute, it is clear that the foreign demand for this commodity will be inelastic. Exports of raw jute do not receive an export subsidy and are in fact subject to an export tax. Similar treatment for exports of raw cotton, however, cannot be justified simply in terms of the elasticity of foreign demand.

Differentials in the export subsidy may also be set to reflect differences in the supply elasticity of various export items which is a weighted average of the elasticities of domestic supply of and domestic demand for the particular good[13]. Those commodities for which the supply and/or the domestic demand is inelastic will also possess an inelastic export supply curve. The export subsidy necessary to increase exports of any commodity by a given amount will be greater, *ceterus paribus*, the more inelastic is the export supply curve.

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13 *See* Bruton and Bose [2, p. 87] for a derivation of the export supply elasticity.

If the bonus rates are determined with respect to their impact on the level of foreign exchange earnings then the focus should be on *net* earnings at least to the extent of taking account of imported inputs, if not of the alternative uses of domestically produced inputs. The objective of increasing exports is, after all, to increase the level of imports which will remain available for increasing consumption and investment in Pakistan. If targets are set in terms of consumption and investment in Pakistan then the increase in the total value of exports required to satisfy these targets will be a function of the *net* foreign exchange earnings of the exported goods. In other words, the lower the net foreign exchange earnings per rupee value of exports, the greater will have to be the gross value of exports in order to increase imports for domestic use by any given amount.

Table II shows the *total* import requirements per rupee unit of final demand of various manufacturing industries, grouped according to their bonus rate. It is easily seen that the industries with the highest import requirements are the ones receiving the highest bonus rate. Taking simple arithmetic averages of the import requirements of each group of industries, we get the following results :

Bonus rate	Import requirement (rupee input/rupee unit of final demand)	Number of industries[14]
0 per cent	0.030	6
20 per cent	0.040	4
30 per cent	0.140	33

Thus, it would appear that the bulk of goods manufactured in Pakistan are characterized by both an inelastic export supply curve and high import requirements per unit of output.

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[14] The differences between the means was tested for statistical significance by use of the statistic for the 't' test, where:

$$`t` = \frac{\overline{X}_1 - \overline{X}_2}{S_{\overline{X}_1 - \overline{x}_2}}$$

The average import requirements of the industries receiving a bonus rate of zero and 20 per cent were different from the average import requirement of the industries receiving a 30 per cent bonus at the 1 per cent and .5 per cent level of significance respectively. There was no statistically significant difference between the average import requirement of the industries receiving zero and 20 per cent bonus rates. The standard errors were as follows:

$$S_{\overline{x}_{0\%} - \overline{x}_{20\%}} = 0.02015$$

and

$$S_{\overline{x}_{0\%} - \overline{x}_{30\%}} = 0.03645$$

$$S_{\overline{x}_{20\%} - \overline{x}_{30\%}} = 0.04391$$

TABLE II

TOTAL IMPORT REQUIREMENTS BY BONUS RATE

Bonus rate (*per cent*)	Industry	Total rupee imports/ rupee unit of final demand (*rupees*)
0	Tea	0.01115
	Salt	0.00982
	Chemical fertilizers	0.03960
	Coal and petroleum products	0.09182
	Cotton ginning	0.02348
	Jute pressing	0.00252
20	Sugar	0.00946
	Rice milling	0.01189
	Jute textiles	0.04392
	Dyeing, printing and finishing of textiles	0.09635
30	Canning and preserving of fruits and vegetables	0.23113
	Bakery products and confectionary	0.12268
	Alcoholic beverages	0.02888
	Non-alcoholic beverages	0.07961
	Cigarettes and tobacco products	0.04830
	Cotton textiles	0.05354
	Woollen textiles	0.19298
	Silk and art silk	0.17206
	Knitting	0.05553
	Thread and threadball making	0.07786
	Footwear	0.06047
	Wearing apparel	0.25227
	Wood, cork and furniture	0.05434
	Manufacture of paper and board	0.12420
	Articles of paper and board	0.07721
	Printing and publishing	0.11822
	Tanning and leather finishing	0.10370
	Leather goods	0.12191
	Rubber and rubber products	0.21020
	Paints and varnishes	0.21403
	Perfumes, cosmetics and soaps	0.27898
	Matches	0.02288
	Pharmaceuticals and miscellaneous chemical products	0.14590
	Non-metallic mineral products	0.05601
	Basic metals	0.36073
	Metal goods	0.24600
	Non-electrical machinery	0.22760
	Electrical machinery and appliances	0.21126
	Transport equipment	0.21222
	Optical goods	0.14800
	Plastic products	0.25529
	Sports goods	0.01450
	Pens, pencils and related products	0.06012

Aside from the large and important increases in exports of jute and cotton manufactures, the results of the bonus scheme were less than expected[15]. Bruton and Bose suggest that the failure of the bonus scheme to develop new products to be exported can be attributed to the fact that for these products "incentives on the supply side generated by the scheme were not strong enough" [2, p. 62]. As we have pointed out above, if one were to judge the scheme in terms of net foreign exchange earnings, rather than in terms of gross earnings, the scheme would be viewed as being even less successful in terms of these 'other' manufactured goods. The incentives necessary to increase net earnings will, of course, be greater than those required to increase gross earnings by an equivalent amount.

In the short run supplies are relatively inelastic and the effect of the bonus scheme is essentially to divert a larger proportion of a given supply of goods to the export market.

In the long run, however, capacity can be expanded and the effect of differential bonus rates will be to increase investment in those industries with the higher bonus rates relative to those industries with lower bonus rates.

The long-run effects of differential bonus rates need not lead to an inefficient use of resources. Manufacturing industries which now have the highest bonus rates may well be those industries in which Pakistan has a long run comparative advantage and the encouragement of these industries relative to others might be optimal from the long run point of view. On the other hand, there is no evidence to suggest that bonus rates have in fact been set according to the comparative advantage principles, so that the effect of the present export policies may very well have an adverse effect on the long run growth rate of Pakistan.

V. THE STRUCTURE OF INVESTMENT AND ECONOMIC EFFICIENCY

In actual planning procedures it is often very difficult to select a simple criterion for determining what the pattern of investment in industry should be. Often there are many conflicting goals, each of which implies a different criterion. The planners, of course, are free to choose their own particular set of goals and criteria. One might disagree with these goals but the least one should expect is that the investment programme be consistent with the targets set and the criteria chosen. The Third Five Year Plan states, in regard to investment criteria, that:

> ......the overriding principle is to create a structure for the industrial sector which is well-balanced internally and in relation to other sectors of the economy, through efficient utilization of investment and manpower resources and *with the minimum strains for the balance of payments* [7, p. 464] (Italics added).

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[15] Bruton and Bose [2, p. 62].

One aspect of the industrialization strategy that is consistent with the aim of minimizing the strain on the balance of payments is the reorientation of investment toward "additional capacity primarily for export" [7]. Import substitution, which was a dominant theme during the Second Five Year Plan, is to be continued but will be stressed primarily with respect to investment and related goods industries and other 'heavy' industries.

The two strategies of export promotion and import substitution are consistent with the "balance of payments" criterion for investment. One serves to increase foreign exchange earnings through increased exports and the other serves to economize on the use of foreign exchange by producing domestically what is currently imported.

The balance of payments criterion may not lead to an optimal investment pattern from the point of view of alternative investment criteria. The Third Plan does point out that "the composition of new industrial investment must be determined by assigning the maximum weight to scarce factors, which at the present stage of the country's development are foreign exchange and capital" [7]. The investment criteria should, therefore, at least reflect the desire to maximize the net foreign exchange saved or earned while taking full account of the scarcity of capital. This modified criterion would favour those industries for import substitution which are characterized by relatively low ratios of imported inputs and capital to output and those industries for export promotion which have a relatively high ratio of net foreign exchange earnings per unit of exports and a low capital-output ratio.

The principal emphasis in import substitution in the Third Plan is to be placed on the establishment of capital and related goods industries. These same industries are also cited as containing export possibilities. It is interesting to ask whether this investment programme is consistent with the goals and scarce factors enumerated in the Plan. As far as we know, the investment programme, as posited in the Third Plan, has been formulated without reference to the kind of calculations undertaken in this paper.

Table III shows the total, direct and indirect requirements of intermediate imports per rupee unit of final demand for forty-three industries, grouped into consumer, intermediate and capital and related goods industries. The average total import requirements for these three broad groups is shown below and compared to their average net foreign exchange earnings.

TABLE III

RUPEE IMPORTS PER RUPEE UNIT OF FINAL DEMAND

Industry	Total	Direct	Indirect
	(...........rupees...........)		
A. *Consumer Goods*			
1. Sugar	0.00946	0.00388	0.00558
2. Salt	0.00982	0.00612	0.00370
3. Tea	0.01115	0.00416	0.00699
4. Rice	0.01189	0.00566	0.00623
5. Sports goods	0.01450	0.00732	0.00718
6. Matches	0.02288	0.01334	0.00954
7. Alcoholic beverages	0.02888	0.01481	0.01407
8. Cigarettes and tobacco products	0.04830	0.04064	0.00766
9. Cotton textiles	0.05354	0.03592	0.01762
10. Wood, cork and furniture*	0.05434	0.01291	0.04143
11. Knitting	0.05533	0.03183	0.02370
12. Pens, pencils and related products	0.06012	0.03167	0.02845
13. Footwear	0.06047	0.03329	0.02718
14. Non-alcoholic beverages	0.07961	0.07505	0.00456
15. Printing and publishing	0.11822	0.11643	0.00179
16. Leather goods	0.12191	0.09896	0.02295
17. Bakery products and confectionery	0.12268	0.02612	0.09656
18. Optical goods	0.14800	0.08645	0.06155
19. Silk and art silk	0.17206	0.17180	0.00026
20. Woollen textiles	0.19298	0.18728	0.00570
21. Canning and preserving of fruits and vegetables	0.23113	0.21635	0.01478
22. Wearing apparel	0.25227	0.24000	0.01227
23. Plastic products	0.25529	0.20776	0.04753
24. Perfumes, cosmetics and soap	0.27898	0.26668	0.01230
B. *Intermediate Goods*			
1. Jute pressing	0.00252	0.00005	0.00247
2. Cotton ginning	0.02348	0.00213	0.02135
3. Chemical fertilizers	0.03960	0.00446	0.03514
4. Jute textiles	0.04392	0.03136	0.01256
5. Articles of paper and board	0.07721	0.04503	0.03128
6. Thread and threadball making	0.07786	0.04276	0.03510
7. Coal and petroleum products	0.09182	0.06957	0.02225
8. Dyeing, printing and finishing of textiles	0.09635	0.05662	0.03973
9. Tanning and leather finishing	0.10370	0.08108	0.02262
10. Manufacture of paper and board	0.12420	0.01065	0.11355
11. Pharmaceuticals and miscellaneous chemicals	0.14590	0.08369	0.06221
12. Rubber and rubber products	0.21021	0.13436	0.07585
13. Paints and varnishes	0.21403	0.00571	0.20832
C. *Capital and Related Goods*			
1. Non-metallic mineral products	0.05601	0.00234	0.05367
2. Electrical machinery	0.21126	0.12257	0.08869
3. Transport equipment	0.21222	0.16835	0.04387
4. Non-electrical machinery	0.22760	0.16640	0.06120
5. Metal goods	0.24600	0.12607	0.11993
6. Basic metals	0.36073	0.30068	0.06005

* Includes saw milling and metal furniture.

Industry group	Total rupee imports/ rupee unit of final demand	Net foreign exchange earnings as per cent of export value *
Consumer goods	0.101	53.7
Intermediate goods	0.096	64.6
Capital and related goods	0.219	44.3

* Calculated from Table I.

The capital and related goods industries have the highest import component and the lowest net foreign exchange earnings, suggesting that investment in capital and related goods industries is not consistent with the modified balance of payments criteria. However, the interpretation of these results must be subject to the following qualifications:

i) Net foreign exchange earnings have been calculated on the basis of current inputs only. If capital and related goods industries have a lower capital-output ratio than other industries, the disadvantage of a low value for the net foreign exchange earnings must be balanced against the advantage of economizing on capital.

ii) The above calculations are based on the assumption of infinite demand elasticities so that average and marginal net foreign exchange earnings are the same. In most cases the average value may be taken as an approximation to the marginal value. However, for those goods facing a downward sloping foreign demand curve, the marginal value will be below the average. If the foreign demand for the output of Pakistan's capital and related goods industries is more elastic than the demand for other goods then the marginal net value of foreign exchange earnings could be higher for capital and related goods industries than for other goods even though the average value of this coefficient is lower.

iii) The computations of net foreign exchange earnings take account of imported inputs only. If we had included the export alternatives of domestically produced inputs the relative magnitudes of the net foreign exchange earnings coefficient may be reversed. The adjustment to take account of domestically produced inputs would, in fact, primarily affect the consumer goods industries which are dominated by the textile industries component.

iv) Finally, the figures shown for each industry group are the unweighted arithmetic mean of the net foreign exchange earnings for ∠ach component industry of the group. The relative positions of the aggregates do not necessarily apply to every pair of industries; chosen one from each group.

The first and second qualifications are not likely to be important. It is unlikely either that capital and related goods industries are less capital intensive than other industries or that the foreign demand for these goods is significantly more elastic than for other manufactures.

The third and fourth qualifications are important. In an earlier study [8] we found evidence which supports the investment programme as stated in the Plan; namely, that many consumer goods industries already established have negative value added when their outputs and inputs are valued at 'world prices'. Of course, not all industries within the consumer industries group could be so characterized. Some consumer goods industries did show a positive value added while a few capital and related goods industries showed a negative value added. Also, the study referred to past investment. Clearly, caution must be exercised in extending the conclusions to predict the effect of future investment.

The Third Plan also makes provisions for export expansion in "industrial products based on raw materials which are available in the country in adequate quantities, such as cement, fertilizers, petro-chemical products and paper" [7]. These industries, while they may have a high capital coefficient, have among the lowest total imported intermediate input requirement [*see*, Table III]. Hence, they should be given a much more prominent role in the export strategy. Surprisingly they are not. Almost the entire increase in production of fertilizers and cement expected during the Third Five Year Plan period will be absorbed by the expanding domestic demand for these commodities.

VI. SUMMARY AND CONCLUDING REMARKS

In this paper we have examined two propositions regarding the export bonus scheme, namely *i*) that the scheme permits manufactured goods to be exported at a price, in terms of foreign exchange, which is less than the foreign exchange cost of direct and indirect imported inputs used to produce the commodity and *ii*) that the effectiveness of the export bonus scheme may be seriously reduced because of uncertainties regarding the bonus rate and bonus premium.

With respect to the first point we have shown that while there is a large range in the net value of foreign exchange earned for different exported commodities, all commodities earn more foreign exchange than is embodied in their production. As for the second point, we have shown that the receipts of exporters are affected to a greater extent by changes in the bonus rate, because these changes tend to be quite large when they are made, than by the day-to-day fluctuations in the bonus premium.

The large dispersion in the net foreign exchange earnings for manufactured goods raises the question of what commodities should be exported, and in the

longer run, in what industries should Pakistan invest in order to increase its exports. These questions of investment criteria go beyond the scope of this paper. However, we have pointed out that the present investment targets of the Third Five Year Plan emphasize those industries which are likely to have a high import cost, both in terms of capital and intermediate inputs. This pattern of investment may well be inconsistent with the criteria enumerated in the Plan although our results are subject to a number of qualifications.

We have also found that the present structure of the bonus rate is such that those industries which have the highest import component are receiving the largest export subsidy through the bonus scheme. In other words, the export bonus scheme provides incentives for the expansion of industries which have a large import component without adequately taking account of other "efficiency" criteria for investment.

REFERENCES

1. Ahmad, Kholiquzzaman, "The Operation of the Export Bonus Scheme in Pakistan's Jute and Cotton Industries" in this issue of this *Review*.

2. Bruton, Henry J. and Swadesh R. Bose, *The Export Bonus Scheme*. (Karachi: Pakistan Institute of Development Economics, 1963).

3. Ghulam Mohammad, "Some Physical and Economic Determinants of Cotton Production in West Pakistan", *Pakistan Development Review*, Winter 1963, pp. 491-527.

4. Mallon, Richard, "Export Policy in Pakistan", in this issue of this *Review*.

5. Pakistan, Office of the Economic Adviser, Ministry of Finance, *Pakistan Economic Survey, 1964-65*. (Rawalpindi: Ministry of Finance, May 1965).

6. Pakistan, Planning Commission, International Economics Section, *Methodology of Estimating Import Requirements*. Mimeographed (Karachi: Planning Commission, March 1965).

7. Pakistan, Planning Commission, *The Third Five Year Plan, 1965-70*. (Karachi: Inter-Services Press Limited, March 1965).

8. Soligo, Ronald and Joseph J. Stern, "Tariff Protection, Import Substitution and Investment Efficiency", *Pakistan Development Review*, Summer 1965, pp. 250-270.

9. Thomas, Philip S., *A Critical Evaluation of Import Licensing in Pakistan*. Research Report No. 38. Mimeographed. (Karachi: Pakistan Institute of Development Economics, February 1966).