

# The Export Bonus Scheme: A Preliminary Report

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## INTRODUCTION

The purpose of this paper is to present an interim report on a study of the Export Bonus Scheme now underway at the Institute. The Institute plans to publish in monograph form later this year a complete report of its findings on this subject. The objective in making this preliminary report available is to attract comments and criticisms of the approach employed and the data used from other people interested in and acquainted with the Export Bonus Scheme.

The scheme was inaugurated in January 1959 (and is now scheduled to continue until 1965) for the announced purpose of increasing Pakistan's earnings of foreign exchange. There was no excess saving problem in Pakistan at this time and any failure of the system to operate at full capacity was due to supply problems, especially imported raw materials and spare parts. Therefore, such an objective required that a larger proportion of the total domestic output of the products covered by the scheme be exported than was the case before the scheme was inaugurated. That such an objective be sought necessarily presumes that the existing exchange rate undervalues imports. To maintain this inconsistency between the official nominal value and real value of imports required a form of rationing of foreign exchange other than that effected by its cost. The State Bank is responsible for carrying out the government's foreign exchange control policies. The bonus scheme is a form of altering the terms of sale of exports in such a fashion that exports become more attractive to producers at an unchanged official rate of exchange. On the import side the scheme creates a small sector within the economy in which some foreign exchange is sold on a virtual free market basis.

The scheme works in the following way: A Pakistani exporter earns the equivalent of (say) Rs. 1,000 in foreign exchange. This foreign exchange is immediately sold to the State Bank of Pakistan for the Rs. 1,000. The exporter also receives a voucher that entitles its owner to purchase foreign exchange equal in value to 20 or 40 per cent (depending on the commodity exported to earn the foreign exchange) of the amount earned. The voucher is, therefore, a ration coupon honoured by the State Bank for obtaining

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foreign exchange for use in a wide variety of ways. Vouchers are issued for all exports except raw jute, raw cotton, hides and skins, raw wool, tea, and most varieties of rice. Imports allowable under bonus vouchers include more than 200 items. Both capital and consumer goods are contained in the list.

The voucher is transferable and may be sold in the market at a price determined by the market. Since the inception of the scheme the market price of the voucher has exceeded the values of the voucher. In the terminology commonly used, a premium is paid for the voucher. Thus the exporter who sells his voucher in the market receives the rupee equivalent of the price the foreign importer pays plus the amount he receives for the voucher. Let

$P_f$  = Price in rupees paid by the foreign importer

$v$  = Per cent of  $P$  earned as a voucher. (This is 20 or 40 per cent)

$r$  = Premium expressed as a percentage of the amount of foreign exchange that the voucher entitles one to purchase.

$P'_f$  = Price received by the exporter.

Then  $P'_f = P_f + v r P_f$

$$P'_f = P_f(1 + vr)$$

If any exporter receives the equivalent of Rs. 1,000 for a given commodity that he exports and also receives a voucher equal to 20 per cent of his earnings and finally sells the voucher for 150 per cent of its face value, then  $P'_f = 1000[(1 + (.20)(1.50))] = 1300$ . The foreign importer pays Rs. 1,000 for an object while the exporter receives Rs. 1,300 for it. It is convenient to refer to  $P_f$  as the foreign price and  $P'_f$  as the "exporter's price."

In this example the purchaser pays Rs. 300 for the voucher. This means he pays Rs. 300 for the right to purchase Rs. 200 worth of foreign exchange. He must then pay the Rs. 200 necessary to buy the foreign exchange. He, therefore, pays Rs. 500 for Rs. 200 worth of foreign exchange valued at the official rate of exchange. It is evident of course that anyone willing to do this values foreign exchange significantly higher than the value given it by the official rate of exchange.

There are several questions that must be considered in appraising the effectiveness of this scheme as a device for increasing Pakistan's earnings of foreign exchange. The most important of these questions are the following:

1) What is the effect on foreign exchange earnings? To answer this requires an examination of changes in both quantity and price of Pakistan's exports resulting from the functioning of the scheme. But in examining the changes in foreign exchange earnings of a given commodity one must take care to note that this change may be counteracted by an induced change in the earnings of another commodity. For example, an increase in the quantity of jute manufactures exported due to the existence of the scheme may mean a reduction in the earnings of foreign exchange from the export of raw jute. Therefore, the question should always be stated as what is the *net* effect of the scheme on foreign exchange earnings.

2) What determines the level of the premium? To answer this requires an identification of the factors acting on both the demand and supply side of the equation. It may also prove profitable to consider the question of an "equilibrium" level of the premium. Finally, there is the question of the incidence of the premium, *i.e.*, who pays it.

3) What is the effect of the operation of the scheme on the internal price level? The success of the scheme requires that exports increase relative to total output, but this is not a sufficient condition to produce inflation. There is also a supply effect arising from the working of the scheme. In particular the increased import of strategic spare parts or raw materials may result in an improved supply position that must be taken into account. An examination of the effect of the scheme on the internal price requires, therefore, an analysis of the impact on internal demand and on supply. Furthermore, if prices of certain products—*e.g.*, luxury items—rise, the customary ill effects of inflation may be quite mild. Thus, an essential part of the analysis of this question has to do with the composition of imports obtained with bonus vouchers.

4) To what extent does the working of the scheme affect the allocation of resources in Pakistan? In some ways the scheme approximates a multiple exchange rate system and in some ways it approximates a free exchange rate system. In a longer-run context any appraisal of the scheme must consider the manner in which it affects the pattern of growth of the economy. This amounts to the question: does the scheme contribute to a mis-allocation of resources or does it contribute to a more rational allocation according to conventional criteria of allocation.

In the forthcoming monograph previously referred to all these questions will be examined in some detail. In this article primary concern is with the first question, although incidental attention will be given to questions two and three. But it is important to keep in mind that all of the questions are relevant in appraising the overall efficacy of the scheme.

In Part I we establish a rather formal framework for analysing the effect of the bonus scheme on foreign exchange earnings. In Part II we make use of this framework to examine the effect of the scheme on the exports of jute and cotton products. Foreign exchange earnings from these two sources account for about 60 per cent of the total foreign exchange earned under the bonus scheme. A strong disclaimer is necessary. The data are of questionable accuracy and may be in error to the extent that our analysis is of no value. Furthermore we have, because of limited resources, been forced to rely heavily on published information and thereby may have missed a strategic bit of data that should have been considered. Finally, we have for the most part worked with annual figures and to some degree this lumping of time hides significant developments. In spite of these difficulties, it is believed that some interesting results about the bonus scheme have been obtained.

## PART I

It is convenient to approach the analysis of the effect of the scheme on foreign exchange earnings in terms of an individual producer. The producer sells part of his product to the domestic wholesalers and part of it he also exports. If he maximizes his profit he will of course produce where his marginal costs are equal to marginal revenue. But as he is selling in two separate markets, the relevant marginal revenue is that which results from total sales, *i.e.*, sales in both the export and domestic market.

It is also clear that the producer will divide this output between sales to the domestic wholesaler and to abroad in such a manner that the marginal revenues in each market are equal to each other<sup>1</sup>. If this were not the case then the producer could increase his revenue from a given output by shifting sales from the market where marginal revenue is lower to the market where it is higher.

Unless the demand curves confronting the producer in the foreign and domestic markets happen to coincide over the relevant range, the domestic price ( $P_d$ ) and the foreign price ( $P_f$ ) will not be the same. This coinciding seems unlikely enough to be ruled out of consideration. The special case in which both markets are perfectly competitive may also be safely ignored. In this case the total quantity produced will be sold in the market where price is higher (because price and marginal revenue are identical if

<sup>1</sup> In a specific short-run period the producer may export a quantity that will maximize his foreign exchange earnings in order to obtain vouchers with which to buy imports of spare parts or machinery and thereby increase output in a future period. Although a distribution of output between domestic sales and exports for this reason may be important in a given period it should not be so in the longer run. Even in this case the producer is dividing his sales in order to maximize the present value of profit stream.

the demand curve is horizontal). Although Pakistan produces some commodities the total quantity of which is exported, the reasons are other than the one just referred to. If both demand curves were horizontal at the same prices then they would in effect constitute the same market and the producer would be indifferent as to the distribution of his sales. We may then conclude that the demand curve in at least one market, domestic or foreign, is negatively sloping. Can more be said?

Let  $E_d$  and  $E_f$  be the elasticity of demand in the domestic and foreign markets respectively. It is well known that marginal revenue equals average revenue (price) times  $(1 - \frac{1}{E})$  where  $E$ , the elasticity of demand, is written as negative<sup>2</sup>.

If the marginal revenues in the domestic and foreign markets are equal, then

$$P_d (1 - \frac{1}{E_d}) = P_f (1 - \frac{1}{E_f})$$

$$\frac{P_d}{P_f} = \frac{(1 - \frac{1}{E_f})}{(1 - \frac{1}{E_d})}$$

Price will thus be higher in the market with the less elastic demand curve. Furthermore, the two elasticities cannot be less than unity for if they were the marginal revenues would be negative and a firm will never produce at a point where marginal revenue is negative. Also of course it implies marginal costs below zero which is equally absurd. Finally, since  $\frac{P_d}{P_f}$  cannot be negative both elasticities must be on the same side of unity

Independently of this *a priori* treatment it is reasonable on empirical grounds to assume that  $E_f > E_d > 1$  for the items that earn bonus vouchers. It seems reasonable to assume that  $E_f > 1$  because the output in Pakistan of bonus items constitutes only a very small part of total world supply and,

<sup>2</sup>. This can be proved in a number of ways. Let  $p = \phi(x)$  be the demand function  $R = xp = x \phi(x)$  is total revenue and

$$\frac{dR}{dx} \cdot \frac{d}{dx} (XP) = p + X \frac{dp}{dX} = p (1 + \frac{X}{p} \cdot \frac{dp}{dX})$$

$$\text{But } E = - \frac{P}{X} \cdot \frac{dX}{dp} \text{ and then } \frac{dR}{dX} = p (1 - \frac{1}{E}).$$

See any intermediate theory text for further elaborations and other methods of proof.

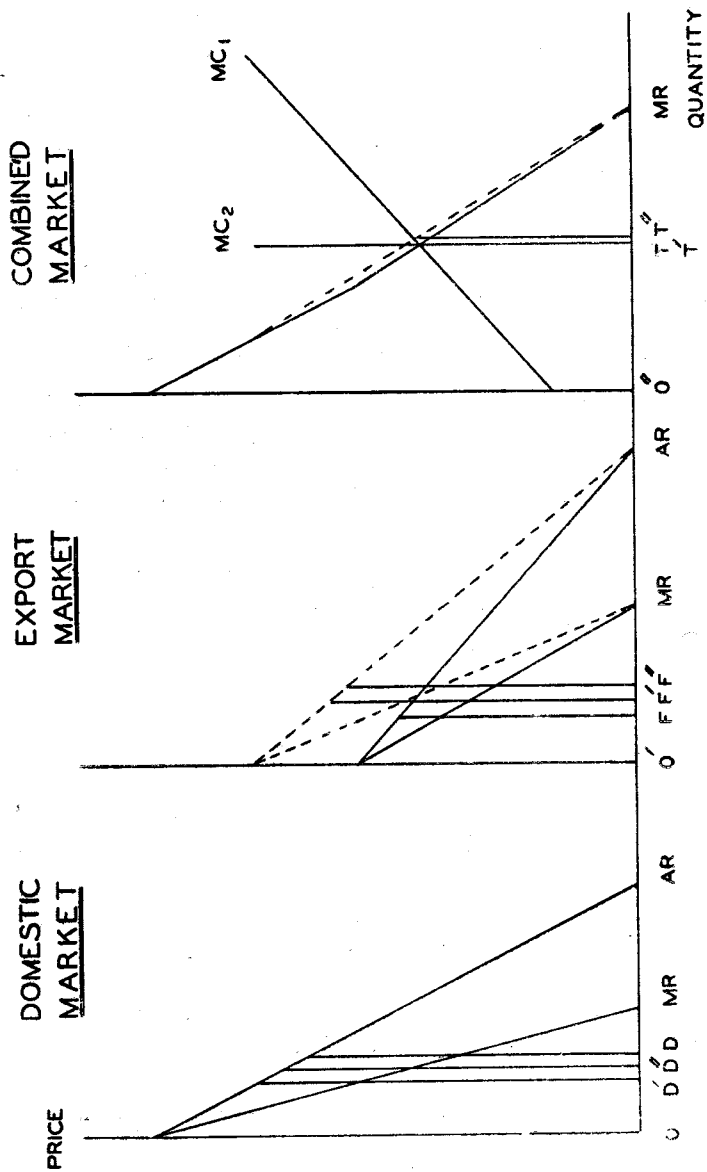
therefore, changes in the quantity of Pakistan's export of these items are unlikely to affect world prices very much. It seems reasonable to assume that  $E_f > E_d$  for essentially the same reason: the proportion of the internal market supplied by a producer is likely to be much greater than for the world market. But if  $E_f > 1$ , then for reasons already stated  $E_d > 1$ , so it may be concluded that  $E_f > E_d > 1$ . If this set of inequalities hold, then  $P_d > P_f$ .

In the preceding section the equilibrium conditions of a producer selling in the domestic market and abroad were outlined. Now the question is, what happens when the Export Bonus Scheme is initiated. Assume for the moment that the premium,  $r$ , remains stable. Then with the inauguration of the scheme, the demand curve from abroad shifts upward in the proportion  $v r P_f$ . The exporter now receives a price equal to  $P_f + v r P_f$  in rupees for any given quantity exported. It is evident that the marginal revenue in the export market will have risen, and, therefore, the producer is encouraged to shift his sales from the domestic market to the export market. The process may be made clearer by considering two special cases.

A. Assume that  $E_f > E_d > 1$ , but that neither elasticity is infinite and that the demand curves may be represented by straight lines. In Diagram I the continuous black lines represent the demand and cost curves prior to the initiation of the Export Bonus Scheme. Equilibrium output is  $O'T$ , the intersection of the marginal cost curve with the combined marginal revenue curves. This output is divided  $OD$  in the domestic market and  $OF$  in the export market. The price in each market is given by the average revenue curve for that market, and the marginal revenues are the same in each market.

With the inauguration of the Export Bonus Scheme the demand and marginal revenue curves in the foreign market shift upward in the proportion  $Vr P_f$  and are shown by the dotted block lines. Hence, the combined marginal revenue curve moves in the manner indicated by the dotted line in the combined market. It is recalled that the combined marginal revenue curve is obtained by summing horizontally the marginal revenues in the separate markets.

These shifts in the marginal revenue curves are intuitively evident, but can be easily demonstrated. Marginal revenue now is  $(P_f + Vr P_f) (1 - \frac{1}{E_f})$  and as  $E_f$  on the old demand curve (solid line) and the new demand curve (dotted line) are the same marginal revenue has risen



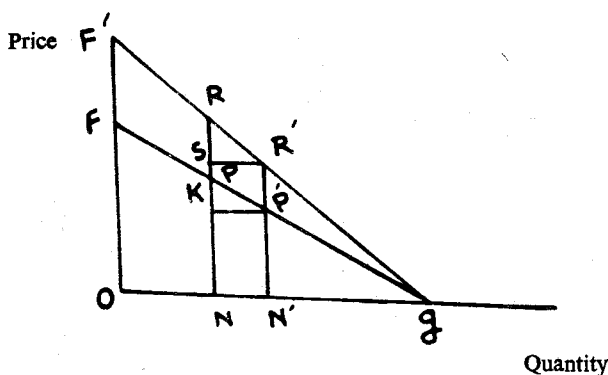
**DIAGRAM I**

in proportion to  $V_r P$ , and the producer will shift sales in favour of the export market<sup>3</sup>. The question now is how much will exports increase?

It is evident from Diagram I that the increase in exports will be greater, the more elastic is the marginal cost curve, the domestic market demand curve, and export market demand curve, and the more slowly these elasticities fall as the quantities produced and the quantities sold in each market change<sup>4</sup>. If an output of  $O'T$  is the maximum possible then  $MC_2$  is the relevant cost curve while if some increase in output is possible we follow  $MC_1$ .

These results are of course intuitively appealing. If output cannot be increased beyond  $O'T$  then it is evident that increments in exports must be at the expense of the domestic use of the commodity. If as the supply provided the domestic market declines the domestic price rises rapidly—if  $E_d$  is low—then the marginal revenues in the two markets will be equated again with only a small increase in exports. While if a minor price rise in the domestic market releases relatively large quantities from domestic use then it will be possible to increase exports by substantially more. The effect of the intro-

<sup>3</sup>. That  $E_d$  is the same at the same quantity on both curves is a familiar proposition. At zero price both curves are the same, so we may proceed as follows:



$$\text{Elasticity (by definition)} = \frac{NN'}{ON} \cdot \frac{NP}{PK} = \frac{KP'}{PK} \cdot \frac{NP}{ON}$$

$$\text{(But by the properties of similar triangles } \frac{KP'}{PK} = \frac{Ng}{PN} \text{)} = \frac{Ng}{PN} \cdot \frac{NP}{ON} = \frac{Ng}{ON}$$

Since both curves are the same at  $g$  then  $Ng/ON$  is the same for both curves.

<sup>4</sup>. These statements can be proved rigorously. Also of relevance is the proportion of output sold in each market. The smaller the proportion of output exported to total output the greater will be the increase in exports. As this factor seems relatively insignificant it may be ignored. The straight line demand curves simplify the results but do not introduce substantive considerations into the argument.



duction of the scheme on internal prices may be seen here also. The more inelastic internal demand the greater will be the rise in the domestic price of the commodity upon the introduction of the scheme. In the extreme case if internal demand were completely inelastic in the relevant range and  $O^*T$  were the maximum output, the Export Bonus Scheme would result solely in a rise in the domestic price of the commodity and no increase in export. This would be true no matter how great was the elasticity of foreign demand.

Similarly, given the domestic demand curve, the decline in the marginal revenue of the export market subsequent to increased sales abroad will be greater the more inelastic is foreign demand. Or, it will take a larger increase in exports to re-equate the marginal revenues if the foreign price falls slowly as supply increases than if it falls rapidly. And it will fall more slowly as quantity increases the more elastic is the demand curve.

Finally, given the demand curves in the two markets, (unless the elasticity of foreign demand is zero) exports will increase more the greater the increase in output consequent to a rise in price. With the inauguration of the Export Bonus Scheme the combined marginal revenue of the producer rose, and he had an incentive to increase his rate of production. The greater that increase the greater the quantity of product available for export. If the marginal cost curve were horizontal there would be no increase in prices in either market, no reduction in domestic use of the commodity, and exports would expand in an amount determined by the shape of the foreign demand curve.

Except in the case where one of the curves is completely inelastic, it is not technically possible to place primary responsibility for the limitation on the quantity of exports on a particular curve. However, it is possible and fruitful to try to isolate what appears to be the strategic bottleneck to the further increase in exports given the functioning of the scheme. Thus, it is important to determine whether a very inelastic domestic (or foreign) demand is the immediate obstacle or whether the difficulty is from the domestic supply side<sup>5</sup>. In each case the correct policy to increase the effectiveness of the scheme is different. In the empirical investigations accompanying this report an effort is made to so identify a "primary stopper".

The next, and more important question has to do with the effect on foreign exchange earnings. For foreign exchange earnings to increase requires that the decline in  $P_f$ , the foreign price, occasioned by the increased quantity in the foreign market be offset by the increase in exports. This cumbersome phrase seems necessary rather than the simpler one "the elasticity of foreign

<sup>5</sup>. Of relevance also is the response of foreign producers to changes in the Pakistani price, but it is necessary to ignore this effect.

demand must be greater than unity", because of the influence of the domestic demand curve and the marginal cost curve. As was noted above the foreign demand curve may be very elastic and exports not increase because of the inability to increase output and the zero elasticity of home demand. It is, however, correct to say that over the range of the foreign demand curve that exports rise, foreign exchange earnings will increase only if the elasticity of demand exceeds unity.

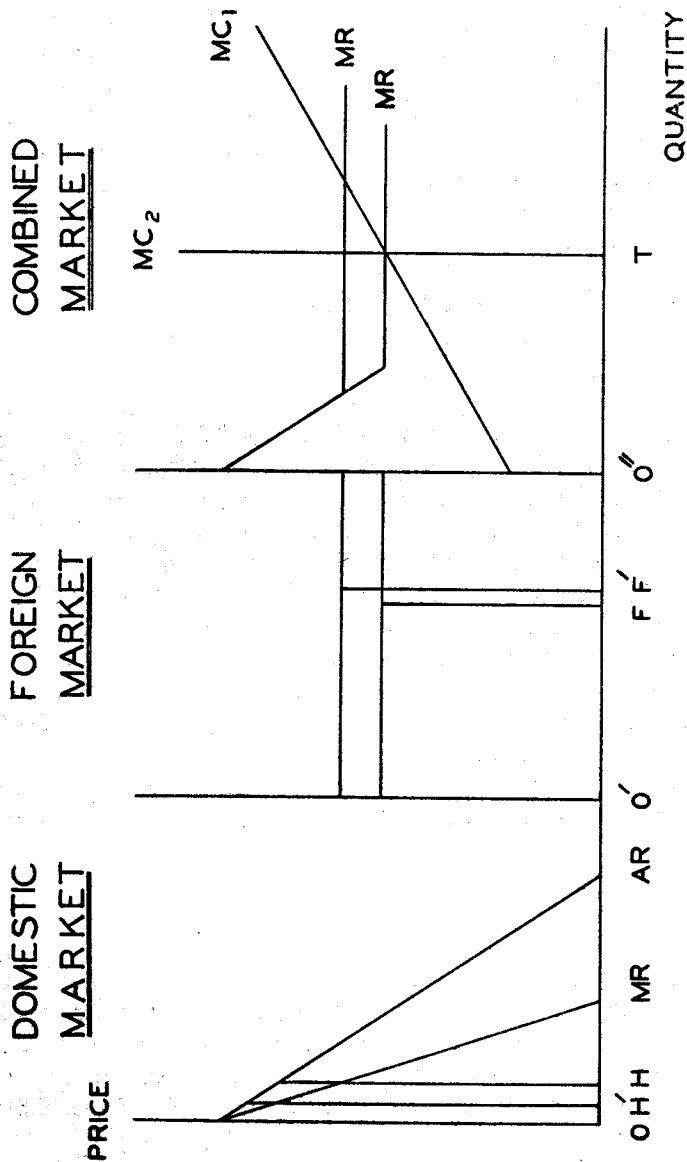
The above argument was in terms of price elasticities, but over several periods there is also an income effect at work. The demand curves will move to the right as income rises. Thus, a domestic income elasticity of demand that is high relative to the foreign income elasticity will result in the domestic market strengthening relative to the foreign market, *i.e.*, will make it increasingly less attractive for the producer to export. Although income in Pakistan probably has not risen much since the inauguration of the bonus scheme, foreign incomes have and should enter into the analysis. Also in the long run the domestic income elasticity is decidedly relevant, and becomes particularly important in appraising the time path of the premium. This we will look into later.

It is evident how changes in the premium affect the demand curves and we do not need to elaborate on this point.

B. The second case worth specific attention is that in which the foreign demand curve may be assumed to be perfectly horizontal. This case is illustrated in Diagram II. The higher demand curves represent the demand situation after the Export Bonus Scheme becomes effective. The chief difference between this case and the preceding one is that now the outcome, in terms of both quantity and foreign exchange, depends entirely upon the increased quantity of the product that can be made available for export. For now the foreign market will absorb all that can be supplied. Once more the role of home demand is crucial because of the likelihood, especially in the short run, of the inability to increase output<sup>6</sup>.

In this case it is possible to be more certain on the source of the stopper of the increase in exports. As just noted foreign demand will allow unlimited absorption. If then evidence can be presented that shows the shape of the marginal cost curve then it is possible to say something rather firm about the precise situation that limited the increase in exports. It is evident of course that any increase in the quantity of exports represents an increase in foreign exchange earned.

<sup>6</sup> As was implied earlier the shape of the marginal cost curve may itself be affected by the Bonus Scheme because of the new availability of certain industrial imports allowed by the scheme.

DIAGRAM II

The preceding discussion was pitched in terms of an individual producing firm. Data are not available for single producing units, so in the empirical sections which follow it is assumed that all Pakistani producers are lumped together as a giant firm. This introduces some degree of error, but it is not thought to be significant. All firms face approximately the same foreign demand curve, and although different producers have different cost and internal demand curves it is not believed that these differences are so great that the logic of the arguments is violated. In assuming that the industry acts pretty much as a cartel, we are more or less forcing the assumption of an elastic demand curve, as no monopolist will ever operate in the inelastic range of a demand curve.

## PART TWO

### A. JUTE PRODUCTS

Jute and its products have been Pakistan's chief foreign exchange earner (except for 1952 and 1953) since the country was founded. Raw jute has been and remains the largest single item of export, but by the time the Export Bonus Scheme was inaugurated in 1959 Pakistan's jute manufacturing activity had reached significant proportions. By 1959 most of the jute exports took one of the following forms: raw jute, hessian cloth, or sacking bags. Other items such as hessian bags, rope and twine, jute yarn, and sacking cloth are also exported but in negligible quantities and are ignored in the analysis<sup>7</sup>. Of these all earn bonus vouchers of 20 per cent except raw jute which is not a bonus item. An analysis of the effect of the bonus scheme on the foreign exchange earnings of jute products must then be made for the industry as a whole. The question essentially is: what is the effect of the bonus scheme on the foreign exchange earnings from the export of jute and jute products?

#### 1. Raw Jute

The relevant data are presented in Table 1. The analysis is complicated somewhat by the fact that a ceiling on acreage and a floor under export prices existed in some of the years under review although there is some question as to how effective such devices were. It is, however, necessary to introduce these factors into the arguments about the effects of the bonus scheme on the jute industry.

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<sup>7</sup>. Trade data show significant quantities of hessian bags exported. Careful study of these data however has led us to the conclusion that they are incorrect. If hessian bag exports measured in tons are added to hessian cloth exports similarly measured the total for each year greatly exceeds the total of hessian produced in these years. We have therefore assumed that all bags exported are sacking and have combined the figures shown for hessian bags with sacking bags for our figure for sacking.

TABLE 1  
RAW JUTE PRODUCTION AND EXPORT

Year	Quantity produced (000 tons)	Quantity exported (000 tons)	Average value of exports (rupees per ton)	Foreign exchange earned (million of rupees)	Raw jute consumed by Pak-istan mills (000 tons)	Percentage of raw jute exported	Index of domestic price of jute <sup>a</sup>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1956 ..	984	845	888	750	140	85.9	100
1957 ..	1,107	772	1,012	781	159	69.7	97.0
1958 ..	1,071	891	941	839	186	83.2	81.5
1959 ..	989	796	853	680	247	80.5	92.7
1960 ..	1,004	745	1,081	806	280	74.2	180.0
1961 ..	1,244	593	1,501	892	263	47.7	159.0

Source: Central Statistical Office.

a. This index is for raw jute white bottom average price at Dacca over the final six months of the year. The price over the last six months of each year is used because it is at this time that most domestic jute manufacturers purchase their raw jute. Although the price indices of all grades of jute do not move exactly together, they move nearly enough so that we may use this index as representative of the behaviour of raw jute prices. Data on output are available on a split year basis. Calendar years are used here, e.g., 1956/57 is shown as 1956.

From 1956 through 1960 total raw jute production was about constant. The below average figure for 1959 probably can be attributed to acreage limitation. In that year acreage was 1.37 million acres and in the preceding and succeeding years it was 1.5 million. The acreage limitation rule was not effective for the 1960 crop nor for 1961 when the total acreage reached 2 million. The acreage limitation was lifted in time for the 1960 crop to be affected, but only a minor increase in acreage over 1959 occurred, while an increase of about one-third in acreage occurred in 1961 compared to 1960. We are then entitled to assume that the big increase in 1961 was not due merely to the absence of acreage limitation, but to a direct response to the favourable prices prevailing in 1960. This single episode suggests that supply at least in 1961, was quite responsive to price incentives. Whether it remains so is another matter. The Food and Agriculture Organization concluded in

1959 that a Pakistani crop of 1.1 or 1.2 million tons represent a limit under present conditions<sup>8</sup>. Yields per acre have not risen and even declined a bit from 1959 to 1960 and considerably more in 1961. The decline in these years suggests that as acreage increases less suitable land is utilized for growing jute. This further suggests that increases in output after 1961 can be less readily achieved than that between 1960 and 1961<sup>9</sup>.

There is a decided downward trend from 1958 in the absolute quantity of raw jute exported and in the proportion of the total crop that is exported. Thus in 1958 over 83 per cent of the crop was exported and by 1961 this proportion had fallen to 47 per cent. These downward trends are made more significant by virtue of the fact that the average unit value per ton exported was about 15 per cent higher in 1960 than in 1958 and almost 60 per cent higher in 1961 than in 1958. This of course suggests strongly that, unless there was a major change in costs of production after the bonus scheme became operative, the downward trend in exports is due to the development of a more lucrative market. But an adverse cost effect would surely have been reflected by a limitation on output, and as Column 1 shows, this limitation was not present.

But there is an additional consideration. From October 1958 a floor on the export price of Rs. 1,040 per ton of "export firsts" and corresponding floors for other qualities were effective. In July 1961, this floor on export price was raised by Rs. 133 for all qualities and exported. Thus, this minimum price could also place a limit on the quantity that could be exported.

It would seem correct to argue, however, that the floor had little effect on 1959 and 1960. In 1959 the quantity exported declined by almost 11 per cent, while consumption by Pakistani mills increased by about 18 per cent. (See, Table 2). This large increase in quantity used in the face of a 14 per cent increase in domestic price entitles us to assume that the local market bid away the raw jute from the export market rather than the foreign market releasing the jute because of weak foreign demand. It is evident, however, that the faltering foreign price in 1959 made relatively easy this bidding away process. Thus in 1959 the increase in the domestic use of jute (61,000 tons) was effected despite a decline in output (82,000 tons) through a decline in exports (95,000 tons) brought about by a rise in the domestic price (14 per cent) and a decline

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<sup>8</sup>. *Monthly Bulletin of Agricultural Economics and Statistics*, October 1959, p. 24.

<sup>9</sup>. *The Second Five Year Plan (1960-65)* of Pakistan calls for a 22-per-cent increase in raw jute production over the course of the plan period.

TABLE 2  
EFFECT OF BONUS SCHEME ON RAW JUTE

Year		Change in output (000 tons)	Change in exports (000 tons)	Change in dom. use (000 tons)	Per cent change in dom. price	Per cent change in foreign price
		(1)	(2)	(3)	(4)	(5)
1959	..	— 82	— 95	+ 61	+14	— 9
1960	..	+ 15	— 51	+ 33	+ 95	+25
1961	..	+ 240	—152	—17	—11	+49

Source: Table 1: Change is from previous year in each case.

(9 per cent) in foreign price.

In 1960 the argument appears even more clearly. For in this year the foreign price jumped 25 per cent and despite this the quantity of exports decreased while total output rose. Clearly a more lucrative market presented itself to the jute producer. That this occurred is evident from the big jump (95 per cent) in the domestic price index. Thus domestic jute mills were so interested in obtaining raw jute that they bid up the domestic price by almost 100 per cent compared to the previous year to attract the raw jute away from an obviously strong foreign market.

The picture shown in Tables 1 and 2 for 1959 and 1960 are exactly what our theoretical construct in Part I would lead us to expect. As noted above raw jute is not a bonus item, while jute manufactures are. With the beginning of bonus scheme, jute manufacturers had—for reasons detailed in Part I—an incentive to increase output and to increase sales abroad. Thus their demand curve for raw jute was shifted rapidly to the right as a consequence of the bonus scheme. At the pre-bonus scheme prices the quantity of raw jute demanded by jute manufacturers increased, but the supply in 1959 and 1960 did not respond adequately, so prices of raw jute had to rise. This rise in the domestic price was necessary to bid the raw jute away from the export market. Furthermore, with a relatively stable premium established from the outset of the scheme, the big shifts from exports to domestic sales would occur during 1959. After that—except for lags in adapting to the new situation—changes in the relative quantity exported, would be explained in terms of

changes in the premium which would further shift the domestic jute manufacturer's demand curve for raw jute. At any rate it is to be expected that the shifting effect of the bonus scheme would be much less in 1960 than in 1959. Thus Table 2 shows an increase of 33,000 tons in domestic use in 1960 over 1959 and a 61,000 ton increase in 1959 over 1958. Neither of these increases is due entirely to the bonus scheme of course (an increase in manufacturing capacity independent of the bonus scheme was taking place) but the difference in the two years probably should be explained in these terms.

So far everything is perfectly consistent and evidently so with the model developed in Part I, but 1961 events are not so clear. Attention has already been called to the big jump in output, and the fact that this jump seems to be a direct response to the strong demand in both the domestic and foreign markets in 1961. But the data in Table 1 raise other questions. The big drop in exports in face of the very high foreign average value and the modest declines in domestic use and in the domestic price index call for some additional explanation.

Consider first developments in the foreign markets. In July 1961 the minimum export price was increased on all grades by 133 rupees per ton. In view of the declining domestic market why did not jute producers export a sufficient quantity of raw jute to drive the export price down to this minimum<sup>10</sup>. To a very large degree they did do just that. The following breakdown of the annual figures show this. In the first half of 1961 the average

		Quantity (tons)	Value (000)	Average value
Jan-June	..	196,632	Rs. 398,792	Rs. 2,028
July-Dec.	..	397,337	Rs. 493,523	Rs. 1,242

value was extremely high with a relatively small quantity exported. (This seasonal pattern exists in all years though not in this extreme form). In July when the new 1961 crop began to be harvested exports increased and the foreign price was pushed rapidly downward. However, the average value for the July-December period was probably above the floor, and some more raw jute of various grades could have been exported without violating the minimum.

<sup>10</sup>. It may be noted that the average values shown in Column 3, Table 1 represent the average price of all grades of jute exported and the "price" shown there depends on the composition of grades of jute. Therefore we cannot say exactly whether the price shown in Column 3 is approaching the floor. "Export first" prices approximate the average and may be cautiously used as such.



It is evident from Columns 5 and 7 of Table 1 that after the strong 1960 domestic market, 1961 was decidedly weak. The total of raw jute absorbed by the domestic market declined relative to the previous year for the first time in Pakistan and the domestic wholesale price index fell by 11 per cent, but even so the market was not cleared and stocks increased almost unbelievably. The complete explanation (assuming the data are correct) of this observed phenomenon involves several variables not yet introduced, chiefly the behaviour of the premium and the demand (foreign and domestic) for jute manufactures<sup>11</sup>. Similarly there were doubtless some speculative forces at work. A complete explanation is not attempted (we will note the demand for jute manufactures in a moment), but one thing seems clear: the "stopper" (as defined in Part I) in 1961 was not the supply of raw jute.

We have thus reached a very important conclusion. In 1959 and 1960 the supply of raw jute constituted an important bottleneck, while the demand conditions remained strong. This conclusion is especially clear for 1960, but in both years it seems safe to conclude that it was the bonus scheme shifting the domestic manufacturer's demand curve rightward that in turn resulted in the domestic market bidding away raw jute from the export market. In 1961 no such bidding away was necessary as supply leaped forward in response to the good 1960 market, and foreign exchange earnings in the jute industry were not impeded from the raw jute supply side as they surely were in 1959 and 1960.

Consider now the question of how the foreign exchange earnings from raw jute were affected by the bonus scheme. Attention has already been directed to the rising trend in the domestic use of raw jute. We need to know how much of this increase was attributable to the operation of the scheme and if this amount had been placed on the foreign markets what would have been the effect on foreign exchange earnings. Of course neither question can be answered categorically, but some light can be shed on the matter.

It seems evident from Table 1 that the total amount of raw jute consumed by Pakistani mills was increasing prior to 1959. This trend may be attributed to a rising domestic demand consequent to normal increases in exports and to increasing total output and industrialization in Pakistan. If the bonus scheme had an effect on this trend it should show up in a jump in the rate of increase in the domestic use of raw jute. The following data show the annual percentage rate of increase (relative to the preceding year) in domestic consumption of raw jute:

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<sup>11</sup>. The marketing of the 1961 crop take place from July 1961 to June 1962 and this makes it necessary to use our results (especially the apparent large increase in stocks) somewhat cautiously.

1957	...	..	13.6
1958	..	..	17.0
1959	..	..	32.8
1960	..	..	13.3
1961	..	..	— 5.4

There seems little doubt that the bonus scheme speeded up a trend already in operation. As a rough approximation then we proceed as follows. Prior to 1960 it is assumed that about a 15 per cent per year increase in domestic consumption is due to normal increase in exports, rising national output and increased industrialization, independent of the bonus scheme. After 1959 it is less, say 10 per cent, because the big leap in 1959 was not matched by an equally big leap in the rest of the economy, and because of limited capacity. Thus the absolute amount of the trend increment in 1960 and 1961 was such that a 10 per cent increment over the larger 1959 base met the trend generated needs. These assumptions yield the following results as to domestic use of raw jute.

Year	Assumed trend value (000 tons)	Actual value (000 tons)	Due to Scheme (000 tons)
1959 .. ..	214	247	33
1960 .. ..	235	280	45
1961 .. ..	258	263	5

If these quantities had been exported what amount of foreign exchange would they have earned? If the increased exports had no effect on foreign prices the answer is evident. Multiply the numbers in the third column above by the corresponding year prices from Table 1 and sum the products. The

total, Rs. 84 million, represents the estimated foreign exchange cost—the estimated foreign exchange forgone—of the bonus scheme in the jute industry.

This figure is perhaps an upper limit as increments in exports of 33,000 and 45,000 in 1959 and 1960 respectively could probably have not been marketed without some reduction in export price<sup>12</sup>. Without a demand curve it is not possible to ascertain the price that would have prevailed with the larger quantities exported. For no very good reasons we have reduced the average unit value of exports in 1959 by 2 per cent and by  $2\frac{1}{2}$  per cent in 1960. It is also assumed that were exports a mere 5,000 tons larger in 1961 the foreign price would not have been adversely affected. The assumed reduction in prices may imply a price elasticity of demand higher than seems warranted. The world market, however, has seemed fairly strong in recent years, especially after 1959 and in the other Asian countries. Also the period is not long enough for any downward trend in the income elasticity of demand to make itself felt. Using these estimates of changed prices (applying of course to the total quantity exported) the "cost" of the bonus scheme amounts to Rs. 44 million over the three-year period, 1959-61.

Both of these estimates assume that jute manufacturing would have tended to increase even had the bonus scheme not been put into force. This is a very important assumption in our estimates of foreign exchange "lost" in the jute industry due to the scheme. If one argued that there were no upward trend in the figures of Column 5 of Table 1 and that all increases after 1958 were due to the operation of the bonus scheme, then of course the foreign exchange forgone would be much greater than the higher estimate obtained above<sup>13</sup>. It is believed, however, that the estimates used above are more realistic and that from 44-84 million rupees were "lost" from raw jute due to the operation of the bonus scheme. The estimates for 1959 and 1960 are a bit more satisfactory than that for 1961 because of the difficulties in explaining developments in 1961. A later argument will refer to this point again.

## 2. Jute Manufactures

All exports of jute manufactures earn a 20 per cent bonus voucher. Jute manufactures are much the largest foreign exchange earner of the products included in the bonus scheme. In 1960 for example they accounted

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<sup>12</sup> Pakistan produces somewhat less than one-half the world's supply of raw jute, but virtually all exports are from Pakistan.

<sup>13</sup> Unless one also assumed that the demand for raw jute abroad was very inelastic.

for about 35 per cent of the foreign exchange earned from the export of items earning bonus vouchers. All but 4 or 5 per cent of jute manufactures are in the form of hessian or sacking, and we will consider only these two types of product. Of course each uses raw jute. Our problem now is to examine the impact of the bonus scheme on jute manufactures' foreign exchange earnings and the mechanism by which this impact worked itself out.

There is an additional question now not reflected in the framework of Part I. This concerns the relative rates of change in the relevant series. For now the two products both of whose demand curve has shifted to the right must compete for the same domestically produced raw material. But because the average unit export value by weight of hessian is significantly higher than that of sacking, the relative effect of the scheme on these two products becomes important<sup>14</sup>. Thus, if sacking output increases at the expense of hessian then foreign exchange earnings are adversely affected. The demand curves for the two products move to the right in the same proportion and we may assume that the cost curves of the two products are about the same shape (that of hessian is higher of course). If the allocation of resources

TABLE 3  
HESSIAN PRODUCTION AND EXPORT

Year	Total output (000 tons)	Total quantity exported (000 tons)	Foreign exchange (mil. Rs.)	Export price (per ton)	Percent- age of output exported	Avail- able for domestic use (000 tons)
	(1)	(2)	(3)	(4)	(5)	(6)
1956	.. 35.0					
1957	.. 37.2	23.0	35.2	1,530	61.8	14.2
1958	.. 43.1	27.7	45.4	1,639	64.3	15.4
1959	.. 59.4	47.7	74.8	1,568	80.3	11.7
1960	.. 69.7	57.5	97.4	1,694	82.5	12.2
1961	.. 67.8	62.4	119.6	1,916	92.0	5.4

Source: Central Statistical Office.

Note: Export quantity estimated on the assumption that 3,750 yards make one ton.

<sup>14</sup>. The quantity of raw jute used to make a ton of hessian and sacking is about the same, but the quality may differ. Thus, there are qualities of raw jute that can be used only in making sacking and other qualities used only in making hessian. There is however a large range of qualities useable in both hessian and sacking and its allocation seems to depend on market considerations.

TABLE 4  
SACKING PRODUCTION AND EXPORTS

Year	Total output ( 000 tons)	Total exports (000 tons)	Foreign exchange earned (m.l. Rs.)	Average value (per ton)	Percent- age of output exported	Avail- able for home use (000 tons)
	(1)	(2)	(3)	(4)	(5)	(6)
1956	.. 103.6					
1957	.. 106.7	40.2	53.5	1,330	37.67	66.5
1958	.. 120.5	52.0	60.3	1,159	43.15	68.5
1959	.. 161.9	127.2	131.3	1,032	78.56	34.7
1960	.. 184.8	106.6	134.7	1,263	57.68	78.2
1961	.. 169.4	142.5	219.6	1,541	84.12	26.9

Export quantity estimated on the assumption that 1100 bags weigh one ton.

Source: Central Statistical Office.

between the two products were an equilibrated one prior to the inauguration of the scheme, then which of the two outcompetes the other depends upon which has the higher elasticity of demand and the least rapidly declining elasticity. For to that industry will the marginal revenue product of raw jute decline the least as a consequence of increased output of its product. Now there is no *a priori* reason why the elasticity of demand for hessian exceeds or is less than the elasticity of demand for sacking. In examining the effect of the scheme on foreign exchange earnings from the export of jute manufactures this additional "stopper" may be relevant.

The relevant data concerning hessian and sacking are presented in Tables 3 and 4. In both cases it seems clear that an upward trend in both output and exports was in effect well before the bonus scheme became effective. It is equally clear, however, that the increase in 1959 over 1958 is significantly greater than previous annual increases. Thus, hessian output rose 38 per cent and exports 72 per cent while sacking output jumped 34 per cent and exports 144 per cent. All four series levelled off in 1960 (exports of sacking actually declined) in a manner consistent with the straightforward functioning of the scheme. We are, thus, entitled to assume that the bonus scheme operated in these sectors in the fashion described in Part I. We are

interested in two remaining questions: what was the quantitative significance of the scheme in these sectors and what was the exact mechanism by which the scheme worked itself out.

Consider the first question. We have already noted that an upward trend in output and exports was in existence before the bonus scheme became effective. Employing the same logic as used in the raw jute case, we estimate the trend values and attribute the excess to the impact of the scheme. The increase in exports in 1957 was much less than that in 1958 despite a recession in a number of jute importing countries in 1958. For no very strong reasons we assume a 10 per cent trend effect in hessian and a 12 per cent in sacking for 1959 and an 8 and 10 per cent respectively in 1960 and 1961. The reduced trend after 1959 is based on the same argument as used for raw jute. These trend assumptions are not inconsistent with that employed for the trend in output and export of raw jute.

The bonus induced exports is the difference between the trend and the actuals. The results of these assumptions are shown in Table 5.

TABLE 5  
EFFECT OF THE EXPORT BONUS SCHEME ON QUANTITY  
OF HESSIAN AND SACKING EXPORTED

Year	Sacking (000 tons)			Hessian (000 tons)			
	Computed Trend (1)	Actuals (2)	Bonus Induced (3)	Computed Trend (4)	Actual (5)	Bonus Induced (6)	
1959	..	58.2	127.2	69.0	30.4	47.7	17.3
1960	..	63.8	106.6	42.8	32.8	57.5	24.7
1961	..	70.4	142.5	72.1	35.4	62.5	27.1

Source: Tables 3 and 4 and text assumptions.

When we apply the unit values from Tables 3 and 4 for the corresponding years to the quantities in Columns 3 and 6 of Table 5 we obtain an estimate of the foreign exchange earnings from the export of hessian and sacking attributable to the operation of the bonus scheme. It amounts to 236.3 million rupees for sacking and 120.9 million rupees for hessian, a total of 357.2 million rupees<sup>15</sup>.

<sup>15</sup>. Had the bonus induced exports not occurred, would the smaller quantity of exports obtained a price higher than the one which in fact prevailed? This seems unlikely. Comparing quarterly changes in quantity exported with average values suggests little or no negative relationship between price and quantity in the case of jute manufactures.

Consider now the mechanism by which this result was brought about. The basic data for hessian are shown in Table 6. In both 1959 and 1960 the increment in exports was virtually matched by an increment in output. However, the big (72 per cent) increase in exports in 1959 did put pressure on domestic prices, and the domestic prices of hessian increased in 1959 relative to 1958 by 12 per cent.

The rise in the internal price in 1959 as the quantity available from current output declined suggests that there were few stocks carried over from which to supply an obviously enlarged home demand.

TABLE 6  
IMPACT OF THE EXPORT BONUS SCHEME ON HESSIAN

Year		Change in output (000 tons)	Change in exports (000 tons)	Col. 1 minus Col. 2 (000 tons)	Change in domestic price % from previous year	Change in foreign price % from previous year
		(1)	(2)	(3)	(4)	(5)
1959	..	16.3	20.0	-3.7	12.0	- 4.4
1960	..	10.3	9.8	+ .5	32.7	8.0
1961	..	- 1.9	4.9	-6.8	12.1	13.1

Source: Table 3 and Central Statistical Office. Change is from the preceding year.

Thus, the 72 per cent increase in exports occurred in the face of rising domestic prices. Furthermore, the 4 per cent fall in export price in the face of a 72 per cent increase in the quantity exported suggests that foreign demand was such that an even larger quantity could have been exported at satisfactory prices had it been available. Also the 14 per cent rise in the domestic price of raw jute means that the cost of production of hessian was going up. In view of this evidence it is reasonable to argue that the supply side was the immediate obstacle to a greater increase in foreign exchange earnings than the one which occurred.

In 1960 the picture is much simpler. A smaller increase in output than in 1959 was almost exactly matched by an increase in exports. Domestic prices shot up by 33 per cent and foreign prices by 8 per cent. Again in this year the foreign market clearly could have absorbed more at very favourable prices. However, the strong rise in domestic prices prevented any shifting away from the Pakistan market. Thus, in 1960 also the domestic market was

a strong competitor for the current output of hessian. The price rises in both the domestic and foreign markets also indicate that had a larger supply been forthcoming, it could have been absorbed at satisfactory prices.

The "stopper" this year (1960) was supply. It does not seem possible to say with much confidence whether this supply stopper was at the raw jute stage or at the mill capacity stage. As we have already noted the domestic price of raw jute went up by almost 100 per cent in 1960, and the jute crop in that year was not especially large. Also the slight decline in hessian output in 1961 suggests possibly that mill capacity had been reached in 1960. But we can say quite confidently that supply limitations in two forms—failure of actual output to increase and the refusal of the domestic market to release output—constituted the immediate "stopper" to the increase in foreign exchange earnings from hessian in 1960.

The year 1961 is equally clear for hessian. Output did not respond to the good price incentives prevailing in 1960. The 13 per cent increase in export average values did result in over 90 per cent of the reduced total output being exported. This strong pull of the export market obtained despite the fact that the premium was much lower in 1961 than 1960. Indeed, it began to decline markedly in the last half of 1960, and by 1961 the exporter had a considerably reduced incentive to maintain his 1960 level of exports. Added to the impact of the falling premium was a ruling established in July 1961 which made non-transferable 50 per cent of the vouchers earned by the jute industry. This ruling was unpopular with the jute manufacturer and further reduced his incentive to export. It is abundantly clear that the supply problem was not raw jute as the raw jute crop was very large and domestic stocks were increased by a huge amount.

The question of the effects of developments in the sacking industry on hessian exports (and vice versa) will be considered after a quick look at the sacking industry.

For sacking the basic data are given in Table 7. A less detailed argument is called for here as the picture in general is very similar to that of the hessian. The foreign price decline in 1959 was 11 per cent; the mild rise in the domestic market in spite of a 50 per cent drop in quantity supplied from current output suggests the availability of stocks. The big jump in output can, at least in part, be explained in terms of favourable expectations created by the bonus scheme.

In 1960 the big surprise is the 16 per cent drop in the quantity exported despite a 22 per cent jump in foreign prices and a 14 per cent increase in output. But this result is easily and evidently explained by the big domestic price rise in this year relative to the previous one.



TABLE 7  
IMPACT OF BONUS SCHEME ON SACKING

Year		Change in output (000 tons) (1)	Change in exports (000 tons) (2)	Change in domestic use (000 tons) (3)	Change in domestic price percentage (4)	Change in foreign price percentage (5)
1959	..	41.4	75.2	—33.8	+ 3.5	—11.0
1960	..	22.2	—20.6	43.5	+41.8	+22.4
1961	..	—51.4	35.9	—51.3	+ 5.5	+22.0

*Source:* Table 4 and Central Statistical Office. Change in each case is from the preceding year.

In 1961 the domestic market was strong enough to prevent as large a shift as the foreign market would have accepted at favourable prices. But even so an apparent reduction of 51,000 tons in sacking available for home use took place. The reduced premium and the limitation on the disposal of vouchers mentioned in connection with hessian did not seem important for sacking also. The stronger upward price is perhaps chiefly responsible.

In none of the three years did exports reach the level that foreign demand would have justified (*i.e.*, foreign prices would have made profitable—in terms of foreign exchange—a larger quantity of exports than was achieved). In 1959 the domestic market was weak, but in the other two years the foreign market had to bid against a strong domestic market. In 1961 there was a big shift away from the domestic market, but even this shift was not large enough to reduce the foreign price to the extent required if the full working out of the bonus scheme had occurred.

We have been talking about the competition of the domestic and foreign markets for hessian and sacking. But there was another competition going on also in 1959 and 1960 that affected the level of foreign exchange earnings, that between hessian and sacking for raw jute. Can we reach any conclusion on the question as to which sector outcompeted the other and the effect of this result on foreign exchange earnings? Raw jute was in such ample supply in 1961 that it hardly seems useful to ask the question for that year.

The annual percentage increases in output of the two products moved quite close together. In both years it seemed clear that foreign demand for hessian was such that had a larger quantity been available for export it could have earned satisfactory prices and these prices were significantly higher

than the prices for sacking. Also in 1960 there was a big drop in sacking exports, while output continued to rise. In view of these events it seems clear that the jute industry's foreign exchange earnings would have been greater had sacking been less successful in securing raw jute in 1959 and 1960. The chief question about this hypothesis has to do with mill capacity for hessian in 1960. If capacity were fully utilized as it apparently was then of course hessian output could not have increased even had raw jute been available. But this factor is also modified if sacking and hessian capacity are to some degree substitutable, and hessian output could be increased at the expense of sacking.

If this argument (including the possibility of substitution) is accepted then an important conclusion emerges: the bonus scheme would be more effective, *i.e.*, produce more foreign exchange with the same resources, if it were supplemented by a tax or subsidy programme that countered elasticities that resulted in less than maximum foreign exchange earnings. This particular point will occupy us in detail in the larger study previously mentioned.

### 3. Conclusions

It is to be emphasized that our approach has been an extremely crude one. Our analysis is much more heuristic than rigorous and it is easy to question the results at every step of the way. Also the data are of very questionable quality. It is believed, however, that our results are sufficiently accurate to warrant attention. The following conclusions have emerged:

1) We have estimated that between Rs. 44 million and Rs. 84 million were "lost" in the years 1959-61 because of the bonus scheme due to the reduction in exports of raw jute. Also we concluded that possibly Rs. 357 million of foreign exchange earnings from export of hessian and sacking could be said to be due to the operation of the scheme. The other jute manufactures were not included but they would not affect our results significantly. Perhaps we may say that net about Rs. 300 million of foreign exchange was earned in 1959-60-61 that would not have been earned had the bonus scheme not been introduced. Even if it is believed that our trend figures for hessian and sacking are too low a reduction of 10 or 20 per cent would still mean that foreign exchange earnings were significantly increased (possibly by one-third) in the jute industry due to the scheme.

2) It seems clear that the primary factor preventing an even greater increase in earnings was domestic supply and demand conditions, not foreign demand. Except possibly in 1959 is there convincing evidence that exporters were even forced to reduce prices to increase the sales of hessian and sacking

abroad. As we have seen an increased supply of exports has two sides, increased output and/or decreased domestic sale. Although part of the increased exports of both hessian and sacking did come from decreased domestic supplies, the domestic market was—except in 1959—willing to offer increased prices to keep the jute manufactures at home. This apparent low price elasticity and possibly high income elasticity of home demand for jute products is, if valid, a very important consideration. The supply of raw jute may have been a bottleneck in 1959 and 1960, but such was certainly not the case in 1961.

3) The logic of the bonus scheme implies that price reductions to increase exports are made profitable. As we have just seen no price reductions were really necessary except in 1959 for sacking. World trade in jute goods, however, is not rising and Pakistan's increasing exports will infringe on other countries' export markets. Thus, the results for the three years here reviewed may not be applicable in the future.

4) We have concluded that a larger supply of jute manufactures for export would have resulted in larger foreign exchange earnings. It was also concluded that an increase in the export of hessian at the expense of sacking would have contributed to additional earnings without adding to domestic problems. Thus, we reached the important conclusion that when voucher earning products are competing for the same raw material and for the same mill capacity additional policies (e.g., taxes) may encourage the export of the product with the larger domestic value added. We should, however, have to consider—especially in a longer run analysis—the foreign exchange earning power (or import saving power) of the inputs creating this additional value added before reaching a final verdict on this point.

## B. COTTON PRODUCTS

Cotton products are worth considering in detail as the results here seem to be different in many respects from those for jute products.

Cotton products are the second largest foreign exchange earner among the products receiving bonus vouchers. Cloth and yarn are the principal exports, with cotton waste an unimportant third item. The bonus on cloth has been 20 per cent from the beginning of the scheme. On yarn it was 20 per cent from January 1959 until January 1960, 10 per cent until February 1961, and abolished completely from that time. Both commodities are manufactured from domestically produced raw cotton. This latter product was Pakistan's second largest foreign exchange earner until 1958. The problem is to assess the effect of the bonus scheme on the foreign exchange

earnings of the group of cotton products (raw cotton, yarn, and cloth) as a whole.

### 1. Raw Cotton

The story of raw cotton is clearly told in Table 8. Output has remained virtually stagnant since 1952. Since 1953 textile production has been heavily protected from foreign competition and the domestic textile industry responded strongly to this protection. These two factors necessarily resulted in declining exports of raw cotton well before the bonus scheme became effective, but as we shall argue in detail later there is little doubt but that the bonus scheme contributed to a more rapid decline in raw cotton exports.

We begin as in the case of jute by trying to estimate the "loss" of foreign exchange due to the bonus scheme. If the period from 1956 through 1958 indicates the "normal" trend of domestic cotton consumption any acceleration in this trend after 1958 may be attributed to the operation of the bonus scheme. On the basis of the data in Column 5 of Table 8 we assume a normal trend increment of 11 million tons per year from 1959 through 1961. The assumption as to the price effect of the increased exports is necessarily equally crude. The simplest assumption and one that is fairly realistic is that foreign prices would not have been affected by the increased quantity exported. (Column 8a, Table 9). On the other hand, if prices had declined moderately, say 2 per cent, then the "loss" would be slightly less (Column 8b). These assumptions result in estimates of the "loss" of foreign exchange resulting from reduced cotton exports of Rs. 99.2 million and Rs. 86.4 million respectively.

The price behaviour producing this accelerated decline in raw cotton exports is clear enough in 1959 and 1960. Both export and domestic prices weakened a bit in 1959 relative to 1958. A slight decline (3 per cent) in domestic prices took place in the face of a 15 per cent increase in supply while the foreign price dropped by 10 per cent with the quantity halving. This suggests that the domestic market was much stronger than the foreign market. Similarly in 1960 the domestic market was stronger, but in this year it was necessary for the domestic market to bid raw cotton away from the export sector. There is little doubt but that in 1960 Pakistan could have earned considerably more foreign exchange than she in fact did had her raw cotton output been larger.

In 1961 the domestic and export price behaviour do not lend themselves to a clear-cut interpretation. Export prices rose by about 12 per cent but the quantity exported fell by more than 50 per cent. Domestic consumption and domestic prices both increased by less than one per cent

TABLE 8  
PRODUCTION AND EXPORT OF RAW COTTON

Year		Output (000 tons)	Export (000 tons)	Average value of exports (rupee per ton)	Home consump- tion	Wholesale price index	Import (000 tons)
		(1)	(2)	(3)	(4)	(5)	(6)
1952	..	314	242	3,570	33	—	—
1953	..	252	277	2,278	60	—	—
1956	..	304	130	2,805	168	100	—
1957	..	291	113	3,938	178	98.3	7
1958	..	271	96	2,508	189	86.2	3
1959	..	290	53	2,265	217	83.6	2
1960	..	299	87	2,424	227	102.2	1
1961	..	298	38	2,727	230	103.3	N.A.

Source: Central Statistical Office. Data on output are available on a split-year basis. Calendar years are used here, e.g., 1956/57 is shown as 1956.

TABLE 9  
EFFECT OF THE BONUS SCHEME ON COTTON EXPORTS

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8a)	(8b)
1958	..	189	189	0	96	96	240.5	240.5	0	0
1959	..	217	200	17	53	70	120.7	159.2	38.5	35.3
1960	...	227	211	16	87	103	211.1	249.9	38.5	32.8
1961	..	230	222	8	38	46	103.7	125.6	21.9	18.3
									99.2	86.4

Columns: (1) Actual domestic consumption.

(2) Expected domestic consumption in absence of the scheme.

(3) Decrease in cotton export due to the bonus scheme (1 — 2)

(4) Actual cotton export

(5) Expected cotton export in absence of the bonus scheme (1 + 4)

(6) Actual foreign exchange earned

(7a) Estimated foreign exchange if quantities of Column 5 could be sold at prevailing export prices

(7b) If two per cent price reduction were necessary

(8a) 'Loss' of foreign exchange under assumption of 7a, (7a—6)

(8b) 'Loss' of foreign exchange under assumption of 7b, (7b—6)

Source: Computed on basis of assumptions stated in the text.

with a strong upward movement of export prices and virtually constant domestic prices it is to be expected that a shift away from exports would not occur, but it did. More on this when we consider the yarn and cloth story. But again it is evident that the export market could have taken a larger supply at acceptable prices than Pakistan was able to supply.

## 2. Cotton Cloth

Consider now cotton cloth. The relevant data are shown in Table 10. There was a large increase (307.5 per cent) in export volume during 1959 compared to 1957 associated with a 34 per cent fall in price. (A comparison with 1957 is more meaningful than with 1958 because of the depressed condition of textile trade in the latter year). This suggests that in this case (unlike the hessian cloth and jute bags cases) the Pakistan cloth producer faced a negatively sloping foreign demand curve<sup>16</sup>. The increase in export volume in 1959 was more than matched by increased production during the year, yet the domestic price went up by about 4 per cent. This price rise may be due to increased domestic demand, but it seems more likely that there was a deliberate reduction in the quantity supplied to the home market in order to build stocks for future exports.

TABLE 10  
COTTON CLOTH PRODUCTION AND EXPORT

Year	Total output (in m. yards) (1)	Total quantity exported (in m. yds.) (2)	Foreign exchange earned (m. Rs.) (3)	Export price (Rs. per 100 yds.) (4)	Domestic price (Rs. per 100 yds.*) (5)	Percent- age of output exported (6)
1956	.. 500.4					
1957	.. 527.0	10.2	9.3	91.5	84.0	1.9
1958	.. 576.2	3.8	2.8	72.9	84.0	0.7
1959	.. 618.5	41.6	25.1	60.3	87.0	6.7
1960	.. 628.8	74.2	51.1	68.9	102.0	11.8
1961	.. 699.0	52.5	38.1	72.6	112.0**	7.5

Source: Central Statistical Office.

\*Grey long cloth of width 44 inches, Karachi.

\*\*Average of eight months only.

<sup>16</sup> To demonstrate this conclusively would require more data than is available, including prices of the cotton cloth exports of other countries.

TABLE 11  
IMPACT OF THE BONUS SCHEME ON COTTON CLOTH

Year		Change in output (m. yds.) (1)	Change in exports (m. yds.) (2)	% change in export price (3)	% change in domestic price (4)
1958	..	49.2	-6.4	-20.0	0.0
1959	..	42.3	37.8	-17.3	+3.6
1960	..	10.3	32.6	+12.6	+17.0
1961	..	70.2	-21.7	+5.3	+9.8

Source: Table 9.

During 1960 both the quantity and price of cloth export were above 1959 levels. In addition to the bonus incentive, there was a clear-cut rise in external demand. But production was not up to the challenge and increased by less than 2 per cent, and furthermore the domestic market was clearly competing strongly for that output. As we saw in Part I, the lower the price elasticity and the greater the income elasticity of domestic demand the less the quantity released from the domestic market in order to re-establish an equilibrium distribution between foreign and domestic sales. Thus, the 17 per cent rise in the domestic price of cloth in 1960 also contributed to the failure of full exploitation of an apparently very favourable foreign demand situation.

Was the limited increase in cotton cloth output due to limited output of raw cotton, to limited textile production capacity, or to competition of yarn exports for the raw cotton? The number of looms was the same from 1959 through 1961 while the number of spindles increased by a very small extent. But 1961 output was much higher than in 1959 and 1960. A possible explanation then becomes that an inflow of textile machinery spare parts and other complementary equipment made possible the full utilization of capacity in 1961 and hence the big increase in output relative to 1959 and 1960<sup>17</sup>. But this explanation is questionable because the textile industry was earning foreign exchange vouchers in 1959 and 1960 and could have obtained the necessary imported inputs early enough to affect 1960's capacity. It seems, therefore, more likely that raw cotton was the major barrier. As we have already seen raw cotton exports almost doubled in 1960 relative to 1959 and the Pakistan textile producer was able to obtain only 10,000 tons

<sup>17</sup>. Data are available for spindle and loom hours worked in 1957, 1958 and 1961. The figures for 1961 are much greater than in the other two years, but we do not know how working time changed in 1959 and 1960.

more in 1960 than in 1959 in spite of paying about 20 per cent more in the later year. It should be noted also that the decontrol of cloth prices also added to the incentive to increase cloth output. The question of whether cotton yarn producers were better able than cloth producers to acquire raw cotton can best be considered in the context of examination of the yarn industry.

In 1961 as Table 10 shows output of cloth jumped 70 million yards but exports declined by almost 22 million. Both foreign and domestic prices rose, the latter a bit more than the former. The decline in exports seems to be due to the behaviour of the premium. The premium began to decline in the third quarter of 1960 and remained much lower during the first eleven months of 1961 than it generally was in 1960. As pointed out in Part I, such a result means that the foreign demand curve as viewed by the Pakistan exporter shifted to the left. In the domestic market the removal of price controls in early 1961 allowed the domestic demand curve to shift to the right. The resulting reallocation of sales between the foreign and domestic markets thus appears understandable<sup>18</sup>.

In light of these results the following conclusions seem reasonable: (1) export of cotton cloth from Pakistan is facilitated by the willingness of the exporter to reduce his price and, therefore, fluctuations in the premium are of relevance; (2) except for 1959 (when the carry-over from 1958 was large) a supply problem, due chiefly to raw cotton (and indirectly to the attractiveness of yarn exports) limited foreign exchange earnings; (3) domestic demand for cloth was such that shifting sales from the domestic market to the export market resulted in rising domestic prices that effectively limited the extent of the shift; (4) in 1961 the interpretation of price behaviour is complicated by the decline in premium and apparently some speculative activity. In this year also the decontrol of domestic cloth prices made the internal market more attractive and thereby hampered exports.

### 3. Cotton Yarn

Consider now cotton yarn. The relevant data are shown in Tables 12 and 13. A large increase (105.4 per cent) in volume was achieved in 1959 over 1957 through a 22 per cent decline in the export price. Price in the domestic market declined by 8 per cent but this was relatively slight considering the very strong supply position. Thus, with what was surely a large carry-over of yarn from 1958 the bonus scheme came as a major windfall to

<sup>18</sup> A shift in the demand curve consequent to the removal of controls seems reasonable simply because controls were not completely effective. Thus, cloth became easier to buy and merchants more willing to handle it.



the yarn producer, and as the high premium came to be established by mid-1959 huge quantities were exported.

During 1960 the quantity was a bit below and the price of exported yarn was above that of 1959. Early in 1960 the voucher bonus on yarn was reduced to 10 per cent and in the second half of the year the premium fell—as we have seen—by a considerable amount. These two results should have produced a reduction in exports and this reduction along with a stationary demand curve should have been accompanied by an increase in the f.o.b. price. If we split 1960 into two halves we see that this is exactly what happened. It seems clear that by the middle of 1960 the yarn export boom was

## YARN EXPORTS, 1960

		Quantity (m. of lbs.)	Value m. of Rs.	f.o.b. (Rs./lb.)
Jan.—June	..	52.0	86.0	1.65
July—December	..	26.8	48.3	1.80

TABLE 12  
OUTPUT AND EXPORT OF COTTON YARN

Year		Mill supply of yds. (000 lbs) (1)	Export of yarn (000 lbs.) (2)	Foreign exchange (m. Rs.) (3)	f. o. b. price (Rs/10 lbs.) (4)	Percent- age of output exported (5)	Domestic price (Rs/10 lbs.†) (6)
1957	..	173,685	39,773	76.5	19.2	22.9	19.1
1958	..	188,703	6,418	11.7	18.2	3.4	19.1
1959	..	231,884	81,707	121.4	14.9	35.2	1.74*
1960	..	237,495	78,828	134.4	17.0	33.2	1.89
1961	..	222,508	13,522	25.2	18.6	6.1	1.99

Source: Central Statistical Office.

\*November and December missing.

†Wholesale price of 20/1 yarn, Karachi,

TABLE 13  
ANNUAL CHANGES IN PRICES AND QUANTITIES OF YARN

Year	Change in output (000 lbs) (1)	Change in export (000 lbs) (2)	% change in f.o.b. price (3)	% change in domestic price (4)
1958	15,015	-33,355	- 5.2	0
1959	43,181	75,289	-18.1	-8.9
1960	5,611	- 2,879	+14.1	+8.6
1961	-14,987	-65,306	+ 9.4	+4.2

Source: Table 12.

already over. It should also be noted that the 20 per cent bonus prevailed through the first three weeks in January 1960 and that a considerable quantity of exports that actually took place in early 1960 was contracted in late 1959 when the premium was still high and the bonus still 20 per cent.

Finally, exports increased to a larger extent than did output and with the stocks from 1958 about gone the domestic price of yarn rose by a bit less than one per cent. It is doubtful, however, if the foreign market could have absorbed an increased quantity at acceptable prices.

The decline in the quarterly rate of yarn exports started from the second quarter of 1960, but became much more pronounced from the third quarter. After the withdrawal of the bonus from yarn export in January 1961 yarn export collapsed. Why should it fall below the 1957 level? The price of yarn exports of other countries did not markedly decline so there is no evidence of a collapse of the world market. The answer surely is to be found in the fact that though the bonus was removed from yarn it was not removed from cloth. As a consequence, it became much more profitable to export yarn as cloth than as yarn. Also it may be recalled that domestic price controls were removed from cloth in early 1961 making it more attractive to the producers as well. However, the increased output of cloth has not absorbed the total amount of yarn produced, and stocks of yarn have accumulated. It seems clear that yarn producers are holding yarn in anticipation of some change in export policies affecting yarn and not merely for the domestic market. In addition to a speculative motive their willingness to accumulate stocks rather than to export was more understandable when it is recalled that even prior to the bonus scheme there was an export promotion programme in effect that encouraged yarn exports. Thus, when yarn was re-

moved as a bonus item in January 1961 yarn exporters were without artificially created incentive for the first time since 1956. Also, we have already suggested that the yarn exporter faces a downward sloping demand curve.

The switch in the distribution of sales of yarn, thus, is to some degree understandable despite the fact that foreign prices rose by 9.4 per cent in 1961 relative to 1960 and domestic prices by only 4 per cent<sup>19</sup>. There is little doubt that if the bonus scheme had been removed from cloth also, the export of yarn would not have declined so drastically. The question of the quantitative significance of this "loss" from reduced yarn exports is discussed in the next section. But it is important to recognize that the total reduction in yarn exports cannot be explained in terms of input requirements for the higher rate of output of cloth.

There remains the question of the extent to which yarn and cloth were exported at the expense of each other. It is difficult indeed to reach a decision on this matter, but in 1960 the huge yarn export volume was probably partly at the expense of cloth production and export. The case for production is clearer than that for export. Production of cloth increased by 10 million yards over 1959 levels, but exports increased by 32 million yards. Still both the domestic price and the foreign price were higher than in 1959 and there is no doubt that the domestic market and probably the foreign market could have absorbed a larger quantity of cloth at acceptable prices. Available data for the first six months of 1960 are more convincing as to this argument than for the year as a whole. The domestic value added to exported cloth is of course greater than that of yarn, so that if yarn is exported at the expense of cloth foreign exchange earnings suffer.

In 1959 the cloth external market was apparently not strong enough to warrant a much greater increase in export than in fact occurred. And clearly yarn was not a bottleneck for cloth production in 1961.

But it is necessary to go one step further back and ask if yarn was a better foreign exchange earner than raw cotton, *i.e.*, were the value added and the supply and demand elasticities such that if raw cotton had been exported rather than cotton yarn foreign exchange earnings would have been greater? Although a number of rather arbitrary assumptions have to be made it is worthwhile to make them and trace out the consequences. Com-

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<sup>19</sup>. There is a complicated set of relationships involved here that can be analysed only under extremely simple assumptions. We have three stages of production raw cotton, yarn, and cloth. There is no bonus on raw cotton, a declining bonus on yarn, and a constant one on cloth. To account for the production, export and domestic sales of these several products in a model similar to that worked out in a much simpler case in Part I is an exceedingly difficult task. The argument in the text seems adequate for our present purposes.

putations are made for 1959 and 1960 only as no bonus was attached to yarn in 1961.

To produce 100 pounds of yarn requires about 120 pounds of raw cotton. Thus, to produce the 160.5 million pounds of yarn exported in 1959 and 1960 required 192.6 million pounds of raw cotton. The average value of raw cotton exported in 1959 was Rs. 1.01 per pound and in 1960 Rs. 1.08 per pound. It is doubtful that 192.6 million pounds (98 million in 1959 and 94.6 million in 1960) more could have been exported without affecting the price. The world market did appear strong, however, and Pakistan is not a large exporter in terms of world demand, therefore, an assumption of a very modest price reduction seems appropriate, say about 2 per cent. Thus, for the two years an average price of Rs. 1.025 is assumed and hence the opportunity cost of exporting 160.5 million pounds of yarn was Rs. 197.4 million (192.6 million times Rs. 1.025 *minus* the effect of the assumed lower price on the actual quantity exported). Total foreign exchange earnings from yarn exports in the two years amounted to Rs. 256 million. With our assumptions then we conclude that yarn exports added about Rs. 66 million to foreign exchange earnings over what would have been earned if all the raw cotton used in yarn production had been exported. The most questionable assumption here is that all raw cotton used in the production of yarn for export would be exported. This probably is an exaggeration but we think a minor one. One may also quarrel with the assumption as to the price of raw cotton, but a slight modification would not affect our conclusion markedly.

#### 4. The Foreign Exchange Gain in the Cotton Industry from the Bonus Scheme

The apparent rise in export earnings is no measure of the net contribution of the bonus scheme to export promotion. It is virtually impossible to isolate the effect of the scheme and quantify it in terms of the net addition to foreign exchange earned. It would be possible to do this only if we could know quantitatively the actual situation that would have prevailed in the absence of the bonus scheme. An attempt can, however, be made in this direction on the basis of some rather arbitrary assumptions.

Assume that after the recession of 1958 cotton yarn export would have been maintained at the 1957 level (roughly 40 million lbs) during 1959 through 1961 and the export price would have been that of 1958 (*i.e.*, Rs. 1.82/lb.) Assume that cotton cloth export in 1959 would have been the same as in 1957 and increased by a mere 2 per cent annually thereafter. The export price would have been Rs. 0.73/yd throughout. The contribution of the scheme to yarn and cloth export is shown on this basis in Tables 14 and 15.

TABLE 14  
THE CONTRIBUTION OF THE BONUS SCHEME TO  
COTTON YARN EXPORTS

Year		Actual export		Presumed export in absence of EBS		Col. 1—Col. 2 Export attributable to bonus scheme	
		(1)		(2)		(3)	
		Qty.	Value	Qty.	Value	Qty	Value
1959	..	81.8	121.4	40.0	72.8	41.8	48.6
1960	..	78.8	134.4	40.0	72.8	38.8	61.6
1961	..	13.5	25.2	40.0	72.8	—26.5	—47.6
						54.1	62.6

*Source:* Central Statistical Office and computed from assumptions stated in the text.

*Note:* quantities in million pounds; values in million rupees.

TABLE 15  
THE CONTRIBUTION OF THE BONUS SCHEME TO  
COTTON CLOTH EXPORTS

Year		Actual export		Presumed export in the absence of EBS		Col. 1—Col. 2 Export attributable to bonus scheme	
		(1)		(2)		(3)	
		Qty.	Value	Qty.	Value	Qty.	Value
1959	..	41.6	25.1	10.2	7.5	31.4	17.6
1960	..	74.2	51.1	10.4	7.6	63.8	43.5
1961	..	52.2	38.1	10.6	7.8	41.9	30.3
						137.1	91.4

*Source:* Computed from assumptions stated in the text.

*Note:* Quantities in million yards; values in million rupees.

It should be noted here that changes in exports attributable to the scheme (as shown in Column 3 above) do not indicate changes in output under the bonus impact. As has already been mentioned changes in exports could be met through changes in output and/or changes in domestic absorption of the commodity.

Cotton waste export which we have not previously discussed has been increasing since 1957 both absolutely and as a percentage of domestic cotton consumption. Even in 1958 the quantity exported was much higher although price was much lower than in 1957. We, therefore, assume that quantity and price of cotton waste export in the absence of the bonus scheme would have remained at their 1958 level (Table 16).

TABLE 16  
EFFECT OF BONUS SCHEME ON COTTON WASTE EXPORTS

Year	Actual export (1)		Presumed export in absence of the scheme (2)			Col. 1—/Col. 2 Change in export due to bonus scheme		
	Qty.	Value	Qty.	Price	Value	Qty.	Value	
1959	..	242.9	11.6	200	48	9.6	42.9	2.0
1960	..	386.4	17.5	200	48	9.6	186.4	7.9
1961	..	N.A.	21.5	200	48	9.6		11.9
								21.8

Source: Computed from assumptions stated in the text.

Quantities in 1000 cwt.

Values in million rupees.

Unit price in rupees per cwt.

On these assumptions the increase in foreign exchange earnings from the export of cotton manufactures amounts to Rs. 175.8 million for the three-year period 1959-61. From this is subtracted Rs. 86.4—99 million due to reduced raw cotton exports leaving a net figure of Rs. 76—89 million due to the scheme or about 20 per cent of total foreign exchange earnings of cotton products. It is easy to question the assumptions by which we arrived at these estimates, but in general they appear consistent with production and world trade figures over the same period. Minor variations in the assumptions will not affect our results significantly or modify the general conclusion about the effectiveness of the scheme.

## 5. Conclusions

Keeping in mind all the precautions as to data the following conclusions may be stated.

- 1) The scheme was clearly less effective for cotton products than for jute products in terms of the impact on foreign exchange earned.

2) The supply obstacle was not as clear cut for cotton as it was for jute. Increased exports usually did produce a decline in the external price and reaction to a falling premium seemed stronger in the case of cotton than for jute exports. Also domestic demand as reflected in the behaviour of domestic prices was not as strong as for jute products although in some instance—e.g., cloth for 1960 and 1961—domestic demand did clearly inhibit exports.

3) Expectations and speculative motives seem stronger for cotton. Yarn exports in 1961 for example can hardly be explained without some reference to these motives. Such factors may become even more important in the future.

4) Again there is some evidence that it is more profitable to the producer under some circumstances to export one product (yarn) at the expense of another (cloth) even though foreign exchange earnings may be greater if cloth were exported.

### CONCLUSION

The discussion in Part II suggests quite strongly that for both the jute and cotton industry the bonus scheme resulted in significant increases in foreign exchange earnings. This conclusion seems acceptable despite the questionable quality of the data and the long line of (arbitrary) assumptions that were necessarily employed. It should also be emphasized that we were dealing with a relatively short period during which the foreign markets were fairly strong. The short period considered enabled us to ignore the problem of the import content of the manufactured items. There is virtually no imported raw materials used in jute and cotton products, but capital equipment, fuel and some processing equipment, is to a large degree, imported. In a longer run it would be necessary to consider this import content of increasing capacity. Similarly, a longer-period analysis would have to consider action by other countries affected by Pakistan's increased exports. Inclusion of these matters may qualify the results obtained from a limited short-period analysis.

But within the limitations just described we believe three important generalizations emerge from the results we have obtained.

1) The logic of the bonus scheme implied that the chief problem for the Pakistan exporter was that of foreign demand. But the analysis presented here indicates an equally important role to the strength of internal demand. In particular we may say that the bonus scheme worked in the case of the jute and cotton industry by making the foreign market more attractive relative to the domestic market, not simply by enabling the exporter to reduce

his price to the foreign importer. In addition the scheme made the sellers more willing to undertake the added trouble and expense of exporting relative to selling at home.

2) The supply side was the bottleneck more often than was foreign demand. The success of the bonus scheme in the narrow sphere in which we have analyzed it depends very heavily on increased production (or curtailing domestic consumption). It is important especially to emphasize the role of raw cotton and raw jute production in the argument as applied to the years we have considered. For this—or any—export promotion scheme to work, increased rates of output must be forthcoming at all stages of the productive process.

3). The functioning of the scheme seemed to differ from year to year. Obviously, it is impossible to alter in a significant fashion on a short-term basis such a scheme, but some flexibility is required to exploit changing conditions. For example, the collapse of yarn exports in 1961 in the face of a large output may have been avoided had the scheme contained further provisions for meeting the internal difficulties created by the huge exports of yarn in 1959 and 1960.