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DEPARTMENT OF ECONOMICS  
GOVERNMENT COLLEGE, LAHORE - PAKISTAN

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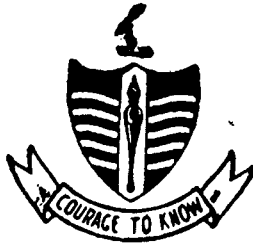
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*Dr. Muhammad Moqueem Shaikh* ... 7

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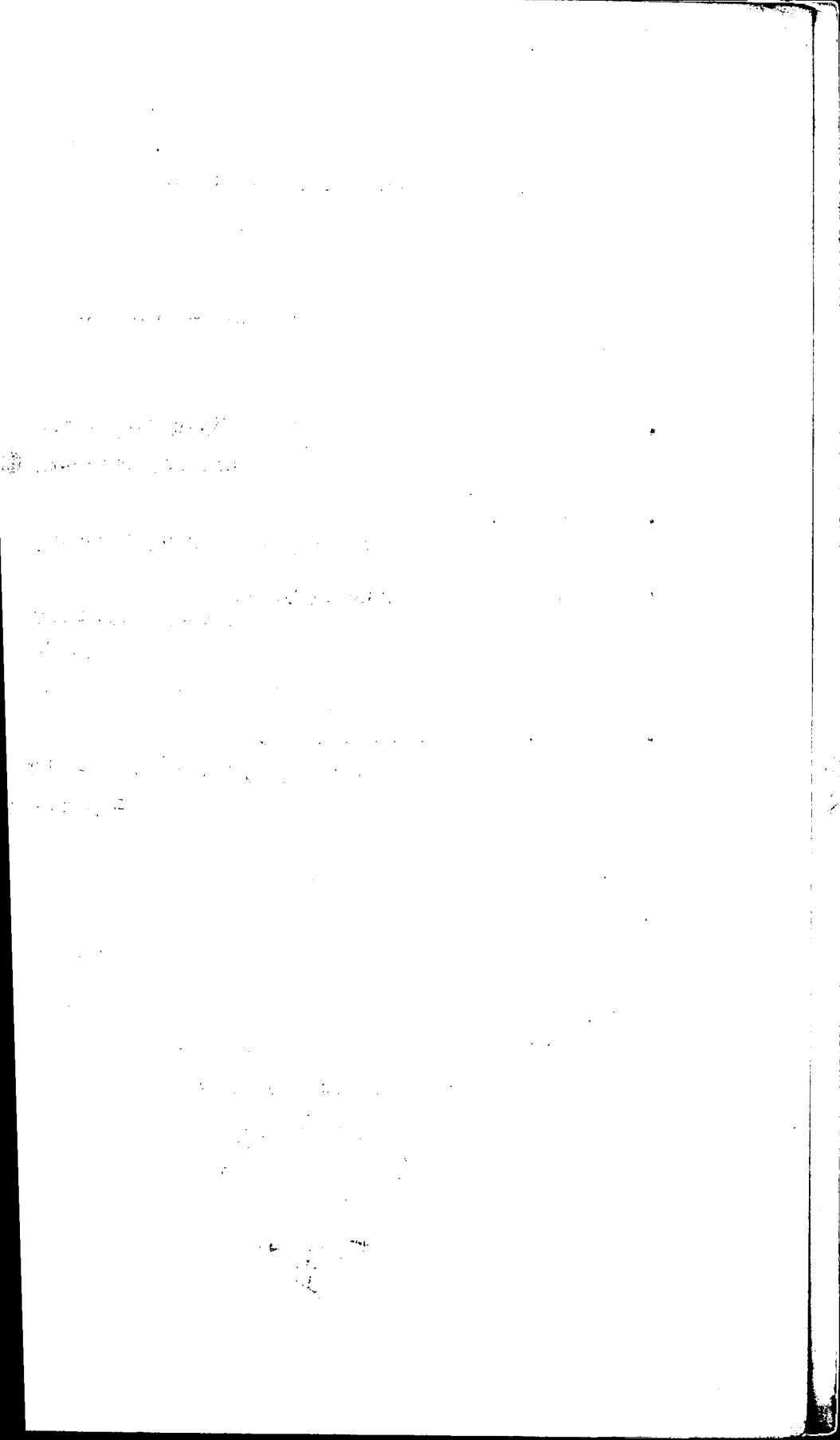
*Zia Masoom* ... 60

## Notes & Comments

The Federal Budget 1976-77

... 68

DEPARTMENT OF ECONOMICS  
GOVERNMENT COLLEGE, LAHORE • PAKISTAN



## DEMAND PROJECTIONS FOR TRACTORS

*A.R. Kemal and Z.A. Vaince\**

Ours is an agrarian economy, and as such the growth of the economy depends much on the development of agricultural sector. However, except in the late sixties, the growth of agricultural sector has not been very impressive. Productivity has increased over time, but even now, the yield per acre in Pakistan of almost all the crops are much low compared to the advanced countries. Besides other constraints, farm power had been one of the major constraints in depressing the yield per acre. Farm power available at present is around 0.1 per acre, whereas in Europe, it is 0.37, in U.S.A. 0.413; and in Japan 0.93 H.P. per acre. Farm Mechanisation Committee has fixed a target of 0.167 H.P. per acre by the year 1985. This shows the deficiency of the farm power in Pakistan.

Farm power can be increased through animals or tractors. The data [Ministry of Food and Agriculture, Pakistan, *Farm Mechanisation in Pakistan*, pp 67-73] shows that the growth of animals is insufficient even to match the increased demand arising from the new land brought under cultivation. Thus the only possibility of increasing the farm power is through the tractors. Thus it becomes imperative to know, (even if a crude estimate), as to what will be expected demand, so that there is no supply constraint on the use of tractors. This study attempts to identify the factors affecting the demand, and on the basis of that project the demand.

Demand for tractors is composed of demand for new tractors to satisfy an increased demand for the farmer and the replacement demand. Once a farmer decides to increase the use of farm power, he has to make up the choice whether to use bullocks, or the tractors to increase the farm power. Since tractor is a capital good, and lasts

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over time and investment is lumpy, availability of finance plays an important role in the demand for tractors. Thus,

$$T_t = F[FP_t, Fin_t, (\frac{TC}{BC_t} -)] - T_{t-1} + T'_t$$

Where:  $T_t$  = demand for tractors in year  $t$ .

$FP_t$  = farm power requirement in year  $t$ .

$Fin_t$  = finance availability in year  $t$ .

$T_{t-1}$  = tractors available in year  $t-1$ .

$T'_t$  = replacement demand in year  $t$ .

$(\frac{TC}{BC_t})$  = relative per acre cost of tractors to that of bullocks.

Purchase of tractors have been financed by the Agricultural Development Bank of Pakistan in the past. We assume that A.D.B.P. will finance the purchase of the tractors in the future as well. As regards the relative cost of tractors to that of the bullocks, a special survey conducted by University of Islamabad [Department of Economics, *Demand for Tractors.*], shows that the relative cost of cultivation by tractors is very low compared to that of bullocks. Thus, it seems as if the rise in price of tractors until it exceeds the cost in bullocks, will have no effect on the demand for tractors. Thus, in effect, our demand function is :

$$T_t = G [FP_t] - T_{t-1} + T'_t$$

Demand for farm power depends on area cropped and intensity of cultivation. Intensity of cultivation depends upon the cropping pattern, use of fertilizers, and water availability etc. Water is the binding constraint to intensity of cultivation Ezzo Company, Pakistan. Nitrogeon Demand Forecast, p.8.]. We have assumed that Farm Power is function of cropped areas and tubewells in that year. Ideally, we should have taken all the variables into consideration, but paucity of data and very short time series of tractors forced us to use only these two variables. Because otherwise we would have had run short of degrees of freedom. However, these two variables seem to be the most important variables, as tubewell is very good proxy for intensity of cultivation. For example the amount of fertilizer used is dependent upon the availability of water. We assume that demand for the new tractors to be acquired to satisfy

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\*By tractor we mean, tractor of 45 to 47 H.P.

the increased demand for farm power to be linearly related to tubewells and cropped area. Thus,

$$T_t^n = a + b_1 W_t + b_2 A_t$$

Where :  $T_t^n$  = demand for tractors to satisfy an increase in demands for farm power.

$W_t$  = tubewells in year t.

$A_t$  = cropped area in year t.

As regards the demand for tractor replacement, survey has shown, and replies from the tractor manufactures/importers confirm to this, that tractors depreciate over a period of eight to ten years. Instead of assuming that tractors depreciate after, eight, nine or ten years, we assume that 1/3rd of tractors depreciate after eight, one third after nine and remaining one third after ten years i.e.,

$$T_t^r = 1/3 [T_{t-8} + T_{t-9} + T_{t-10}]$$

Time series of tractors from 1965-66 to 1972-73, have been developed using data supplied by ADBP. Cropped area is taken as reported in yearbook of agricultural statistics [Pakistan, yearbook], for the years 1971/72, and 1972/73. For tubewells, we have used series as reported by *JEERY ECKREIT* [Eckert, J. 'Private Tubewell.']. The estimated relation is

$$T_t^n = -53,700 + 1058.0256 A_t + 0.31354 W_t$$

$$(2.5785) \quad (10.8128)$$

$$R^2 (\text{Corrected}) = 0.99$$

$$F. \text{ ratio} = 364.2$$

[t statistics is reported in parenthesis]

Sign of coefficients for both  $W_t$  and  $A_t$  is positive as expected. The relation shows that as number of tubewells is increased by one thousand, 314 more tractors would be demanded, and if cropped area is increased by one million acres, the tractor demand would rise by 1058. Negative intercept implies that upto a cropped area and/or tubewells, there is no demand for tractors, i.e. when cropped area increases above a certain limit, then the bullocks prices go up, and consequently tractors are demanded. Below that limit, land is lying waste, and bullocks could be fed on with very small opportunity cost. Statistics for both the variables are significant and F ratio is very high. Corrected  $R^2$  is .99 which means that almost all the variation...

in tractor demand are explained by area and tubewells, which confirms our a priori reasoning that tubewell is a good proxy for intensity of cultivation.

The data for projection period is taken from Mechanization Committee Report, [Farm Mechanization in Pakistan] and is reported in appendix.

Demand Projections are based on

$$T_t = T_t^* - T_{t-1} + T_t'$$

$$= a + b_1x_1 + b_2x_2 - T_{t-1} + 1/3 [T_{t-3} + T_{t-9} + T_{t-10}]$$

and are reported in the following table from which it can be observed that demand is around eight thousand tractors per annum, which would increase to over ten thousand in middle of eighties. Moreover it shows consistent rising trend uptill 1979-80, and then demand falls. The reason for this fall is replacement demand, because tractors of 1969-70 vintages were higher than the following three time periods.

**TABLE**  
**PROJECTION OF TRACTORS DEMAND IN PAKISTAN**

Year	Non-Replacement Demand	Replacement Demand	Total Demand
1974-75	4,000	1686	5686
1975-76	4,000	2402	6402
1976-77	4,000	3103	7103
1977-78	4,000	3833	7833
1978-79	4,000	4502	8502
1979-80	4,000	4503	8503
1980-81	4,063	3462	7525
1981-82	4,063	3572	7635
1982-83	4,063	4515	8578
1983-84	4,063	5525	9588
1984-85	4,063	6397	10460
1985-86	4,063	7112	11175
1986-87	4,063	7812	11875
1987-88	4,063	8278	12341
1988-89	4,063	8176	12239
1989-90	4,063	7887	11950



These projections are biased downwards, and for that matter, all the projections which have been made so far for tractors in Pakistan. Reason for such downward bias is the use of actual tractor population. Because of supply constraint, there has been an excess demand for tractors. It is estimated [Pakistan ADB] that on average ADBP was unable to supply tractors to 30% of the sanctioned loanees, which means  $30/70=43\%$  of the actual population was unsatisfied demand, and the demand is adjusted for this factor, and revised series is in the following table. This raises the demand in seventies to around 10,000 and in eighties to around 14,000.

**TABLE**  
**ADJUSTED DEMAND FOR TRACTORS**

<i>YEAR</i>	<i>DEMAND</i>
1974-75	7403
1975-76	8122
1976-77	8823
1977-78	9553
1978-79	10222
1979-80	10223
1980-81	9272
1981-82	9382
1982-83	10325
1983-84	11335
1984-85	12207
1985-86	12922
1986-87	13622
1987-88	14088
1988-89	13883
1989-90	13697

These projections should be taken with the reservations. We have assumed that all the necessary finance will be provided by ADBP. If the amount of finance is inadequate, then the demand estimates might have to be revised downwards. Moreover, tubewells are assumed to be proxy variable for intensity. If the water at sometimes is not the binding constraint, the results might have to be modified. But, looking at increased finance at the disposal of A.D.B.P. and water to be a binding constraint for quite a long time to come, these limitations are not very important.

## APPENDIX

Years	Tractors	Tubewells	Cropped Area (in Millions)
1965-66	1464.000	43500.000	38.860
1966-67	5059.000	52872.000	39.340
1967-68	7208.000	65336.000	38.820
1968-69	10777.000	75720.000	39.070
1969-70	16558.000	85729.000	42.330
1970-71	20715.000	94838.000	41.770
1971-72	24286.000	103672.000	42.460
1972-73	26943.000	113672.000	42.180

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# The Impact of Devaluation of the Rupee in 1955 on Prices and Production in the Agricultural Sector@

*Dr. Muhammad Moqueem Shaikh\**

## 5. 1. Introduction

The Agricultural Sector includes as sub-sectors major and minor crops, livestock, forestry and fishing. The major crops sub-sector consists of food crops, viz: rice, wheat, bajra, jowar, maize, barley and gram and cash crops, viz: jute, cotton, sugarcane, rape and mustard seed, sesamum, tea, tobacco, etc. Apart from these crops all other crops like fodder, fruit and vegetables are included in the sub-sector of minor crops.

As the price and production indices within each sub-sector of Agriculture are significantly different we shall discuss at some length the price movements in some important sub-sectors in addition to those in the Agricultural Sector as a whole. The study of price movements in these sub-sectors is important also from the point of view of the indirect effect of devaluation on production. For this purpose we shall be analysing the price movements in food and cash crops separately, because these price movements remained marked (different from each other) throughout the period under review.

Here we have to draw another line of distinction within cash crops between fibre and non-fibre (other) crops. This distinction is needed because fibre crops i.e. jute and cotton, are also Pakistan's major exportable crops. Tea, another cash crop, was contributing about 2 to 4 percent to our foreign exchange earnings from merchandise up to 1959-60,<sup>1</sup> After that tea exports have become insignificant. Another

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@This analysis is based on chapter 5 of my thesis on "The Impact of Devaluation on Prices and Production in Pakistan", submitted to the University of Exeter, Exeter (England) in 1972 for the degree of Ph.D., (Unpublished)

All references to chapters, tables (except given in Appendix) and figures in the text of this article are to my above mentioned thesis.

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1. C.S.O (Adhoc), 1968

cash crop, tobacco, is just making inroads in the exportable sector. Nevertheless tobacco is still an internal cash crop. The prices of each crop other than fibre crops are mostly determined by the supply and demand situations within the country, while the prices of fibre crops are significantly influenced by their prices in the international market. Therefore we shall split the cash crops into fibre and other crops for the purpose of our analysis.

From the point of view of the impact of devaluation on prices in the Agricultural Sector we shall be dealing with its effect on the prices of major crops, viz: food, fibre and other crops only. First this sub-sector (major crops) is the price indicator for the whole of the Agricultural Sector. Secondly other sub-sectors contribute only little to export earnings and even less to the G.N.P. Therefore these sub-sectors, viz: minor crops, livestock, fishing, forestry etc. can be ignored in this survey. Their prices are not subject much to influence by events in world markets, though such events may have some dampening effect on price movement within the Agricultural Sector as a whole. This point will be implicitly discussed as a part of our analysis of price fluctuations in this sector.

Within the Agricultural Sector, the prices of major crops fluctuated more compared with those in other sub-sectors. This was due to the dual effect of external and internal forces usually intensifying each other. Moreover these very crops have more than 50% weight in the whole of the Agricultural Sector.<sup>2</sup> That is why the volatility in this sub-sector is reflected heavily in the Agricultural Sector as a whole. This has been so in spite of the significant balancing effect of other sub-sectors.

Within this sub-sector of major crops the prices of food crops fluctuated less than the prices of cash crops, because the prices of food crops were mostly controlled or guided by procurement prices fixed by the Government in order to build up reserves or export rice from West Pakistan (rice is the staple food crop in former East Pakistan). Also the supply of food crops was regulated more by decreasing reserves, or replenishing stock by imports, when necessary.

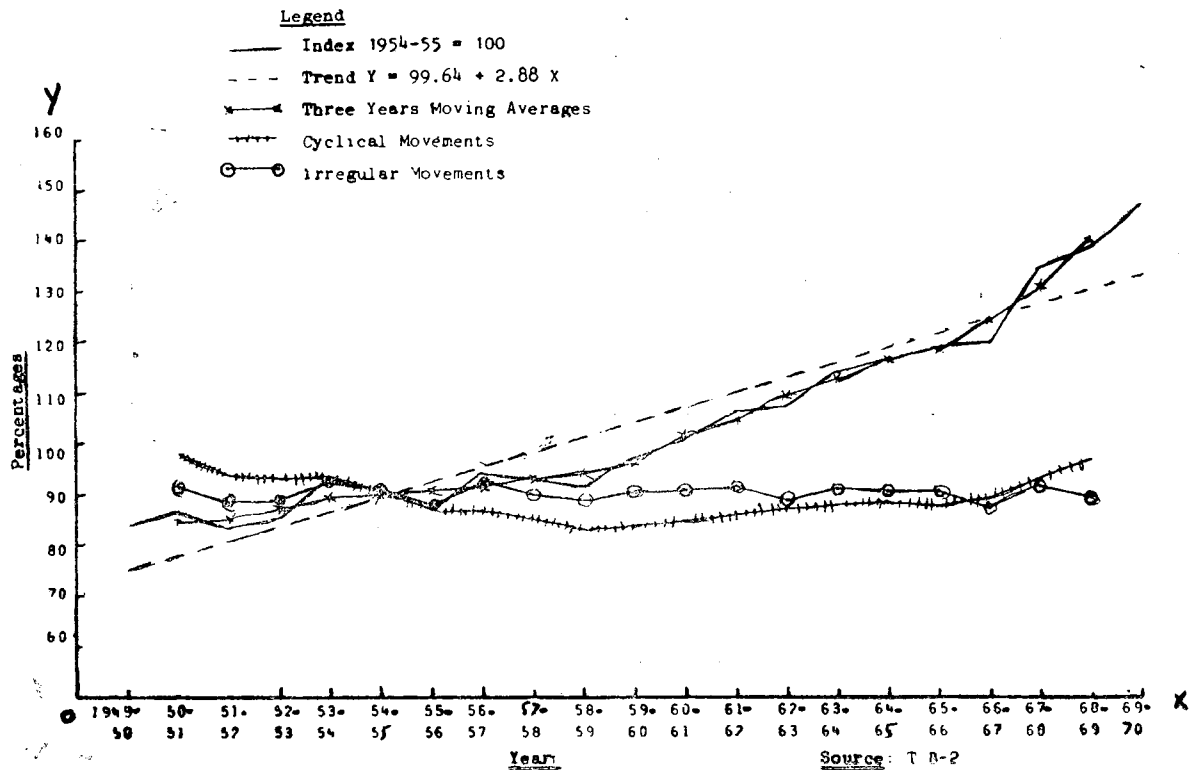
Therefore we shall deal first with the prices of food crops and see how far devaluation influenced these prices. Then we shall analyse the impact of devaluation on the prices of cash crops. Finally we

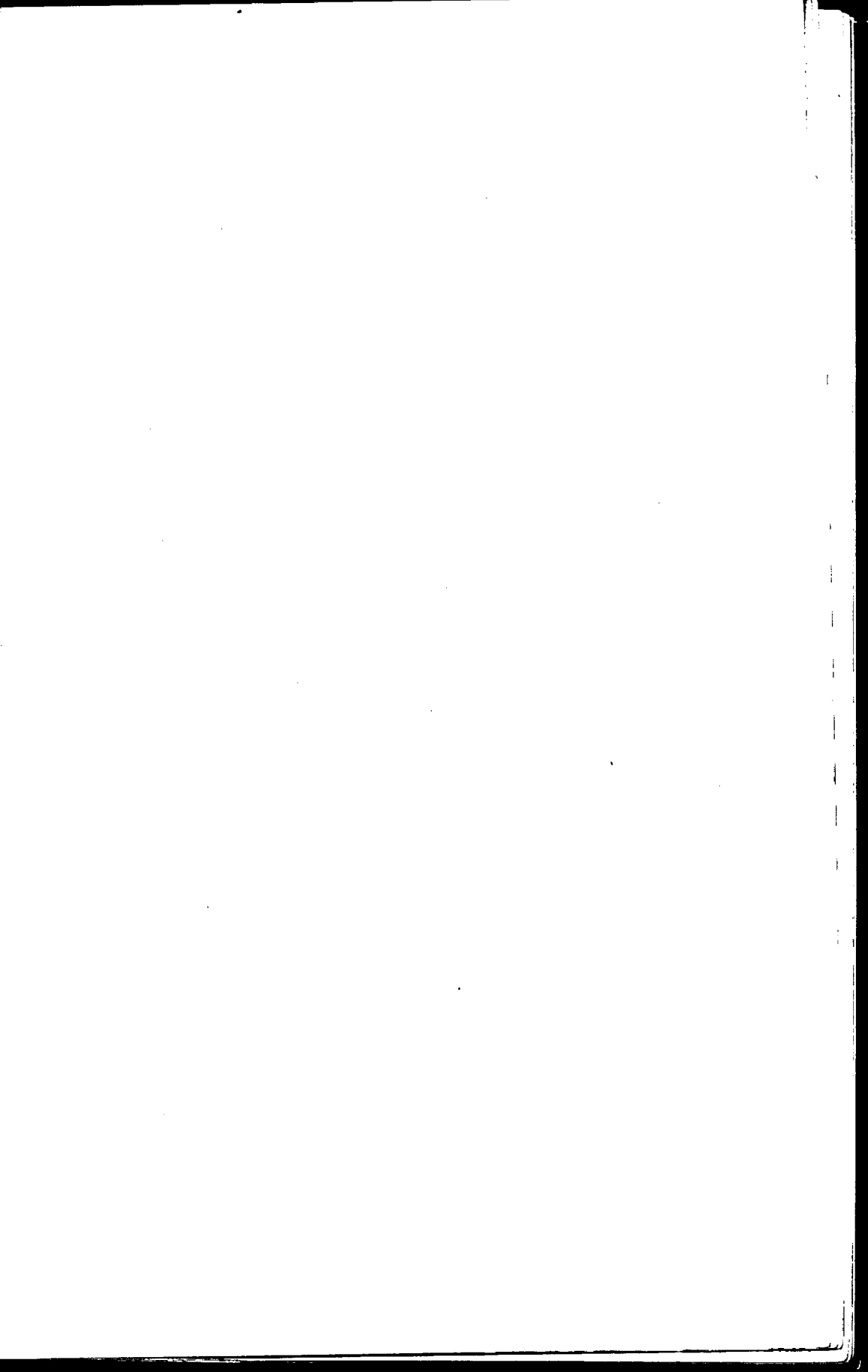
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2. Its weight has increased from 56.6% in 1949-50 to 60.5% in 1969-70.

Fig. 5.10.

Quantity Index in the Agriculture (Total)





shall be analysing its effect on major crops and thus on the whole of the Agricultural Sector. This procedure will be adopted throughout the different periods under review.

## 5.2. Agricultural Prices Prior to Devaluation

If we look at table T.B-I (in Appendix) and Fig. 5:3, we can see that prices of food crops were highest in 1952-53 and lowest in 1950-51. However there was an overall decrease in the prices of food crops during the predevaluation period. Although there was an insignificant increase of 0.5% per annum in these prices during this period, their prices decreased by about 13% in the last two years of this period.

Fluctuations in prices of food crops are closely associated with supply of and demand for these crops. With the increase in population at the rate of 1.4% per annum<sup>3</sup> during this period, the demand for food grains was rising. This *ceteris paribus* would have resulted in a steady increase in these prices during this period, but other things, mainly the supply of foodgrains did not remain the same either. The supply of foodgrains was a significantly fluctuating parameter in the equation of supply and demand for food crops. Thus the supply of food crops has an active role to play in the determination of food prices. But fluctuations in the supply of foodgrains were quite high during this period.

Generally the supply of foodgrains was sufficient to feed the teeming millions before 1950-51. There was, however, an increase in the prices of foodgrains up to the end of 1948. That was due to the unsettled conditions and inadequate distributive machinery at that time. But in the following two years or so prices were on the decline because there was an adequate supply of foodgrains within the country. It was only after 1950-51 that supply within the country declined significantly. The production of foodgrains decreased from 13.3 million tons in 1950-51 to 11.7 million tons in 1951-52 (a decrease of 12%) and to 11.5 million tons in 1952-53<sup>4</sup>

Nature plays a predominant part in determining the supply of agricultural crops. The production of food crops is greatly influenced by this factor alone. Nature was bountiful in 1953-54. Hence the production of foodgrains increased by 21.2% in 1953-54. over the

3. Pak (The First Plan), 1956, Vol. I, p. 210.

4. Pak (Y.B.A.S.), 1968, p. 10.

previous year. Though the index of food production decreased by 9.3% in 1954-5 over 1953-4, production in this year was noticeably higher (about 11%) than in 1952-3.<sup>5</sup> This increase in production was the major factor governing the decrease in prices of foodgrains by 9.2% and 4.2% in the last two years respectively of the predevaluation period.

Even higher fluctuations are noticed in the case of cash crops. These were significantly influenced by the prices of fibre crops within this sub-sector. Prices of other crops were also volatile during this period of six years, but these did not affect the prices of cash crops significantly compared with the influence of fibre crops. This high volatility in the prices of cash crops was again due to significant fluctuations in production. Apart from nature's effect on production there was another significant factor, the substitution of different uses for land, which influenced the land utilized for these crops and thus their supply in the market.

Demand for food crops was steadily increasing with the increase in population. Some change in the dietary habits of the population also resulted in more demand for food and food products. Naturally their prices, *ceteris paribus*, were expected to rise. This influenced the choice of the farmers to give priority to food crops, which they need for their own consumption, while jute and rice and wheat, tobacco and sugarcane are significantly competitive for the allocation of land in East and West Pakistan respectively.

Furthermore Government policy of attaining self-sufficiency in food production in the period before 1955, and even in successive plan periods, was more favourable to the production of food than that of cash crops. Apart from this reason affecting the supply aspect of cash crops, their demand conditions also changed significantly from time to time. The demand for fibre crops was substantially affected by the decision not to devalue in 1947 (and consequently by the trade dead-lock with India), by the Korean War and its aftermath, and by a significant increase in consumption at home due to industrial development within the country during this period of six years.

Meanwhile price fluctuations in the case of cash crops were intensified by supply and demand changes moving in opposite directions. In most of the period, if demand for these crops decreased, supply

5. Pak. (Y.B.A.S.), 1968, P 210



increased e.g. in 1948-9, 1952-3 and 1953-4. On the contrary if demand increased, the supply decreased e.g. in 1950-1 and 1951-2. These opposite forces moving in opposite directions were responsible for aggravating the effect on fluctuations in the prices of these crops. This phenomenon has also been depicted in the various figures and graphs of prices and quantity indices of food, fibre and other crops.

Another reason for price fluctuations was that of the cash crops. Jute and cotton (fibre crops) were the main exportables and were directly effected by their prices in the international market. These two crops were responsible for one third to onehalf of the total earnings from all cash crops. Therefore the influence of fluctuations in the prices of fibre crops on the prices of all cash crops is evident.

Of course the prices of other crops were also changing on their own, because of various supply and demand conditions, yet their fluctuations were less than was the case with the fibre crops. Therefore the overall effect of the fluctuations in the prices of other crops on the prices of the cash crops was a balancing one. That is why the prices of cash crops were fluctuating less than the prices of fibre crops.

In spite of substantial fluctuations in these prices, we can say that the prices of cash crops, especially of fibre crops were declining in the pre-devaluation period of six years. On the average the prices of fibre crops decreased by 3.3% per annum and those of cash crops by 0.8% per annum during this period.

As major crops are composed mainly of food and cash crops included in these sub-sectors in T.B-1, we can see that fluctuations in the prices of food and cash crops are almost fully reflected in the prices of this sub-sector. As the prices of food and cash crops were mostly moving in the same direction the effect of fluctuations in their prices on the prices of major crops was intensified.

However fluctuations in the prices of major crops were greater than was reflected in fluctuations in the prices of food and cash crops. This is because market prices of food crops are included in the index of major crops than price fluctuations reflected by price index of food crops. Because the price index of food crops is derived from cost of living indices at various different centres in the country. These food prices include the prices of food products also and changes in the prices of food products are usually fewer and less volatile than changes in the prices of different food crops. Even prices of wheat and rice (two staple

food items) were somewhat regulated and even subsidized at times for ordinary consumers. Therefore the index of food crops given in T. B-I is somewhat subdued and is reflected less in the index of prices of major crops, which is independently constructed on a different footing.

In spite of this limitation, the index of major crops depicts a similar picture of that shown by the two indices of food and cash crops. The prices of major crops also increased or decreased due to fluctuations in prices in other sub-sectors. The highest increase of 16.3 % in these prices occurred in 1951-2, while the greatest decrease of 20.3% occurred in 1953-4 over the previous year.

Therefore it can be clearly seen that prices in the sub-sector of major crops were also on the decline during this pre-devaluation period. But their fall rate was greater than the rates of decline in other sub-sectors. The index of prices in this sub-sector was 160.6 compared to the highest index of 123.0 in the case of fibre crops among other sub-sectors. That is why prices in this sub-sector declined by 6.6% per annum during this pre-devaluation period.

Thus prices in the important sub-sectors of the Agricultural Sector fluctuated considerably during this period of six years. This seems somewhat balanced out in the Agricultural Sector as a whole. It is indicated by the index of these prices in column 2 of the table T.B-I. Of course the balancing factor was the prices in other sub-sectors of Agriculture, viz; minor crops, forestry, fishing, livestock, etc. Though the prices in these sub-sectors also followed a similar trend to that visible in other major sub-sectors, these fluctuations were mild compared to the price fluctuations in major crops.

Hence prices in the Agricultural Sector as a whole were not as volatile as in the case of major sub-sectors. Its price index was the highest in 1951-2. That was in line with other price indices in the table. The only price index out of line was that of food crops. This was due to a 12% decrease in food production in 1951-2, and a further decline of 1.2% in 1952-3 over the previous years also followed a similar trend to that visible in other major sub-sectors, these fluctuations were mild compared to the price fluctuations in major crops. That is why the prices of food crops did not reach their peak in 1951-2 in line with other indices during the same period.

However there was a steady decrease in prices in the Agricultural Sector as a whole, because agricultural prices in 1954-5 were at their lowest ebb compared with prices in the previous years. On the average, prices in this sector declined by 3.1% per annum during the per-devaluation period of six years.

The important factor in the decline in prices in the Agricultural Sector was the increased production (due to good weather conditions) of almost all major crops in 1952-3 and 1953-4. There was a substantial increase in the production of cash crops in 1954-5. This was combined with less demand for our exportables from abroad after the Korean War. Hence it can be concluded that prices in the Agricultural Sector were mainly determined by the supply conditions or production of various crops in the previous year.

### 5.3. The Effect of Devaluation on Agricultural Prices in the Devaluation Period

Prices in the Agricultural Sector as a whole increased by 10.8% in the very first year of the devaluation period i.e. 1955-6. There was a further increase of 13.5% and 6.4% in 1956-7 and 1957-8 respectively. However there was a fall of 1.6% in these prices in the last year of the devaluation period. Thus it can be said that prices in the Agricultural Sector were in line with the general price level in the country at that time.

In such annual data, there is a possibility that prices for one set of crops may be going up, while for another set of crops, these prices may be going down. This may be due to the overlapping of seasons for various crops, which do not coincide with the calendar or fiscal year, used for annual series. Therefore if any exogenous factor has taken place at a certain time, it will affect the prices of various crops differently in the initial period (in our case a period of one year) according to the seasons for these crops.

There is another reason for believing this phenomenon. It has been shown by the coefficient of correlation between production and prices; that production is dependent and significantly correlated with prices in the previous year rather than to prices in the same year. In the case of the Agricultural Sector as a whole, this coefficient of correlation was 0.93 for the previous year's price and 0.91 for the prices in the same year.

The coefficients of price variations were 23.2% and 22.4% for cash crops and fibre crops respectively, as compared to 21.0% for the whole of the Agricultural Sector. It has been estimated that the coefficient of variations for the harvest prices of jute was 33.8% and of cotton 8.0% during the period from 1955-6 to 1962-3.<sup>6</sup> Because

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6. Pak. (Report), 1964, pp. 8 and 26.

of comparatively lower variations in fibre crops than in cash crops, it seems that highest variations have occurred in the sub-sector of other crops. Its coefficient was 24.1%, during the whole period under review. Similar variations have occurred in quantity indices of these very sub-sectors. Coefficients of variation for fibre, other and cash crops were 18.5%, 30.7% and 25.2% respectively as compared to 16.3% for the whole of the Agricultural Sector.

Such high variations in the prices of cash crops are closely associated with fluctuations in production and area devoted to these crops. The reason for such a phenomenon was the high priority given to the production and relative price stability of food crops. Apart from weather conditions-affecting all crops alike, cash crops have to take the brunt of a policy of priority for food crops in the next year. If weather conditions were not favourable in one year, apart from some effort to make cultivation more intensive, a greater area was put under food crops. As the total cultivatable area was limited, it was bound to be increased at the cost of cash crops. If the weather conditions were again unfavourable, then there would be a substantial decrease in the production of cash crops, due to the double effect of bad weather and a smaller area. Naturally their prices would rise significantly in that year.

On the other hand, if the government had good stocks of food grains or there was bumper crop in one year, then farmers would be tempted to bring a greater area under cash crops. Because the bulk of the population lives in rural areas, food crops must be grown for their own consumption. That is why 70% of rice and 60% of wheat in East and West Pakistan respectively (and similar ratios of other food crops) does not enter the market for trade.<sup>7</sup> Therefore the major source of income for the producers (apart from the paltry sum from the sale of food crops) consists of proceeds from the sale of their cash crops.

Apart from assuring for themselves a supply of foodgrains, farmer are motivated by the relative prices of food and cash crops to change the area under different crops. If food prices are rising faster relative to cash crops (as actually happened in East Pakistan in the case of jute and rice prices) then *ceteris paribus*, farmers will be tempted to bring a greater area under food crops; and vice versa.

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7. C.S.O. (P.S.Y.B.), 1968, p. 317

With the increase in population, higher prices of foodgrains in the world market and also the higher cost of inputs, the internal prices of foodgrains were bound to increase in most of the period under review, while the prices of cash crops, especially of fibre crops, though highly fluctuating, remained appreciably lower than the prices of food crops. Therefore farmers were induced to increase the area under food crops from time to time.

In addition to this independent incentive for farmers to change the area under different crops, the government encouraged them to bring a greater area under food crops. The government took various steps to this end in connection with the 'Grow-More-Food-Campaign, during the 1950's and the target of 'Food-Self-Sufficiency' during the 1960's. Although the intention of the government was not to achieve these targets at the cost of cash crops, it did affect the area under cash crops from time to time. Even the government's scheme of licenced areas for cash crops, specially of jute, introduced to stabilize its highly fluctuating prices, worked in favour of bringing a greater area under food crops.

Hence, in addition to weather conditions, high fluctuations in area were responsible for significant variation in the production of cash crops. This added considerable volatility in the price index of these crops. Consequently high variations in one year have their effect on production of these crops in the next one or two years also.

As major crops are a leading sub-sector for determining price in the whole of the Agricultural Sector, we shall deal primarily with the effect of devaluation on prices in this sub-sector. Food and cash crops, being two important components of this sub-sector will be dealt with separately, because these are influenced differently by similar prices and other conditions in various years. In addition to discussing the overall impact of devaluation on the prices of cash crops, we shall try to find out its impact on fibre and other crops also. This dichotomous division of the Agricultural Sector will be followed throughout our analysis of prices and production in Pakistan.

### 5.3 Food Crops

We have already seen that the agricultural policy of the government revolves round the prices and production policy of food crops. Even from the point of view of farmers, food crops are their primary concern. That is why the production and even the relative price

stability of food crops are given preference over other aspects of Agriculture. Because of this importance, it remained a cornerstone of the Government's Agricultural Policy throughout the whole period under review.

Therefore every effort was made to stabilize the prices of food crops relative to cash crops or other crops. It was even necessary to induce farmers to grow more food for the increasing population. It has been observed that there was a direct relationship between price and area under cultivation and subsequently the production of agricultural crops, provided the range of price fluctuations was wide and assured.<sup>8</sup>

Because of the urgency of the food problem in most of the years under review, the government was willing to assure farmers from time to time about the future prices of two staple food crops i.e. wheat and rice. As these prices were fixed for two to three years at least, these were not allowed to influence these prices within a limited range. This explains why the coefficient of variation for food crops was the minimum (21.9%) as compared to that for cash and other crops in the group of major crops.

From table T.B-1 and Fig. 5.3, we can see that the prices of food grains increased by 5.7% in 1955-6 over 1954-5. There were further increase of 10.2% and 8.8% in these prices in 1956-7 and 1957-8 respectively over their respective previous years. However the prices of foodgrains declined by 4.4% in 1958-59 over the previous year. This is entirely in line with the fluctuations in general prices in the country and even with other price indices in the table.

Broadly speaking prices of foodgrains and other commodities are determined by supply and demand conditions in the country. Therefore we shall try to analyse the effect of devaluation on the prices of foodgrains through changes in supply and demand and their forces in this connection.

#### **Changes in supply**

The supply of foodgrains can be composed of domestic production and imports. However exports (if any) are to be deducted from the supply figures in order to estimate the net supply for the country in a particular year or period. This figure should also be discounted for any quantity of stock held for the next year or for lean years.

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8. Pak. (Report), 1964, p. 3.

As data about stock are not available in the requisite form, we cannot utilize them correctly to arrive at accurate figures of supply within the country. However we shall have some estimates of stocks of foodgrains from time to time. Moreover we assume that stocks are increased in the case of bumper crops in any year, and they are depleted heavily in the case of bad harvests, because only negligible stocks are left in such cases before the beginning of the next harvest.

We have taken 1954-5 as the base year in our different series. Therefore we also take the production or even the supply of foodgrains in this year as the normal supply for comparison with changes in supply in further years. Because in that way, we shall be able to see how for the supply changed after the devaluation. Any increase in supply over and above the base period will be considered to decrease prices, and vice versa.

Pakistan produced 12,696 thousand tons of foodgrains in 1954-5. As there were no imports of foodgrains in that year, the supply can be considered the same as the production of foodgrains for that year. However this should be discounted for exports of 138,000 tons of rice in that year. Thus the net supply of foodgrains was 12,558 thousand tons in the base year i.e. 1954-5. As there were no price controls at that time and market forces were allowed to operate fully to clear the market, we assume that demand was equal to supply at least in that year. On that basis we want to measure the change in supply and (later demand as well) in further years.

The production of foodgrains is highly dependent on the land under food crops, prices of foodgrains in the previous year, fertiliser, irrigation facilities and even rainfall in that year. Generally the use of fertiliser and irrigation facilities were on the increase, but these factors have an important bearing on the production of these crops in the 1960's and not in the 1950's. Therefore we shall not include these factors within our purview at present. Even the rest of the factors will also be discussed as forces affecting supply or the production of foodgrains in the country. No detailed effect of these factors on the prices of foodgrains is contemplated here. Only their aggregate effect on production, i.e. change in production, will be taken into view.

According to land utilization statistics, the area under the rice crop (totally in East Pakistan) was reduced from 23.7 million acres in 1954-5 to 21.9 million acres in 1955-6 (7.6%). As three-fourths of the cultivated area in East Pakistan is under food crops (and 90 to 95%

of it under rice only), this reduction in area would have decreased the production of foodgrains. While this decrease in area seems to have been due to lower prices of foodgrains in the previous year.

Although the area under the wheat crop in West Pakistan increased by about 0.7 million acres. The total area under foodgrains in the country decreased from 39.3 million acres in 1954-5 to 38.3 million acres in 1955-6. This was mainly due to lower prices of foodgrains (less incentive) in the previous year.

In spite of good rains, the production of foodgrains decreased from 12,696 thousand tons in 1954-5 to 11,736 thousand tons in 1955-6. However Pakistan imported 176,000 tons of foodgrains from abroad. Meanwhile she exported 168,000 tons of rice in this year. The net result of these changes in various factors was the decrease in the supply of foodgrains from 12,558 thousand tons in 1954-5 to 11,744 thousand tons in 1955-6 i.e. by 6.5% over the previous year.

But domestic production increased to 13,832 thousand tons in 1956-7. This was mainly due to a greater area being put under food crops. It increased by 3.0% over the previous year. In addition, better weather conditions and extension services helped to increase the production of food grains in that year.

Because of the shortage of foodgrains in the previous year, the government planned to import more foodgrains at that time. This was added to the supply in this year. On the same ground less rice was exported (only 20,000 tons). Therefore less exports and more imports (1,300 thousand tons) increased the total supply of foodgrains to 15,122 thousand tons in the country in this year.

We should deduct from this figure the quantity of stocks held, because of good harvests in this year. No statistics are available in this connection. However we have estimated it as one million tons on the basis of the storage capacity of 1.06 million tons built for this purpose by the end of June, 1960.<sup>9</sup> A similar quantity of stocks is assumed to have been held by private foodgrain merchants in this year. Thus we reckon that the net supply of foodgrains increased to 13,112 thousand tons in 1956-7. This was 4.4% higher than the net supply of foodgrains in 1954-5 (i.e. the base year).

However in the following year, the area under foodgrains again decreased by 0.6 million acres over 1956-7. The index of rainfall was

9. Pak. (The Second Plan), 1960, p. 418.



19.3% lower in 1957-8 than in the previous year. That is why the production of foodgrains decreased to 13,058 thousand tons in this year as compared to the production of 13,832 thousand tons in previous year.

According to previous agreements Pakistan imported 1,258 thousand tons of foodgrains in this year. However exports of rice were negligible in 1957-8. We hold the stock as constant. Therefore we can consider that the total supply of foodgrains was 14,136 thousand tons in 1957-8. Hence we can say that the supply of foodgrains increased by 14.0% in this year over the base year.

While domestic production of foodgrains decreased slightly to 12,942 thousand tons in 1958-9, compared with 13,058 thousand tons in the previous year. This happened in spite of a greater area under these crops and higher rainfall in this year. Perhaps greater rainfall resulted in natural havoc and destroyed some of the standing crops. Because of the better supply position in the previous two years, imports of foodgrains were also lower than in the previous year i.e. 746,000 tons, while only 32,000 tons of rice was exported. Thus the net supply of foodgrains was about 13,656 thousand tons in this year. This was still 8.7% higher than the supply in 1954-5.

The net result of all these changes was the increase in the average index of food supply by 4.9% per annum throughout the devaluation period. Thus the total increase in the supply of foodgrain was 19.6% higher than in 1954-5.

### Changes in Demand of Foodgrains

Demand for foodgrains is mainly affected by growth of population, dietary habits of the people and changes in their income. A change in dietary habits from the consumption of carbohydrates to consumption of more proteins is supposed to be a change for the better. Such a change would have decreased the demand for food crops or cereals. But in Pakistan, it could have not happened, because in a country deriving 72.3% of calories per day from cereals alone,<sup>10</sup> it is very unlikely that such a decrease would have occurred. On the contrary, the demand for food crops would have increased because of a diversified use of cereals to vary the conservative type of simple diet composed of carbohydrates.

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10. Khan, M.I. (1969), p. 431.

Thus we shall see the effect of changes in population and income in the country during this period. As we are trying to estimate the effect of the money supply on these prices separately; we shall estimate here the effect of changes in real per capita income only; i.e. income on constant factor costs. Even a year-wise change in potential demand due to controls etc. is not possible here. However we shall adjust the total demand for this potential change in the end.

We start with the same assumption that supply and demand for food crops were in equilibrium in 1954-5 (base year). We further assume that no significant change in dietary habits occurred during this period. Thus any change in demand would have been due primarily to changes in population and per capita income. On this basis we try to estimate the changes in demand for foodgrains during this period.

According to our assumption and previous estimates of supply, we can say that about 12,558 thousand tons of foodgrains were demanded in 1954-5. As the population increased by 2.2% in 1955-6 we can say that the demand for foodgrains would have increased to 12,834 thousand tons in that year. But the per capita income decreased from Rs. 316.00 in 1954-5 to Rs. 308.00 in 1955-6 (i.e. by 2.5%). From cross section data income-elasticity of expenditure on food and drinks for the whole nation has been estimated as 0.63.<sup>11</sup> Thus we can visualise that demand for foodgrains would have decreased by 1.6% on this account. Hence as a result of these two changes, the demand for foodgrains would have increased by 0.6% in 1955-6 over the previous year.

The population increased by 4.5%, 6.5% and 10.2% in 1956-7, 1957-8 and 1958-9 respectively over the base period i.e. 1954-5. This would have increased the demand for foodgrain to 13,123, 13,399 and 13,839 thousand tons in these three years respectively. However per capita income increased by 0.9 in 1956-7 over the base period. But it decreased by 0.3% and 1.3% in 1957-8 and 1958-9 respectively as compared to the base year. Thus according to expenditure elasticity of income, these changes in per capita income would have increased the demand for foodgrains by 0.6% in 1956-7 and this demand should have fallen by 0.2% and 0.8% in 1957-8 and 1958-9 respectively.

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11. Bussink (1964), p. 207.

Thus the net demand for foodgrains in these three years would have been 13,198, 13,372 thousand tons respectively. This indicates that the demand for foodgrains in 1956-7, 1957-8 and 1958-9 was 5.1%, 6.5% and 9.3% higher than demand in 1954-5. Therefore it is construed that on the average the index of demand for foodgrains increased by 5.3% per annum during this period. Hence the total increase in demand for foodgrains was 21.2% during these four years of the devaluation period.

We can visualise from our discussion above that demand for foodgrains was rising faster than the increase in supply. On the whole there was an excess demand of 1.6% (21.2-19.6) throughout this period of four years over and above the supply and demand in the base period. According to demand elasticity of price i.e. 1.06,<sup>12</sup> this much excess demand would have increased prices of foodgrains by 1.7% during this devaluation period.

#### Change in Money Supply

We know that changes in money supply have an important influence on any set of prices. In particular, more money in the hands of people will exert its pressure on the prices of foodgrains in Pakistan also.

The money supply was increasing throughout this period of four years. Its growth rate was 7.1% per annum during this period. This means that the total increase in money supply in these four years was 31.6% over the base period. Obviously the whole of this increase in the money supply would have not been spent on foodgrain and thus affected their prices. Therefore we have to estimate only its net inflationary impact on the prices of foodgrains during this period.

We have elsewhere estimated<sup>13</sup> that devaluation was responsible for the increase of 5.7% in the total money supply during this period. As we have to estimate the pure inflationary increase i.e. without the effect of devaluation, whose effect we are isolating, we discount the total increase in the money supply for the increase due to devaluation.

Similarly we shall have to discount it for the increase in the G.N.P. on constant prices, because that much money would have

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12. This is the partial elasticity between demand or supply and price.

13. Chapter 10.

been needed for increased economic activity. There was an increase of 8% in the G.N.P. during this period. Thus discounting the total increase in money supply by these two figures, we are left with an increase of 17.9% (31.6-5.7-8.0) in the money supply during this period.

Here another point will be taken into view. We know that an increase in economic activity increases the demand for cash balances.

We have elsewhere calculated (Chapter 10) that the ratio of cash balance to the money supply is about 25% in an economy like that of Pakistan. To that extent the money supply will not affect prices in the country. Thus it is estimated that cash balances would have increased by 4.5% during the same period. Discounting this figure from the total increase of 17.0% in the money supply, we can visualise that the net inflationary increase in the money supply was 13.4% during this period. To that extent the money income of the people would have increased. According to expenditure elasticity of 0.63, we can say that there would have been a potential increase of 8.4% in the demand for foodgrains. This would have increased prices of foodgrains by 8.9% during the same period of four years.

Hence the combined effect of excess demand for foodgrains and the increase in the money supply was the increase of 10.6% (1.7+8.9) in the prices of foodgrains during the devaluation period i.e. 1955-6 to 1958-9.

#### **Potential Change in the Demand for Foodgrains**

Although prices of foodgrains are influenced by direct demand of foodgrains, hidden or potential demand, which might have been controlled, would have affected these prices as well. We have no conservative estimates of such a potential demand in the case of Pakistan. However an indirect method has been used to estimate such demand in the country.

We can visualise from cross-section data<sup>14</sup> that the net availability of foodgrains was 14.9 ounces per head per day in 1949-50. It decreased to 14.2 ounces per head per day in 1959-60 i.e. a decrease of 4.7% in the supply of foodgrains. To provide the same quantity of foodgrains per head, about 4.7% more supply was needed. In other words there was a potential demand for foodgrains to that extent, it

14. Pak. (The Fourth Plan), 1970, p. 5.

was either controlled or remained unsatisfied, due to lack of supplies. This would have increased the prices of foodgrains by about 5.0% during the devaluation period.

Thus the addition of this amount of increase in the prices of foodgrains in the above estimated increase, will indicate that changes in the demand and supply of foodgrains and the money supply would have increased these prices by 15.6 (1.7+8.9+5.0) during the devaluation period. But prices of foodgrains increased at the rate of 5.1% per annum (T.B-7) during this period. That means that prices of foodgrains increased by 22.0% during these four years. After discounting the increase in these prices caused by other factors i.e. 15.6% we are left with the increase of 6.4% in these prices. Roughly this residual increase in prices of foodgrains can be considered due to devaluation of the rupee alone.

### 53. b. Fibre Crops

We have already indicated that cash crops are composed of fibre crops and non-fibre crops (other crops). So any effect of devaluation on the prices of cash crops will be an indirect reflection of its effect on the prices of these crops respectively. Thus we have to calculate the effect of devaluation on the prices of fibre crops and other crops before estimating its effect on the prices of cash crops. Therefore we shall first analyse the impact of devaluation on these sub-sectors. Then their overall effect on the prices of cash crops will be calculated. The rest of the procedure is the same as that adopted in case of food prices during this period.

Here another point is worth mentioning at the very outset. It has a significant effect on the supply of fibre crops, and thus is relevant to the matter in hand. Jute and cotton crops used to have significant stocks from the previous years. The jute figures (T.B-5) especially indicate heavy stockpiling ever since the Korean Boom. Actually no stock figures are available. So we have built an estimate of our own on the basis of data of production, exports and domestic consumption. But results are highly unrepresentative of stocks held from time to time. This is so, because of heavy smuggling of jute to India. That is evident from the figures of stock every year after 1956-7. This was almost equal to or even more than the total demand for jute in that year.

Smuggling flourished because of the price differentials between India and Pakistan, but no conservative estimates of such trade are possible. However on the basis of the annual consumption of jute in jute mills, it can be said that 20 to 30% of the total visible supply can be held as stock for utilization round the year. The rest of 30 to 35% is supposed to be smuggled out to India. In spite of the inaccuracy of the data, it is an important factor for knowing the state of affairs on the supply side. The supply may unexpectedly be substantial even when the production is low. Thus it is a significant clue to our later dilemma of decreasing prices with decreasing production and vice versa. However we are unable to use such data for our statistical results. Hence we have to utilize production figures for our analysis, except that we refer to this menace occasionally in qualitative terms.

Meanwhile figures of stocks and thus the supply of cotton (T.B-6) are also derived on the same footing. However, these figures do not suggest any significant smuggling. Therefore we can use these data for our purpose.

The prices of fibre crops decreased by 11.3% and 5.6% in 1955-6 and 1956-57 respectively. However there was sharp increase of 37.1% in these prices in 1957-8 over the previous year. But the prices of fibre crops again decreased by 9.9% in 1958-9 over 1957-8. This shows very great fluctuations in these prices compared with changes in prices of other sub-sectors in the Agricultural Sector.

The prices of fibre crops are also determined by forces of supply and demand for these crops. Apart from these factors, these prices are also influenced by their prices in the international market; because these very crops have been the major exportables of Pakistan. Thus we shall try to analyse the effect of all these three factors of these prices and deduce this effect from the total rise in these prices during the devaluation period, in order to find out the effect of devaluation on these prices.

### **The Supply of Fibre Crops (Jute)**

Production of jute increased from 4,662 thousand bales in 1954-5 to 6,500 thousand bales in 1955-6 i.e. by 39.4% over the previous year, because the area under jute increased from 1.2 million acres in 1954-5 to 1.6 million acres in 1955-6, while the area under rice (a crop competitive with jute) decreased from 21.3 million acres to 19.5 million acres during the same period. This suggests that the price ratio of jute/rice increased in favour of jute in the previous year.

The prices of jute increased from Rs. 454.00 per ton in 1953-4 to Rs. 550.00 per ton in 1954-5 (by 21.1%).<sup>15</sup> While the price of rice decreased from Rs. 490.00 per ton to Rs. 361.00 per ton during the same period (by 26.3%).<sup>16</sup> Thus the jute/ rice ratio of price increased from 91.3% in 1953-4 to 152.4% in 1954-5 in favour of jute. All this was free from the effect of devaluation. That means the increase in area as well as production would have occurred in 1955-6, even if there had been no devaluation in 1955.

On the other hand production of jute decreased from 6,500 thousand bales in 1955-6 to 5,514 thousand bales in 1956-7. This was due to more stock left over from the previous year reducing its prices and the area under the jute crop, from 1.6 million acres in 1955-6 to 1.2 million acres in 1956-7. Moreover this decrease in area was caused by the decrease in production and consequently the increase in the prices of foodgrains in 1955-6. Thus the price ratio of foodgrains/ fibre crops turned in favour of foodgrains. Therefore farmers were induced to increase the area under food crops at the expense of fibre crops.

In spite of this apparent decrease in the production of jute in this year over the previous year, it can be seen that jute production was still 18.3% higher than its production in 1954-5. As we are interested in the changes in the production of jute during this period over the base period, we shall reckon the increase in its production over the base period, rather than the decrease over the previous year, as a factor affecting our supply. Thus the supply of jute is supposed to have increased by 18.3% in this year over the base period.

Meanwhile production of jute increased from 5,514 thousand bales in 1956-7 to 6,200 thousand bales in 1957-8. This was again due to a greater area brought under jute in this year. In spite of an increase in area from 1.2 million acres in 1956-7 to 1.6 million acres in 1957-8, the increase in production was not proportionate. It is relevant that the rainfall index fell from 86.9 in 1956-7 to 70.0 in East Pakistan. Nevertheless the production of jute was 33.0 percent higher in this year than in the base year.

In the last year of the devaluation period, the area under jute was slightly less compared with the area in the previous year. But the production was only 6,000 thousand bales in this year as compared to

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15. Islam (1965), p. 126.

16. Ibid. pp. 119 and 122.

8,200 thousand bales in 1957-8. Even then the production of jute was 28.7% higher than in the base year i.e. 1954-5.

Hence we can see that the average index of the production or supply of jute was 129.6 (base year = 100) during this period. That means the supply of jute was on the average 29.6% higher during this period of four years compared with its supply in the base period.

### The Supply of Fibre Crops (Cotton)

As mentioned earlier, the figures for the supply of cotton given in T.B-6 seemed to be good estimates and can be used as such; therefore we shall utilize these figures for estimating the changes in the supply of cotton during the devaluation period of four years.

A look at the table T.B-6 will indicate that the supply of cotton increased from 1,733.3 thousand bales in 1954-5 to 1,966.6 thousand bales in the following year (by 13.5%). This was the combined effect of previous stock and an increase in the production of cotton by 5.8% over the previous year, while production of cotton increased because of favourable weather conditions and an increase in area from 3.2 million acres in 1954-5 to 3.5 million acres in the following year.

However the supply of cotton decreased to 1760.3 thousand bales in 1956-7 as compared to 1,966.6 thousand bales in 1955-6. This happened because there was less stock left over from the previous year.

Otherwise the production of cotton was higher in this year than in the previous year. In any case even this supply of cotton was 1.6% higher than the supply in 1954-5.

The supply of cotton increased to 1,835.4 thousand bales in 1957-8 from 1,760.3 thousand bales in the previous year. This occurred in spite of the slight decrease in production in this year over the previous year. Thus this supply of cotton in this year was 5.9% higher than in the base period.

There was a further increase of 12.5% in the supply of cotton in the last year of the devaluation period, i.e. 1958-9, over the base period. This increase in supply occurred in contrast to decrease in production over the previous year. Because significant stock was left over from the previous year.

Thus the supply of cotton increased on the average by 8.2% during the period of four years of the devaluation period over the base period. In other words its average index was 108.2 during this period as compared to 100.0 in 1954-5.



As fibre crops are composed of jute and cotton only, while their respective weights of 45.4% and 54.6% have been assigned on the basis of their contribution to the value-added of fibre crops in 1954-5, we can combine the change in the supply of jute and cotton accordingly to estimate the change in the supply of fibre crops. Hence we have estimated that the average index of supply of fibre crops was 117.9 during the devaluation period. This means that on the average, the supply of fibre crops was 17.9% higher every year compared with their supply in 1954-5. Hence the total supply seems to have increased by 71.6% in these four years over the base period.

### The Demand for Fibre Crops

We have looked at the changes in the supply of fibre crops during the devaluation period. Now we turn to changes in demand for these crops during the same period. Demand for fibre crops is composed of consumption of these crops within the country and their exports abroad. Estimated series are given in tables T.B-5 and T.B-6 in the Appendix to this article.

As the supply of jute and cotton is estimated separately, we have estimated the demand for these crops separately also. Therefore we shall discuss the changes in their demand accordingly, and then try to find out the total change in demand for fibre crops according to their respective weights applied before for finding the change in supply of these crops during the devaluation period.

A look at T.B-5 will indicate that there was practically no consumption of raw jute within the country till 1956-7, because the production of jute manufactures was started only in the middle of the 1950's. Therefore demand for raw jute was composed of exports only. Thus the total demand for jute in 1954-5 was reckoned as 4,850 thousand bales. Although exports of jute increased to 5,781 thousand bales in 1955-6, they were lower in the rest of the three years of the devaluation period than in 1954-5. However the consumption of raw jute steadily increased within the country due to the development of the jute industry in these years. This was mainly responsible for the overall increase in demand for raw jute over and above the base period.

If we consider the demand for jute in 1954-5 as 100 then its index in the following four years was 119.2, 111.8, 112.9 and 112.9 respecti-

vely. Hence the average index of demand for jute was 114.1 during this period. In other words demand for jute was 14.1% higher in every year over the base period.

Similar series of the demand for raw cotton is given in T.B-6. On the basis of the demand for cotton in 1954-5, we can say that the demand indices for the following four years were 132.3, 112.8, 102.1 and 104.5 respectively. Therefore the average index of demand for raw cotton remained at 112.3 during this period of four years.

Now we can combine these two average indices for jute and cotton according to the weights assigned to raw jute and cotton in the case of our estimation of supply of these crops. Thus we can say that average index of demand for fibre crops was 113.1 during the devaluation period. This means that on the average, demand for fibre crops was 13.1% higher in every year during this period over the base period. Thus the total increase in demand for fibre crops is considered to be 52.4% during this period of four years as compared to the base year i.e. 1954-5.

We have earlier estimated that the supply of fibre crops increased by 71.6% during the same period. Roughly this indicates an excess supply of 19.2% during the devaluation period. According to its elasticity to affect prices i.e. 0.41<sup>17</sup> this much excess supply would have decreased the prices of fibre crops by 7.7% during this devaluation period. But the rupee prices of fibre crops were increasing at the rate of 8.0% per annum during this period (T.B-7). According to this growth rate, the prices of fibre crops increased by 36.0% during these four years. This was over and above the would-be decrease of 7.7% in these prices due to excess supply of these crops. Hence we can say that potentially the prices of fibre crops increased by 43.7% during this period of four years.

#### Changes in World Prices of Fibre Crops

We have already mentioned the fact that jute and cotton are the major exportables of Pakistan. Therefore their prices are bound to be affected by their prices in the world market. Such prices are given in T.B-7. However their respective rupee and dollar prices in Pakistan are given in T.D-5 and T.D-6 respectively.

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17. This is also the partial elasticity between the variables and is being used as such for the same reasons as it was applied in the case of food crops.

We can visualise from these tables that the dollar price of cotton was declining significantly and faster than its world price. Although the dollar price of jute was increasing during this period; it was considerably below the price of jute in the world market. This is also indicated by their fall and growth rates because the dollar prices of cotton decreased at the rate of 2.9% per annum in the world market, while these prices were decreasing at the rate of 3.7% per annum in Pakistan. On the other hand the dollar prices of jute increased at the rate of 3.4% per annum in the world market, while there was an increase of 1.2% per annum in these prices in Pakistan.

Thus we can say that the world prices of fibre crops remained above their prices in Pakistan. Therefore their prices in the world market would have influenced these prices in Pakistan also.

Although dollar prices of fibre crops in Pakistan had remained lower than their prices in the world market; the indices of their rupee prices remained higher than their indices in the world market. This phenomenon seems to be due to the new rupee value of the dollar after devaluation. It also indicates that the dollar prices of fibre crops were not lower to the extent of the devaluation of the rupee i.e. 30.5% in 1955.

As we are interested in the rupee prices of fibre crops at present, we shall compare the changes in the indices of rupee prices of fibre crops in Pakistan with their respective price indices in the world market.

TABLE 1

Prices of Fibre Crops in Pakistan and the World Market (1954-5-100)

Years	World		Pakistan		Pakistan/World	
	Jute	Cotton	Jute	Cotton	Jute	Cotton
1955-6	107.0	101.3	120.2	108.2	112.3	108.8
1956-7	118.0	101.7	131.0	106.9	111.0	105.1
1957-8	116.0	97.8	123.0	100.3	106.0	102.6
1958-9	120.4	93.2	128.8	98.6	107.0	105.8

Source : T.D.5 and T.D-7.

Thus we can see that the rupee prices of fibre crops had remained above their dollar prices in the world market. On the average the index of the ratio of prices of jute in Pakistan remained higher by 9.0% than its prices in the world market. This effect can be considered to be due to exogenous factors other than devaluation, because we think that the prices of world competing exports are supposed to be least affected by devaluation of the rupee. Moreover we assume that the export prices of fibre crops are determined exogenously and follow the trend in the world market.

As world prices of fibre crops, especially of cotton were declining, so were their prices in Pakistan; therefore we can consider this high level of rupee prices of these crops to be due to the new exchange rate between the dollar and the rupee after 31st July 1955. Hence we can say that on the average rupee prices of jute increased by 9.0% per annum over and above the world prices during this period. A similar increase in rupee price of cotton was 5.1% per annum during the same period.

According to their respective weights, these changes on the average would have increased the prices of fibre crops by 6.9% per annum during the devaluation period. Therefore it is construed that the total increase in these prices in four years was 27.6%<sup>18</sup> over and above their world prices. This amount of increase is still lower than the extent of devaluation of the rupee in 1955. Moreover we have considered it to be due to exogenous factors and the conversion of dollar into rupee prices at the new exchange rate. Therefore we consider it to be immune from devaluation.

If we discount the potential increase of 43.7% in these prices (as estimated earlier) by this figure, then we are left with a 16.1% increase still to be explained. Here we have to discount from this figure the increase caused by changes in export duties on these goods. Which we explain in the following few lines.

#### Changes in Export Duties

Apart from the exogenous factors affecting prices of these goods, changes in export duties also influenced these prices. Thus we now look for the effect of changes in export duties on these exportables and on the prices of fibre crops.

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18. 6.9% increase in these prices is the average rate and not the growth rate. Therefore the total increase during four years has been reckoned as 27.6% i.e.  $6.9 \times 4$  only.

After devaluation, the export duty on raw jute remained unchanged throughout the devaluation period. Therefore its prices should not have changed on this account. Hence we shall not include it in our discussion of this effect on the prices of fibre crops.

However the export duty on raw cotton was increased from Rs. 75.00 per bale in 1954-5 to Rs. 98.00 per bale in 1955-6. This rate of export duty continued till 1957-8. But it was reduced to Rs. 83.00 per bale in 1958-9.<sup>19</sup> If we consider the export duty in 1954-5 as 100, then the index of export duty on raw cotton would have been 136.7 in 1955-6 to 1957-8. However its index would have been 110.7% in 1958-9. Therefore on the average its index was 125.4 during this period of four years as compared to 100 in 1954-5. This means the average export duty on raw cotton was 25.4% higher than in the base period. This would push up the prices of cotton in the country.

Exports of cotton were 50.7%, 41.1%, 29.8% and 30.8% of total demand for cotton in 1955-6 to 1958-9 respectively. Thus, on the average, exports constituted about 38% (simple average) of total demand during the devaluation period. According to this weight, the prices of cotton would have gone up by 9.7% during these four years on account of the increase in the export duty on raw cotton.

Furthermore cotton constituted 54.6% of fibre crops. Therefore a 9.7% increase in the prices of cotton due to export duty would have increased the prices of fibre crops by 5.3% during the devaluation period. Thus we can say that the rest of the increase in the prices of fibre crops i.e. 10.8 (16.1-5.3) would have been caused by no other factor than the devaluation of the rupee in 1955. Although this increase in these prices is about 30% of the total increase in the rupee prices of fibre crops during the devaluation period, it is a highly significant increase due to devaluation in the face of an excess supply of fibre crops and declining prices, specially of cotton in the world market as well as in Pakistan during these four years.

This result seems to be logical; because the heaviest effect of devaluation was on these major exportables. But for the excess supply of these crops, their prices would have gone up even higher than is the case, as a result of this devaluation. Thus we can say that the impact of devaluation on the prices of fibre crops was con-

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19. Islam (1965), p. 99.

siderably higher than its effect on food prices discussed in the previous section. This was but expected.

### 5.3. c. Other Crops

As a counterpart of fibre crops, other crops formed part of cash crops. Four crops, mainly, viz; sugarcane, tea, tobacco and rape and mustard seeds are included in this sub-sector.

The prices of cash crops were mostly in line with the prices of these crops. However their magnitude and even direction are at variance with the prices of fibre crops. This is so, because the prices of fibre crops were significantly affected by their prices in the world market, while other crops were less affected by events in the world market.

Because of their "peculiarly complementary nature" we shall discuss these changes in prices at some length in the following few pages. However this analysis will not be as detailed as that of fibre crops for practical reasons. Data for supply and demand for these crops cannot be worked out because of the non-availability of relevant statistics. Hence we shall be obliged to discuss it summarily.

The prices of other crops went up by 6.0%, 15.0% and 4.4% in 1955-6, 1956-7 and 1957-8 respectively. However there was a decrease of 15.6% in 1958-9. It looks as though these prices were in line with general prices in the whole of the Agricultural Sector, rather than with the other component of cash crops. On the whole these prices were increasing at the rate of 1.4% per annum during this period. This means that the prices of other crops increased by 5.7% during the span of these four years.

As prices of other crops cannot be discussed in relation to their supply and demand because of the paucity of relevant data, we are applying an indirect method for them. Though a certain portion of these crops is held as a stock for the next year, we assume that these stocks, mostly with the private traders, are sold before the end of the fiscal year or the next season. Even stocks held by private traders are considered to be demanded by them. Therefore we assume that the whole of the supply of other crops is demanded by the population and will be bought by them before the beginning of the new fiscal year.

Thus changes in supply will be the same as the changes in the production of these crops. But supply will be equal to demand for these crops according to our assumption. Therefore we shall discuss primarily the changes in production for their effect on these prices in order to find out the effect of devaluation on the prices of other crops.

### Changes in Production

Production of these crops is highly dependent on the area available for their cultivation and the weather conditions at that time, because in the allocation of land to different crops, the first preference is always given to food crops. Even fibre crops i.e. foreign exchange earners, are usually second in order of preference. Thus only the remaining area is allocated to the production of other crops.

Areas under food and fibre crops were mainly on the increase during the devaluation period. Therefore the area under other crops changed a little during this period. It was only in 1958-9, that 15.8% increase in this area has occurred over the previous year. This was mainly due to the low prices of fibre crops and the smaller area under them (T.B-3). Even the weather conditions were mostly unfavourable to these crops. Because of these factors, production of these crops was below the base year period for three out of four years. However in 1958-9, it was 11% higher than in the base period. Even then the average index of production was 98.2 for the whole of the devaluation period. Thus on the average production of these crops remained 1.8% lower in every year as compared to the base period. On this basis we can say that the production of other crops decreased by 7.2% in the four years of the devaluation period.

We have estimated separately that a 1% change in the production of these crops would have changed their prices by 0.7% in any year or period. Therefore we can say that a 7.2% decrease in production of these crops would have increased their prices by 5.0% at the most. But we have noticed earlier that the total increase in these prices was to the extent of 5.7% during this period. Therefore we can say that 0.7% increase in these prices would have been caused by devaluation as an abnormal factor, because no other abnormal event in this connection occurred for these crops.

This result is also in line with our hypothesis that other crops are mostly consumed within the country and are largely immune from the effect of any event in the international sphere. Thus we consider this

a valid result for our further analysis of the impact of devaluation in the prices of cash crops.

### 5.3. d. Cash Crops

After dealing with the effect of devaluation on the prices of fibre and other crops separately, we are in a position to analyse its impact on the prices of cash crops. Though it may be similar to the combined effect on the prices of fibre and other crops; prices may be counterbalanced or intensified by each other in the end. The result may be different due to the different effect on individual crops included in this sub-sector. Hence there may be a difference in the results also. However we shall analyse the impact of devaluation on the prices of cash crops on the basis of our findings in the sub-sectors of fibre and other crops.

As cash crops are composed of fibre and other crops, so the effect of devaluation on cash crops will be a combination of its effect on fibre and other crops. We know the results of the effects of devaluation on fibre and other crops for the devaluation period. Therefore we shall weld these results into a formula to be applied for finding the effect of devaluation on the prices of cash crops. This formula is given below.

$$D_c = p_c [(\Delta p_b/p_b) (w_b) + (\Delta p_o/p_o) (w_o)]$$

Where  $D_c$  = The effect of devaluation on the prices of cash crops.

$p$  = Change in price due to all factors including devaluation.

$\Delta p$  = Change in price due to devaluation alone.

$w$  = Weight of crops in the total of cash crops.

while subscripts c, b and o stand for cash, fibre and other crops respectively.

Because we have already discussed at length the factors responsible for increase or decrease in various crops constituting cash crops, we shall not repeat the same arguments. However we shall be referring to changes in the production of cash crops as a result of the effect of these factors.

The prices of cash crops decreased by 2.2% in 1955-6 and by 13.0% in 1958-9, while there was an increase of 7.5% and 16.6% in these prices in 1956-7 and 1957-8 respectively. These price changes seem to be justified in the light of changes in the prices of fibre and other crops and their overall weight in the prices of cash crops. Their



weights are given by the following equation of multiple regression for the prices of fibre and other crops.

$$P_c = 1.86 + 0.46 P_b + 0.55 P_o \quad R^2 = 0.99$$

$$(0.03) \quad (0.03) \quad (5.1)$$

Where  $P_c$  = price changes in cash crops.

$P_b$  = price changes in fibre crops.

$P_o$  = changes in other crops.

(Standard Errors are given in the parentheses)

According to this equation, changes in the prices of fibre crops are supposed to cause a 45.5% change in the prices of cash crops. Similar changes in the prices of other crops on the prices of cash crops is 54.5%. After determining their weights we try to find out the impact of devaluation on the prices of cash crops.

We can see from table T.B—7 that the prices of cash crops were increasing at the rate of 4.2% per annum during the devaluation period. Thus we can say that these prices have increased by 18.0% during these four years of this period. However we know from our previous discussion that total increases of 36.0% and 5.7% occurred in the prices of fibre and other crops. Thus we have the values of all the parameters in the formula given above. Hence we put these values in the formula and find the effect of devaluation on the prices of cash crops as follows :

$$D_c = 18 (10.8/36.0) (.455) + (0.7/5.7) (.545)$$

$$= 18 (.137 + .067) = 3.72$$

This result indicates that devaluation increased the prices of cash crops by 3.7% out of the total increase of 18.0% caused by all factors. In other words 20.6% of the total increase in these prices was due to devaluation alone.

Although the impact of devaluation on the prices of cash crops was markedly lower than its effect on the prices of fibre or food crops, it is a highly significant effect compared with its effect on the prices of other crops. This was so, because other crops have relatively more weights in the composition of cash crops, while the prices of other crops were less affected by the devaluation of the rupee in 1955. Therefore the effect on the prices of fibre crops was somewhat diluted by the impact of devaluation on the prices of other crops during this period.

### 5.3. e. Major Crops

We have already analysed the impact of devaluation on the prices of most of sub-sectors in Agriculture. So it seems appropriate to look to its impact on the prices of major crops as a whole during this period. We know already that the sub-sector of major crops is composed of food and cash crops given in the table T.B—1. Therefore various factors affecting the prices of all crops will be the same. These we have already discussed at length in connection with their effect on the prices of food, fibre and other crops. Therefore, at present, we shall limit our discussion simply to the overall impact of devaluation on the prices of food and cash crops as a whole.

A look at table T.B—1 will indicate that the prices of major crops increased by 29.4%, 17.2% and 7.9% in 1955-6, 1956-7 and 1957-8 respectively, while there was a decrease of 3.4% in the prices of these crops in 1958-9. Although the magnitude of the increase was considerably higher compared with the variations in prices of other sub-sectors, it is in accordance with the variations in the general price level in the country. Thus on the whole the prices of major crops were increasing at the rate of 7.0% per annum or a total increase of 31.1% occurred in these prices during the devaluation period.

We have estimated earlier the impact of devaluation on the prices of food crops. While recently (in the paragraphs above) we have calculated its effect on the prices of cash crops. Thus combining their effect on the basis of the formula (given on p.34) mentioned above, will enable us to find the impact of devaluation on the prices of major crops. However we shall have to determine the respective weights of food and cash crops in the prices of major crops.

Weights should have been assigned according to the value-added by each sub-sector to the total value of major crops in the base year i.e. 1954-5. This cannot be ascertained because of the scanty data about the prices and production of each crop included in these sub-sectors. Even weights assigned on the basis of land (for which data are available) will also be inappropriate because the productivity of land varies significantly for different crops. Therefore a smaller area under certain crops may increase its production comparatively and thus effect prices of that sub-sector differently from what is indicated by the weight of area under that crop.

Thus we try to assign weights to food and cash crops according to coefficients of their price variables in the following multiple regression equation for their respective effect on the prices of major crops.

$$P_m = 5.92 + 0.99 P_f + 0.25 P_c \quad R^2 = 0.89$$

(0.17)      (0.17)      (5.2)

Where  $P_m$  = Estimated price index of major crops.

$P_f$  = Price index of food crops.

$P_c$  = Price index of cash crops.

(Standard Errors are given in the parentheses)

According to these coefficients of  $P_f$  and  $P_c$ , the approximate weights of the prices of food and cash crops in the prices of major crops will be 79.8% and 20.2% respectively. Hence we shall assign these weights in the said formula, in order to find the effect of devaluation on the prices of major crops.

From our previous discussion, we know that the prices of food and cash crops increased by 22.0% and 18.0% respectively during this period of four years, while devaluation increased these prices by 6.4% and 3.7% respectively during the same period. Thus by putting the values of various parameters in the said formula, we can find the effect of devaluation on the prices of major crops in the following way.

$$D_m = 31.1 [(6.4/22.0) (.798) + (3.7/18.0) (.202)]$$

$$= 31.1 (.232 + .042) = 8.52$$

Hence we can say that devaluation increased these prices by 8.5%, which was 27.3% of the total increase in these prices during the devaluation period of four years. This result is lower than the impact of devaluation on the prices of fibre crops, but higher than its effect on the prices in other sub-sectors. This is logical, because the sub-sector of major crops is composed of food, fibre and other crops, whose prices are affected differently by devaluation during this period. Thus these changes have counterbalanced each other to some extent. Therefore the net result was between the higher and lower effects of devaluation on the prices of different crops. Nevertheless this effect of devaluation on the prices of major crops is also highly significant.

### 5.3. f. The Agricultural Sector

We set ourselves at the beginning the task of finding the impact of devaluation on the prices of Agricultural Sector. Yet some of the deficiencies in the data about prices and production of other minor

sub-sectors like minor crops, fisheries, forestry and livestock, impede us from doing so. Apart from this basic reason for not analysing the impact of devaluation on this part of the Agricultural Sector, there is another excuse for not doing so. This part of Agriculture (minor sub-sectors) is entirely for internal trade. Therefore it is considered to be immune from the impact of devaluation i.e. any international phenomenon.

Although the picture in this part of Agricultural Sector can also fluctuate in sympathy with prices in other sectors or the general price level in the country, these prices will be determined in accordance with their supply and demand conditions within the country. Moreover the price leading sector in Agriculture is the sub-sector of major crops, and we have already discussed the impact of devaluation on the prices of these crops. Therefore this will be a sufficient guide for our understanding of the impact of devaluation on the Agricultural Sector as a whole.

Furthermore the minor sub-sector would have counterbalanced the effect of devaluation on prices in Agriculture. This is at least indicated by lower variations in the prices of agricultural goods compared with changes in the prices of major crops during this period under review. Therefore any such effect, even if found, will not be representative of the impact of devaluation. This is the reason for our decision to consider the effect of devaluation on the prices of major crops as an appropriate representative (though not accurate) of the impact of devaluation on prices in the Agricultural Sector as a whole.

In spite of all these handicaps and considerations, we are trying to make a crude estimate of the effect of devaluation on prices in the Agricultural Sector as whole. This is being done to gain an idea of the effect of devaluation on Agriculture as a combined sector of all these counter-balancing sub-sectors. For this estimate, we assume prices in minor sub-sectors as immune from the effect of devaluation i.e. its effect is zero. Then any effect of devaluation on prices in the Agricultural Sector will be through the effect on the prices of major crops only. Hence we shall estimate it accordingly.

We have estimated the weight of major crops (major sub-sectors) in the Agricultural Sector. This is based on G.N.P. contribution of major crops to the value-added of Agriculture in 1954-5. On this

basis, major crops had a share of 55.8% in the contribution of the Agricultural Sector to the G.N.P. (on constant factor costs) of the country. We have applied this weight in the formula given on p.34, for finding the effect of devaluation on the prices of cash crops. This formula is being used for one rather than two sub-sectors as components of the combined sector. In this way we shall find out the effect of devaluation on prices in the Agricultural Sector as a whole.

We can see from table T.B. 1, that prices in the Agricultural Sector went up by 10.8%, 13.5% and 6.4% in 1955-6, 1956-7 and 1957-8 respectively. However prices in this sector decreased by 1.6% in 1958-9. These price changes are in line with the general trend in prices in the country. On the whole prices in the Agricultural Sector increased at the rate of 5.9% per annum. Accordingly we have estimated that the total increase in these prices was 25.8% during this period of four years; while we know from the paragraphs above that devaluation increased the prices of major crops by 8.5% out of the total increase of 31.1% in these prices caused by all factors during this period. Thus by assigning the values of different variables in the said formula, we try to estimate the effect of devaluation on prices in the Agricultural Sector.

$$Da = 25.8 [(8.5/31.1) (.558) + (0)] = 3.93$$

Thus we can say that devaluation increased prices in this sector by 3.9% out of the total increase of 25.8% caused by all factors during this period of four years. This means the share of devaluation in prices was to the extent of 15.1%, which is quite significant. Although this estimate is considerably less as compared to its effect on the prices of major crops, it is still highly significant. Moreover it proves our hypothesis that Agriculture is still affected predominantly by the vagries of nature, while price incentives play an active role only when nature is favourable.

#### 5.4. Post-Devaluation Trends in Agricultural Prices

There was a further increase in the prices of the Agricultural Sector in the post-devaluation period. This is indicated by the indices of prices given in table T.B-1. This phenomenon is also confirmed by the growth rates of prices in different periods given in T.B-7. But look at that table will indicate that the increase in prices in this period was quite steady as compared to the subtle changes in prices in the devaluation period. Apart from the volatility, the

magnitude of fluctuations was also comparatively lower in this period than in the previous period of four years. The other marked difference, especially in the case of Agriculture, major crops, fibre crops and cash crops was the change in growth rates of prices in these sectors.

Growth rates of prices in sub-sectors of the Agricultural Sector as a whole, major crops, cash crops, and fibre crops were substantially lower than their rates in the devaluation period. While the growth rate of food crops was also somewhat lower than during the devaluation period. However, the growth rate of prices of other crops was higher in this period than in the devaluation period. Actually prices in all sub-sectors, except other crops, increased substantially during the devaluation period. Therefore their growth rates in the post-devaluation period seemed to decrease markedly. On the contrary growth rate of food prices decreased by 0.9% during this period over the pre-devaluation period. Compared with those of other sub-sectors, this fall was less marked due to a significant, but not substantial, increase in the prices of these crops in the devaluation period.

These phenomena of the growth rates of prices seem to be closely related to the growth rates of production (T.B-7) during the whole period under review. The production growth rates were much higher in this period than their rates in the devaluation period. This indicates a comparatively higher increase in production during this post-devaluation period than in the previous period of four years.

This explains the basic reason for the spectacular decrease in prices growth rates in five out of six sub-sectors of Agriculture during this period of eleven years; while price as well as production growth rates in the sector of cash crops are just a reflection of trends in prices and production of fibre and other crops. Hence significant changes in growth rates of fibre or other crops or both, explain mostly similar changes in the sub-sector of cash crops.

However this study of growth rates leads us to believe that on the whole fluctuations in prices and production were significantly lower in this period compared with such fluctuations during the devaluation period. This is suggested by both sets of growth rates. During the devaluation period the growth rate of prices of fibre crops was as high as 8.0% per annum, while that of other crops was as low as 1.4% per annum (range of 6.6). This variation within the growth rates significantly decreased i.e, to 3.9 (4.2—0.3) in the subsequent period of eleven years.

This study suggests that there was significant improvement in production and consequently supply of these crops, as well as less fluctuation. This may be considered partly due to comparatively more favourable weather conditions during this period, but it was mainly a result of the concerted efforts to increase agricultural production during the 1960's under the Second and Third Plans for development. Because of the high priority attached to agricultural production, especially during the late sixties, production of food and other crops increased substantially. This is also reflected in the quite significant increase in production in the sub-sectors of major crops and even in the Agricultural Sector as a whole.

Thus on the whole, prices in the sub-sectors of major crops, food crops, cash crops, fibre crops, and other crops increased at the rate of 3.1%, 4.2%, 1.8%, 0.3%, and 2.6% per annum respectively during the same period. Meanwhile prices in the Agricultural Sector as a whole increased by 3.6% per annum in contrast to an increase of 3.7% per annum in the production during the same period of 11 years.

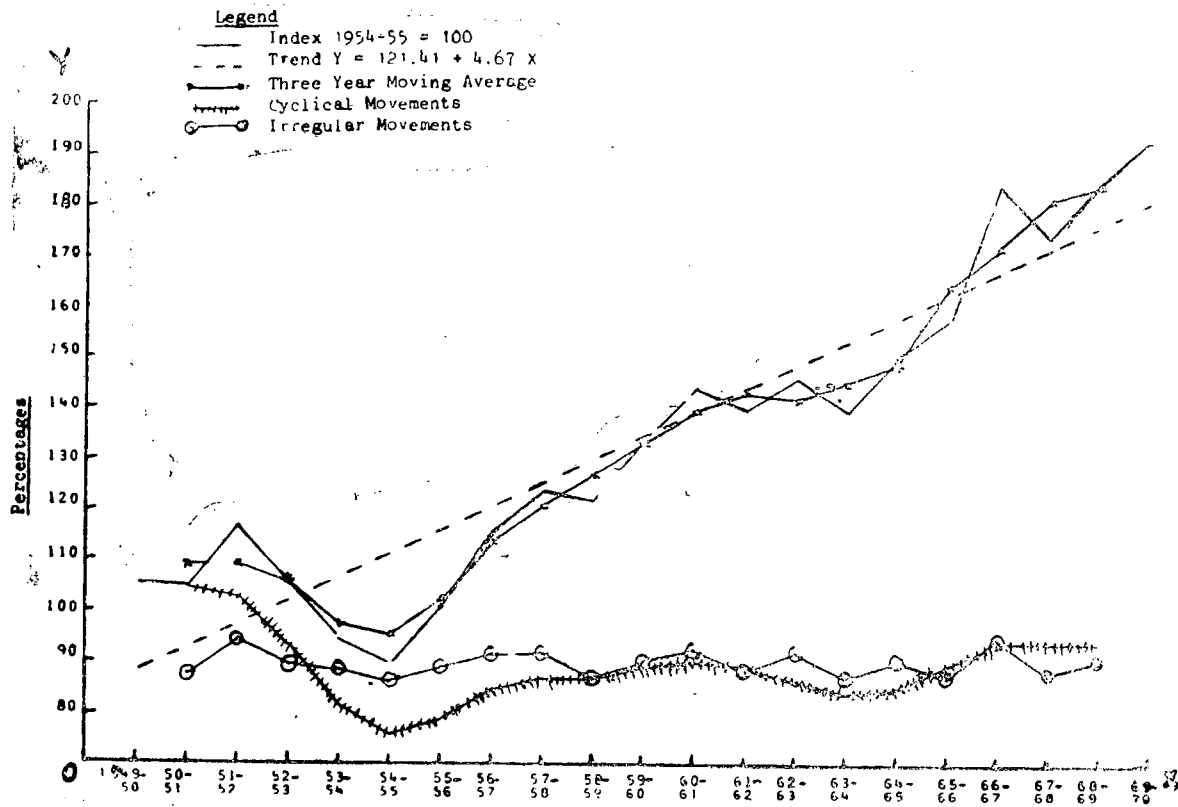
However price and production growth rates in the Agricultural Sector moved in opposite directions during the devaluation and post-devaluation periods. That means the price growth rate in Agriculture as a whole decreased from 5.9% per annum in the devaluation period to 3.6% per annum in the post-devaluation period, while the production growth rate increased from only 1.4% per annum to 3.7% per annum during the same period.

In spite of this substantial increase in production leading to lower price growth rates, prices in this sector continued to rise significantly during this period. First of all, it was due to a 2.6% per annum increase in the population of Pakistan during the 1960's. Because of that factor demand for agricultural goods outstripped supply. Secondly rapid industrialisation based on internal raw materials i.e. agricultural goods, occurred during this post-devaluation period. Therefore the demand for cash crops increased significantly within the country. No doubt some of the increase in demand was met by decreasing exports of these raw materials. Even then total demand for internal consumption remained higher than supply in this period.

Although the weather was favourable on the whole during this period, nature was niggardly in four out of eleven years. There were drought conditions in 1960-1, 1962-3, and 1966-7, while in 1964-5-

Fig. 5.6.

Price Index in the Agricultural Sector





floods and natural calamities were responsible for some decrease in production. This affected the supply, and consequently the prices of agricultural products in this period.

Though supply would have been lower in certain years, on the whole it seems to have been steadily increasing during this period. Therefore it is clear that it was higher demand rather than increasing supply, which resulted in maintaining the steady increase in prices in the Agricultural Sector during the period of eleven years under review. Apart from that factor, higher costs of inputs under intensive cultivation would have increased the cost of yield per acre and thus the prices of agricultural goods to a certain extent. This rise in prices was also somewhat affected by slightly rising prices of farm productions in the world market.<sup>20</sup>

Therefore it can be concluded that the prices of agricultural product seem to have been less influenced by depreciation of the rupee from 1959 onward, because the above-mentioned factors would mostly explain the fluctuations in prices of agricultural commodities during this post-devaluation period under review.

### **Trends in Agricultural Production prior to Devaluation**

We have already discussed very many fluctuations in production due to changes in prices and other factors as a part of our analysis of the direct effect of devaluation on the prices of these crops. Yet no systematic effort has been made to estimate the indirect effect of devaluation on production in Agriculture. We attend to this now, in the following pages.

We would like to mention at the outset, that a complete analysis on the lines of the direct effect is not feasible in this context, nor it is contemplated at present. For such an analysis, we should need detailed data about the costs of production of various crops, and these are not available from any source. Moreover we could not successfully construct such series on our own. Such series even if constructed, would be highly unrepresentative of the cost of production in this sector, because they would be based on unreliable and scanty data with many links missing in annual series. Therefore it would be a futile exercise.

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20. F.A.O. (Production Year Books), 1963, 196<sup>9</sup> and 1970.

Another point is also in order here. We have already discussed chain reactions of prices and production during the devaluation period in the previous sections. Factors other than prices, responsible for significant fluctuations in production have also been dealt with at some length. No repetition of these cause and effect will be attempted in this section. Thus it will be without much detailed discussion on various causes for the change in production.

Such details will not be necessary, because we are interested only in the indirect effect of devaluation on production in the Agricultural Sector. We believe that devaluation can affect production through prices alone. We shall try to establish a general relationship between the changes in prices and production i.e. price elasticity of production (Eq). As we know the results of the direct effect of devaluation on prices during the devaluation period; so we shall apportion its effect on production according to this elasticity. In this way we shall have a crude estimate of the indirect effect of devaluation on production in the Agricultural Sector.

No doubt this method can be objected to on the grounds that it is one way accountancy without any real quid pro quo. It does not take into account various laws of return, which are applicable to every phenomenon in the economy. Neither does it take account of the distinction between intensive and extensive cultivation, which can make a real difference in the cost of production. Thus such an analysis may not be worthwhile.

However, in spite of all these shortcomings, we cannot help using this method to estimate the indirect effect of devaluation on production, because there will be many practical difficulties in the way of more realistic and accurate method for such an estimation. We shall however, try to refer to such factors (mentioned above) only qualitatively when such information is necessary and available.

We have noted that prices and production fluctuated heavily in the pre-devaluation period. However prices were more volatile than production. Moreover, prices in most of the years in this period declined significantly, while production registered a slight increase during this period prior to the devaluation of the rupee in 1955.

A look at the table T.B-7 indicates that agricultural prices on the average declined by 3.1% per annum during this period, while production in this sector showed an increase of 1.5% per annum during the same period. This gives the impression that a slight increase in production was responsible for a significant decrease in the prices of these crops i.e. it indicates higher quantity elasticity of price (Ep).

On the other hand it can be said that prices, even in the previous years, have not affected production very much. At least prices elasticity of production ( $E_q$ ) is lower than unity. That means any change in prices will bring a less than proportionate change in production even in the next year.

We have estimated such elasticities (i.e.  $E_q$ s) for all sectors for the whole period of 21 years according to the formula given in Chapter 4. Accordingly we have found that  $E_q$ s (without lag) for Agriculture, major crops, food crops, cash crops, fibre crops, and other crops were .68, .68, .78, .76, .30 and .98 respectively. While these  $E_q$ s with prices in the previous year i.e. with lag were .73, .73, .88, .84, .51 and 1.05 respectively for the same period. All these elasticities are significant even beyond 0.05 level of confidence. Thus all these elasticities without lag were lower than unity. That means more than a 1% change is required to bring a change of 1% in the production of these crops. Particularly such a change in prices will be more than three times the change required in the production of fibre crops.

Perhaps this is due to the competition of fibre crops with food crops for the allocation of land. Food crops are given preference over cash crops when there is a slight increase in their prices as compared to changes in the prices of other crops. Meanwhile the prices of fibre crops have to increase sufficiently to induce farmers to bring more land under these crops. On the other hand other crops like sugarcane tobacco, tea, rape and mustard etc are also similar to food crops to some extent. Moreover these crops require a smaller area than main food crops to produce crops of the same value. Therefore their  $E_q$  is quite high compared with crops in other sub-sectors. This means that a comparatively smaller incentive in the form of price rises in the previous year is required in order to increase the production of these crops.

However  $E_q$ s with lag indicate that price changes in the previous year were more significant for changes in production in the present year than price changes in the current year. This phenomenon was also evident from price and quantity indices in T.B-1 and T.B-2. It has been observed that due to the Korean War, the prices of fibre crops in 1951-2 were not only the highest among their own series, but also among any other series in the table. As a result of this phenomenon, the index of production of fibre crops in 1952-3 was also the highest during the pre-devaluation period. Fibre crops continued to increase probably at the cost of food production in 1951-2 and 1952-3.

However food production increased by 21.2% in 1953-4 as a result of soaring prices of foodgrains in previous year. The reverse was the case with fibre crops.

Thus we can say that there was a close relationship between the prices and production of all crops. But the possibility of substitution between food and fibre crops (and even some of cash crops) played a significant role in determining the production of different crops in the pre-devaluation period. Substitution and other factor apart, prices in the previous years were influencing the decision of farmers to put more land under certain crops than under others. However Eqs in most of the sub-sectors of Agriculture were considerably lower than unity. This indicates that larger changes in prices are required for any significant change in production.

### 57. The Effect of Devaluation on Agricultural Production during the Devaluation Period.

Production in the Agricultural Sector is not only affected by prices in the same or the previous year; it is also significantly influenced by land, weather, irrigation facilities etc. Thus it is a function of all these factors rather than merely that of price. We should have established simultaneous relationships between production and all these factors, but paucity of accurate data on the consumption of fertiliser, and irrigation facilities, hinders us in the attempt to do so. In spite of this we have tried to get some knowledge of the relationship between production ( $Q_t$ ) on the one hand and prices in the previous year ( $P_{t-1}$ ), land under cultivation ( $L_t$ ) and rainfall ( $R_t$ ) on the other. This sort of relationship has been established in the form of multiple regression equations for all the sub-sectors of Agriculture. The following equations have emerged.

Agri.	$\log Q_t = -1.23 + .22\log P_{t-1} + 1.37\log L_t + 0.01\log R_t$	$R^2 = 0.99$
	(.05) (12) (01)	$dw = 2.57 (5.3)$
Major	$\log Q_t = -1.98 + .15\log P_{t-1} + 1.80\log L_t + 0.03\log R_t$	$R^2 = 0.98$
	(.06) (15) (02)	$dw = 1.51 (5.4)$
Food	$\log Q_t = -1.73 + .15\log P_{t-1} + 1.70\log L_t + 0.01\log R_t$	$R^2 = 0.95$
	(.19) (42) (03)	$dw = 1.63 (5.5)$
Cash	$\log Q_t = -1.42 + 0.10\log P_{t-1} + 1.57\log L_t + 0.03\log R_t$	$R^2 = 0.93$
	(.13) (.23) (04)	$dw = 1.31 (5.6)$
Fibre	$\log Q_t = -0.20 + 0.01\log P_{t-1} + 1.08\log L_t + 0.01\log R_t$	$R^2 = 0.93$
	(.07) (.11) (02)	$dw = 1.67 (5.7)$
Other	$\log Q_t = -1.46 + 0.54\log P_{t-1} + 1.15\log L_t + 0.03\log R_t$	$R^2 = 0.90$
	(.16) (.27) (05)	$dw = 1.04 (5.8)$

(Standard Errors are given in parentheses)

$R^2$  = Co-efficient of of Determination       $dw$  = Durbin-Watson statistio.

From the above equations, it appears that production is more highly influenced by land than by any other factor. Prices have only a marginal effect. The effect of rainfall seems to be insignificant in all the equations. 'F' values (test of significance) for all equations are highly significant. The values of  $R^2$  are also significant. But the  $t$  ratios (i.e.  $t$  test) for the three factors are quite different. This indicates that independent variables (here P, L and R) have a different significance for each equation.

Price is a significant factor at 0.001 level of significance in the case of Agriculture, at 0.005 level for other crops and at 0.02 level in the case of major crops. For other sub-sectors the price effect will not be significantly above zero. On the other hand land is a significant factor even at 0.001 level for all but food crops. Even for this sub-sector, it is significant at 0.005 level of significance. However rain is a significant factor at 0.20 level for Major Crops only. For other sub-sectors its effect is not significantly different from zero.

So we have seen that land is a highly significant factor for production. If we could have included irrigation and fertiliser etc. in the picture, then the results might have been different. At present, we cannot help this omission. But we have used another device for testing the significance of price for production. This has been done through its significance for bringing more land under cultivation for different crops i.e. the significance of prices for land. Here we have established again six similar equations (as before) with land ( $L_t$ ) as a dependent variable and price in the previous year ( $P_{t-1}$ ) and rain ( $R_t$ ) as independent variables in this connection.

These equations are given as follows :

Agri.	$\text{Log } L_t = 1.31 + 0.36 \text{ Log } P_{t-1} - 0.03 \text{ Log } R_t$	$R^2 = 0.81$	
	(0.05) (0.02)	$dw = 0.80$	(5.9)
Major	$\text{Log } L_t = 1.43 + 0.30 \text{ Log } P_{t-1} - 0.04 \text{ Log } R_t$	$R^2 = 0.70$	
	(0.06) (0.03)	$dw = 0.81$	(5.10)
Food	$\text{Log } L_t = 1.18 + 0.42 \text{ Log } P_{t-1} - 0.02 \text{ Log } R_t$	$R^2 = 0.92$	
	(0.03) (0.01)	$dw = 1.33$	(5.11)
Cash	$\text{Log } L_t = 1.20 + 0.46 \text{ Log } P_{t-1} - 0.05 \text{ Log } R_t$	$R^2 = 0.75$	
	(0.07) (0.04)	$dw = .089$	(5.12)
Fibre	$\text{Log } L_t = 1.36 + 0.43 \text{ Log } P_{t-1} - 0.09 \text{ Log } R_t$	$R^2 = 0.60$	
	(0.10) (0.04)	$dw = 0.88$	(5.13)
Other	$\text{Log } L_t = 1.08 + 0.46 \text{ Log } P_{t-1} - 0.01 \text{ Log } R_t$	$R^2 = 0.63$	
	(0.09) (0.05)	$dw = 1.41$	(5.14)

(Standard Errors are given in parentheses)

In these equations, we can see clearly that prices in the previous year were a significant factor even at 0.001 level of significance, for all the equations. Even rain has become a significant factor at 0.20 level in equations (5.9) and (5.10) at 0.25 level in equations (5.11) and (5.12) and at 0.10 in equation (5.13). However its effect was not significant in the case of other crops.

This seems a more plausible situation. It also gives a clue to the relative insignificance of prices in production equations. It may be considered from this that production is a function of land, while land in its turn is a function of price with a lag and rainfall in that year. Thus timely rainfall also induces the farmer to put a greater area under certain crops. Therefore to find the effect of price changes on production, we shall have to work through their effect on land put under various crops.

Again we have to use coefficients of  $P_{t-1}$  as weights for their effect on land and similarly of  $L_t$  for their effect on production in a particular sub-sector. Then multiplying these ratios of the effect of prices on land and of land on production, we shall be able to gain some idea of the impact of price (and later devaluation) on production in any sub-sector.

We have calculated the weights of prices as a determinant factor of production in the various sub-sectors likewise. These results have indicated that prices had weights of 79.0%, 80.5%, 87.2%, 83.3%, 81.2% and 83.1% as a determinant of production in Agriculture, major crops, food crops, cash crops, fibre and other crops respectively. Thus we can see that prices have the highest weight in the case of food crops and the lowest in case of fibre crops. This also indicates the priority given to food crops as a result of any favourable change in prices.

Furthermore we have tried to estimate the indirect effect of devaluation on production in each sector through changes in prices. This has been done with the understanding that devaluation is a price phenomenon and thus can affect production by changing prices in various sub-sectors. The effect of devaluation on prices has already been calculated by us in the previous section 5.3. We have also calculated the total increase or decrease in prices and production on the basis of growth or fall rates given in T.B-7. We have also estimated their elasticities in the previous section 5.6.

Now there can be two methods of finding the effect of devaluation on production through changes in price. We know the weights and elasticity of prices to affect production. So, first, this weighted elasticity can be directly multiplied with changes in prices brought out by the devaluation in each sector. This will give us the required estimate. But this method is more suitable for finding such an effect on production in each year.

As we are interested in the effect of devaluation in the period of four years (because the effect of devaluation on prices is known for the whole of the devaluation period rather than for each year) we can find the same effect by the formula given below :

$$DQ_k = (W_k) (\Delta Q_k) (\Delta DP_k / \Delta P_k)$$

Where  $DQ_k$  = The Effect of devaluation on production in sector k.

$W_k$  = Weight of prices in the production of k sector.

$\Delta Q_k$  = Total change in production in k sector during the devaluation period.

$\Delta DP_k$  = Total change in prices in k sector due to devaluation.

$P_k$  = Total change in prices in k sector during the devaluation period.

$k$  = any sub-sector under discussion.

After estimating and putting the values of various parameters in the above formula, devised for this purpose, we have tried to calculate the indirect effect of devaluation on production in the Agricultural Sector. The following results have been found.

Agriculture	$DQ = (.790) ( 5.7) ( 3.9/25.8) = 0.88 = 0.7\%$
Major Crops	$DQ = (.805) ( 5.7) ( 8.5/31.1) = 1.25 = 1.3\%$
Food Crops	$DQ = (.872) ( 7.7) ( 6.4/22.0) = 1.95 = 2.0\%$
Cash Crops	$DQ = (.833) (12.6) ( 3.7/18.0) = 2.16 = 2.2\%$
Fibre Crops	$DQ = (.812) (-5.7)(10.8/36.0) = -1.39 = -1.4\%$
Other Crops	$DQ = (.831) (29.0) ( 0.7/ 5.7) = 2.96 = 3.0\%$

According to these results, devaluation indirectly increased production in five out of six sub-sectors. Even in the case of fibre crops, total production went down by 5.7% during the devaluation period. That is why the effect of devaluation was also negative in this respect. It was about one fourth of the total decrease in production of these fibre crops. However the effect of devaluation on the production of other crops (i.e. sub-sectors) was positive. According to our results the devaluation contributed about 12.3%, 22.8%, 26.0%, 17.5% and

10.3% of the total increases in the production of agricultural goods, major crops, food crops, cash crops and other crops respectively. Even these results show that prices or devaluation had a higher effect on the production of fibre or other crops; because food crops are given preference over fibre or other crops.

### 5.8. Post-Devaluation Trends in Agricultural Production

The effect of devaluation on production might have continued during the post-devaluation period, but to analyse it is very complicated due to the depreciation of the rupee in 1959. Because of this we cannot disentangle the indirect effect of devaluation and depreciation on prices and production any further. However we can safely assume that the effect of devaluation on prices and production was negligible at the time of the post-devaluation period. Otherwise there would have been no need to depreciate the rupee with the introduction of the 'Export Bonus Scheme' in January, 1959. Even estimation of the effect of depreciation on prices and production is beyond the scope of our analysis. However for the link up and comparison we are trying to discuss the production trends in this period also.

Although prices as well as production continued to rise during this period, it seems that changes in production were mostly the result of factors other than devaluation or depreciation of the rupee. Even price changes were steady and less volatile and seemed to be little affected by the devaluation or depreciation as we shall see later.

A look at table T.B-7 will indicate that the growth rates of production in almost all sectors (except for food crops) were higher than their price growth rates during this period. Earlier we have seen that price elasticity of production is less than unity in all the sub-sectors of Agriculture. Therefore there must be other factors, which affected production more than the effect of prices (and thus of devaluation or depreciation), during this period.

Actually concerted efforts were made in the 1960's to develop Agriculture on scientific lines. Extension services were provided. Fertiliser was supplied at a subsidised rate. Irrigation facilities were improved and increased. New seeds and mechanised farming was introduced in the late 1960's. All these factors were responsible for higher production. On the other hand the significant increase in agricultural prices was mostly due to the rise in demand by the increasing population. More income in their hands and the increased money supply was responsible for this inflationary pressure. Therefore it



seems that prices were least affected by the continued, but decreasing, effect of devaluation, or even the effect of depreciation during this period.

If prices under these circumstances seem to have least effect on production, then the indirect effect of devaluation or depreciation on production will be negligible. Devaluation and depreciation of the currency are irregular phenomena; therefore they will affect production as such. But the changes in production during this period were mostly due to regular factors and can be explained by trend and cyclical movements (depicting almost regular factors) during this period.

Irregular movements had significant effect on changes in production in 1962-3, 1966-7 and 1967-8. The first two years had significant drought conditions; while in 1967-8, new seeds for rice and wheat (two staple food crops) resulting in 'the green revolution' were successful in increasing production substantially. Meanwhile the reverse trends in cash crops were due somewhat to the substitution effect between food and cash crops.

However production of fibre crops and consequently of cash crops seems to have increased significantly in 1961-2 and 1965-6. No doubt irregular factors were responsible for such a phenomenon, but it seems mainly due to an increase in the area under fibre crops by 16.6% and 12.5% in 1961-2 and 1965-6 respectively. As land has a weight of 84.8% in the production of fibre crops; we can say that this factor together with trend and cyclical factors would have increased the production of fibre crops by 30.8% and 14.3% in both years respectively.

Therefore we can conclude that prices did not play any significant part in the production of various crops in the post-devaluation period. Production increased mainly because of better cultivation practices, irrigation facilities and the use of new seeds and more fertiliser. While decreases in production, when they occurred, were due to bad weather, floods and other natural calamities.

On the whole the production of agricultural crops, major crops, food crops, cash crops, fibre crops and other crops increased at the rates of 3.7%, 4.2%, 3.8%, 5.9%, 4.4% and 6.6% per annum respectively. These were significantly higher than their production growth rates in previous periods. On the basis of these rates we can say that a break through in Agriculture has occurred and it has also had a somewhat stabilising effect on prices in this sector.

**TABLE 1**  
**Price Indices in Agricultural Sector (1954-55=100)**

T.B-1

Year	Agriculture.	Major crops	Food crops	Cash crops	Fibre crops	Other crops
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1949-50	115.3	136.6	101.8	92.8	104.6	83.1
1950-51	114.9	138.1	98.8	112.1	112.0	112.3
1951-52	127.0	160.6	104.8	118.2	123.0	113.6
1952-53	116.0	143.7	115.0	82.4	75.7	89.5
1953-54	104.9	114.5	104.4	101.7	97.0	105.2
1954-55	100.0	100.0	100.0	100.0	100.0	100.0
1955-56	110.8	129.4	105.7	97.8	88.7	106.0
1956-57	125.8	151.7	116.5	105.1	83.5	124.0
1957-58	133.9	163.7	126.7	122.5	114.5	129.4
1958-59	131.7	158.2	121.1	106.6	103.2	109.2
1959-60	144.3	172.0	131.2	128.8	121.9	134.4
1960-61	154.1	190.8	137.6	181.7	194.6	171.2
1961-62	149.8	178.2	140.5	155.2	132.4	174.6
1962-63	156.0	191.1	138.6	118.9	119.8	136.2
1963-64	149.2	175.6	146.3	126.5	117.4	134.2
1964-65	160.2	188.2	154.8	169.1	153.4	180.6
1965-66	167.7	205.7	154.4	169.2	148.1	184.5
1966-67	194.6	239.2	173.1	157.0	149.2	162.5
1967-68	184.2	210.7	175.1	154.2	131.6	172.0
1968-69	195.3	231.2	192.1	169.2	144.4	188.7
1969-70	203.9	235.3	195.5	172.2	147.0	192.1

Sources : Columns 2 & 3

Deflator indices based on National Income Data in C.S.O. (Ad hoc), 1968, pp. 4-11 and C.S.O. (M.S.B.).

Column 4 up to 1967-68. Cost of Living Indices in C.S.O. (P.S.Y.B.), 1968, pp. 419-20 (Average of indices in Karachi, Lahore, Sialkot and Narayanganj).

Column 4 up to 1967-68. Ideal Indices constructed on the basis of price data upto 1959-60 in Islam (1965), pp. 125-28 and for the rest of data in C.S.O. (P.S.Y.B.), 1968, pp. 117 & 402.

Note. Indices for 1968-69 and 1969-70 for column 4 to 7 are indirectly estimated from Major Crops Index.

TABLE 2

T.B.-2

## Quantity Indices in Agricultural Sector (1954-55=100)

Year	Agriculture	Major crops	Food crops	Cash crops	Fibre crops	Other crops
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1949-50	93.8	95.6	103.4	73.0	75.6	74.0
1950-51	96.6	100.0	104.5	85.8	108.9	71.0
1951-52	92.9	91.1	92.0	89.6	112.2	75.0
1952-53	95.3	93.3	90.9	99.2	128.9	80.0
1953-54	102.6	105.6	110.2	86.4	93.3	91.0
1954-55	100.0	100.0	100.0	100.0	100.0	100.0
1955-56	96.7	95.6	92.0	99.7	122.2	91.0
1956-57	104.0	106.7	109.1	99.8	113.3	94.0
1957-58	102.8	103.3	102.3	105.3	120.0	98.0
1958-59	101.7	103.3	100.0	108.3	114.4	111.0
1959-60	107.1	111.1	113.6	102.1	111.1	100.0
1960-61	110.6	116.7	121.6	98.3	101.1	100.0
1961-62	116.2	124.4	123.9	120.7	132.2	119.0
1962-63	116.8	123.3	119.3	129.4	132.2	137.0
1963-64	124.1	133.3	134.1	129.8	137.8	128.0
1964-65	126.3	136.7	137.5	130.4	124.4	143.0
1965-66	128.3	137.8	133.0	151.4	142.2	166.0
1966-67	129.7	136.7	127.3	163.1	148.9	175.0
1967-68	144.0	158.9	154.5	162.6	162.2	178.0
1968-69	148.2	162.2	161.4	166.0	155.6	172.0
1969-70	157.2	173.3	173.9	177.3	170.0	177.0

Sources : *Column 2*

Based on data of National Income on Constant Prices in C.S.O. (Ad hoc), 1968, pp. 4-11 and C.S.O. (M.S.B.), October, 1969 & 1970.

*Column 3 & 4 and 6 & 7 up to 1967-68*

In C.S.O. (P.S.Y.B.), 1968 and for 1968-69 and 1969-70 from C.S.O. (P.K.E.I.), July, 1970, p. 6.

*Column 5*

Based on data on price and production in Islam (1965) pp. 125-28 and C.S.O. (P.S.Y.B.), 1968, pp. 117 and 402.

TABLE 3

T.B-3

## Indices of Land Utilization in Agricultural Sector (1954-55=100)

Year	Agriculture	Major crops	Food crops	Cash crops	Fibre crops	Other crops
1	2	3	4	5	6	7
1949-50	94.1	93.7	95.7	88.4	98.3	76.5
1950-51	96.2	97.2	97.8	97.2	107.8	82.3
1951-52	94.5	95.1	95.2	105.4	116.2	90.3
1952-53	95.1	95.7	95.8	102.6	121.4	76.1
1953-54	100.5	100.4	103.9	88.9	87.7	90.5
1954-55	100.0	100.0	100.0	100.0	100.0	100.0
1955-56	99.9	100.0	97.5	111.1	116.4	103.7
1956-57	101.2	101.2	100.4	105.3	109.0	100.0
1957-58	100.0	99.7	98.8	111.7	117.3	103.9
1958-59	101.3	101.7	100.1	112.0	109.4	115.8
1959-60	102.6	105.2	105.1	109.1	106.9	112.1
1960-61	103.0	104.0	104.9	106.6	107.3	105.6
1961-62	105.9	106.5	105.3	118.1	125.1	108.3
1962-63	107.1	107.9	107.0	117.4	116.2	119.0
1963-64	107.6	108.6	108.8	117.2	121.1	111.6
1964-65	113.8	113.4	114.2	117.6	119.9	114.4
1965-66	113.0	114.3	114.0	128.9	134.9	120.4
1966-67	113.3	115.8	113.5	135.8	140.8	128.7
1967-68	121.2	123.9	123.8	140.0	150.6	125.0
1968-69	120.7	123.3	123.3	139.4	149.9	124.5
1969-70	129.4	132.3	132.2	149.5	160.8	133.5

Sources : Up to 1967-68

Column 2-3 and 5-7 from C.S.O. (P.S.Y.B.), 1968, pp. 116-117

1968-69 and 1969-70 indirectly estimated from Column 4.

Column 4 from Pak. (Y.B.A.S.), 1969 and C.S.O. (M.S.B.) April, 1970 and January, 1971.

TABLE 4

T.B-4

## Average Yearly Rainfall in Pakistan (Index 1954-55=100)

	East Pakistan		West Pakistan		Pakistan	
	Av. Rain fall in inches	Index	Av. Rain fall in inches	Index	Av. Rain fall in inches	Index
1	2	3	4	5	6	7
1949-50	78.81	90.1	15.60	120.6	47.21	94.0
1950-51	69.12	79.1	14.26	110.3	41.69	83.0
1951-52	69.06	78.9	10.94	84.6	40.00	79.6
1952-53	80.18	91.6	13.10	101.3	46.64	92.9
1953-54	89.70	102.5	14.47	111.9	52.09	103.7
1954-55	87.51	100.0	12.93	100.0	50.22	100.0
1955-56	89.90	102.7	16.40	126.8	53.15	105.8
1956-57	76.06	86.9	18.45	142.7	47.26	94.1
1957-58	61.30	70.0	14.97	115.8	38.14	75.9
1958-59	79.30	90.6	17.51	135.4	48.41	96.4
1959-60	83.12	95.0	15.97	123.5	49.55	98.7
1960-61	70.99	81.1	14.63	113.1	42.81	85.2
1961-62	72.28	82.6	16.17	125.1	44.43	88.5
1962-63	73.34	83.8	12.41	96.0	42.92	85.5
1963-64	84.17	96.2	13.20	102.1	48.69	97.0
1964-65	90.06	102.9	14.20	109.8	52.13	103.8
1965-66	71.66	89.9	14.37	111.1	46.52	92.6
1966-67	71.08	81.2	17.73	134.1	44.21	88.0

Sources : Column 2 and 4

from C.S.O. (P.S.Y.B.), 1968, pp. 44-45 (Average of 7 cities in East as well as in West Pakistan).

Column 6

Simple average of columns 2 and 4

**TABLE 5** **T.B-5**  
**SUPPLY OF AND DEMAND FOR RAW JUTE IN PAKISTAN**  
('000 bales)

Year	Stock	Production	Supply 2+3	Exports	Consumption	Demand 5+7	Balance 4-7
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1949-50	1223 <sup>a</sup>	3333	4556	3382	—	3382	1174
1950-51	1174	6007	7181	6762	—	6762	419
1951-52	419	6331	6750	4884	—	4884	1866
1952-53	1866	6823	8689	5300	—	5300	3689
1953-54	3689	3610	7299	5126	—	5126	2173
1954-55	2173	4662	6835	4850	—	4850	1985
1955-56	1985	6500	8485	5781	—	5781	2704
1956-57	2704	5514	8218	4555	868 <sup>b</sup>	5423	2795
1957-58	2795	6200	8995	4581	894	5475	3525
1958-59	3525	6000	9525	4428	1045	5473	4052
1959-60	4052	5554	9606	4650	1385	6035	3571
1960-61	3571	5625	9196	2986	1570	4556	4640
1961-62	4640	6969	11609	4115	1470	5585	6024
1962-63	6024	6300	12324	4476	1744	6220	6104
1963-64	6104	5875	11979	4364	1942	6306	5673
1964-65	5673	5328	11001	3924	1699	5623	5378
1965-66	5378	6693	12071	4448	2328	6776	5295
1966-67	5295	6400	11695	3540	2365	5905	5790
1967-68	5790	6850	12640	3863	2880	6743	5897
1968-69	5897	5880	11777	3212	3028	6240	5537
1969-70	5537	7176	12713	3509	N.A.	N.A.	N.A.

a = estimated from previous year.

b = originally for six months (double for the year).

— = no consumption within the country.

N.A. = data not available.

**SOURCES:** Columns 3, 5 and 6. from Pak. (Y.B.A.S.), 1969, pp. 12 and 116. for 1968-69 and 1969-70, from C.S.O. (M.S.B.), October, 1970 and January 1971.

**Note:** 1 bale = 400 lbs. = 0.1785 tons = 4.86 maunds.

TABLE 6

T.B-6

## Supply of and Demand for Raw Cotton in Pakistan ('000 bales)

Year	Stock	Production	Supply 2+3	Exports	Consumption	Demand 5+6	Balance 4-7
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1949-50	130.5a	1255.0	1385.5	822.0	72.4	894.4	491.1
1950-51	491.1	1424.0	1915.1	1679.0	101.8	1780.8	134.3
1951-52	134.3	1415.0	1549.3	1117.0	149.5	1266.5	282.8
1952-53	282.8	1801.0	2083.8	1536.0	187.8	1723.8	360.0
1953-54	360.0	1442.0	1802.0	1194.0	474.7	1668.7	133.3
1954-55	133.0	1600.0	1733.3	727.0	732.7	1459.7	273.6
1955-56	273.6	1693.0	1966.6	967.0	964.3	1931.3	35.3
1956-57	35.3	1725.0	1760.3	677.0	969.9	1646.9	113.4
1957-58	113.4	1722.0	1835.4	444.0	1045.9	1489.9	345.5
1958-59	345.5	1605.0	1950.5	470.0	1055.6	1525.6	424.9
1959-60	424.9	1657.0	2081.9	458.0	1283.4	1741.4	340.5
1960-61	340.5	1711.0	2051.5	299.0	1303.6	1602.6	448.9
1961-62	448.9	1840.0	2288.9	178.0	1323.7	1601.7	687.2
1962-63	687.2	2076.0	2763.2	890.0	1365.8	2255.8	507.4
1963-64	507.4	2370.0	2877.4	907.0	1510.2	2417.2	460.2
1964-65	460.2	2139.0	2599.2	739.0	1550.1	2289.1	310.1
1965-66	310.1	2347.0	2657.1	670.0	1527.8	2197.8	459.3
1966-67	459.3	2620.0	3079.3	756.0	1616.3	2372.3	707.0
1967-68	707.0	2926.0	3633.0	1272.0	1739.5	3011.5	621.5
1968-69	621.5	2973.0	3594.5	809.2	1950.1	2759.3	835.2
1969-70	835.2	3028.6	3863.8	475.5	N.A.	N.A.	N.A.

a = estimated from previous year.

N.A. = data not available

SOURCES : Columns 3, 5 and 6, from Pak. (Y.B.A.S.), pp. 12 and for 1968-69 and 1969-70 from C.S.O. (M.S.B.), October 1970 and January, 1971.

Note : 1 bale = 392 lbs. = 0.175 tons = 4.76 maunds.

TABLE 7 T.B-7  
**AVERAGE INDEX AND GROWTH OR FALL RATES IN  
 AGRICULTURAL SECTOR (1954-55 - 100)**

Sectors	Pre Devaluation Period		Devaluation Period		Post Devaluation Period		Whole Period		
	1949-50 to 1954-55		1955-56 to 1958-59		1959-60 to 1969-70		1949-50 to 1969-70		
	Aver. Index	G.R. (+) or F.R.	Aver. Index	G.R. or F.R. (-)	Aver. Index	G.R. or F.R. (-)	Aver. Index	G.R. or F.R. (-)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Agriculture	P.	112.7	-3.1	125.2	5.9	168.0	3.6	141.7	3.2
	Q.	96.8	1.5	101.3	1.4	127.2	3.7	112.7	2.4
Major Crops	P.	130.7	-6.6	150.2	7.0	200.4	3.1	167.8	3.3
	Q.	97.5	1.2	102.2	1.4	136.4	4.2	117.3	3.0
Food Crops	P.	104.0	0.5	117.2	5.1	156.7	4.2	131.9	3.5
	Q.	99.9	—	100.7	1.9	135.2	3.8	117.2	2.8
Cash Crops	P.	100.5	-0.8	107.6	4.2	153.3	1.8	127.1	3.2
	Q.	88.5	5.0	103.2	3.0	136.8	5.9	114.5	4.0
Fibre Crops	P.	100.9	-3.3	96.7	8.0	140.4	0.3	116.3	2.4
	Q.	101.7	3.1	117.4	-1.4	136.5	4.4	122.0	2.6
Other Crops	P.	100.0	1.4	116.8	1.4	165.1	2.6	133.9	3.9
	Q.	81.2	6.9	98.2	6.6	141.9	6.5	112.8	5.0

P = Prices

Q = Quantities

SOURCES: Tables T.B-1 and T.B-2.



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## ECONOMIC EVALUATION OF SCARP-I

*Zia Masoom\**

Economic analysis of a project is a means of assessing its value to the economy. To establish its economic feasibility, it is essential that the gains in the value of goods and services resulting from the project exceed the value of goods and services used in its construction and operation i.e. the benefit cost ratio determined by dividing the present worth of project costs must exceed one. This commonly used and generally accepted technique of 'Benefit-Cost Analysis' has been employed below in appraising the economic feasibility of SCARP I. For the reasons already stated above regarding the availability of relevant data, the benefit-cost ratio for the year 1972-73 has been worked out here.

In order to reflect the true values of particular items in the analysis, necessary adjustments have been made and these are discussed briefly in the following section on methodology.

### METHODOLOGY

#### **Project Benefits - General**

Only primary benefits have been taken into account in this analysis while secondary and indirect benefits have been excluded as it is well nigh impossible to quantify them with any precision. Important among these secondary benefits are :

- (a) creation of additional employment for the construction and operation of the project;
- (b) backward linkage effects that result from increased supply of inputs to the farmer;
- (c) forward linkage effects that result from processing of increased farm produce ; and
- (d) other multiplier effects.

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The primary benefits from an agricultural project like SCARP I, of course, comprise increased agricultural production (both crops and livestock).

Project benefits have been expressed here in terms of 'value added' which is the contribution of any sector or unit of the economy to the national product. An analogous term 'sector product' can also be used. It is nothing but the value of farm produce, in case of agriculture, minus the costs involved.

The net benefits from the project are the difference between the 'value added' 'with' and 'without' project. The various steps in arriving at this figure are briefly noted below.

#### **Gross Value of Production.**

Gross value of production is determined on the basis of total production (crops and livestock) multiplied by the base year farm gate prices. The same method is used in arriving at the gross values of crop and livestock production separately. Table Nos. 20 and 23 show how the gross values of crop and livestock production respectively for the year 1972-73 have been arrived at. It will be seen from the Table No. 19 that the gross value of crop production in the year 1972-73 showed an increase of 167.4% over the base year 1959-60. In value terms it amounted to Rs. 308.1 million and Rs. 115.2 million respectively. The gross value of total agricultural production (crops and livestock) in 1972-73 was Rs. 452.8 million as compared with Rs. 177.1 million in the base year 1959-60, thus representing an increase of 155.7%.

#### **Gross Margins.**

Crop and livestock returns are measured in terms of their gross margins. These are calculated by subtracting the variable costs from the relevant output. For example, the crop gross margins are calculated by subtracting variable costs of crop production from the gross value of crop production. Crop gross margin and livestock gross margin (obtained similarly) are then added to arrive at total gross margin. Finally, fixed costs of production are deducted from the total gross margin to obtain the 'value added'. The way crop and in Table Nos. 22 and 23 respectively.

#### **Costs of Production.**

These are the costs of agricultural production other than the costs of the project itself, and redivided into two classes; variable

and fixed. This division of costs has both logic and convenience in its favour.

**(i) Variable Costs.**

Variable costs are those which vary with changes in the pattern of production, acreage of crops and number of livestock. Crop variable costs include the expenses on seeds, fertilizers, sprays, water charges, casual labour etc. Livestock variable costs, on the other hand, comprise the cost of the home-grown fodder and crop by-products, concentrates and other miscellaneous costs covering medicines, salt etc. Table Nos. 21 and 23 show the crop and livestock variable costs respectively that have been used in arriving at gross margins for the year 1972-73.

**(ii) Fixed Costs**

Fixed costs are those which remain after allocating variable costs to the crop or stock. This category, consequently, includes regular labour costs, costs of implements, machinery and repairs thereof, depreciation charges and overhead expenses on farm management etc. It will be seen that the distinctive characteristic of these costs is that they cannot be charged directly to any particular crop.

**Valuation of Production.**

As was stated above, constant farm gate prices have been used for the purpose of the valuation of output. To arrive at the farm gate prices, marketing costs between the farm and the market i.e. transportation, processing and other marketing changes etc. have been deducted from the wholesale market values.

The prices of agricultural commodities fluctuate greatly due to agricultural output being highly vulnerable to vicissitudes of nature and a number of other factors. Since the major aim is to determine the real project benefits, it becomes essential to value the product after eliminating the impact of price hike. Constant farm gate prices have been used here precisely in view of this requirement. Although this practice poses certain problems which increase in magnitude the greater is the lapse of time since the base year, removal of anomalies and maintenance of uniformity necessitates this procedure. Base-year farm gate prices which have been used in the valuation of project benefits are displayed in Table No. 24.

**Project Costs.**

Project costs encompass two main items ;

- (i) capital costs and
- (ii) annual costs

Capital costs represent the cost of construction of tubewells, water courses, disposal channels, canal remodelling, other ancillary works, transmission and distribution facilities required to supply energy to the tubewells. Annual costs, on the other hand, are made up of fixed charges on the capital investment in physical works i.e. annual amortization charges for the repayment of the capital costs with interest, sinking funds required to provide capital for eventual replacement of certain installations such as tubewells ; and the cost of actual operation and maintenance of these works.

**COMPUTATION OF BENEFIT—COST RATIO  
FOR SCARP 1 FOR THE YEAR 1972-73.**

**Project Benefits.**

A summary of gross values of agricultural production, variable costs, gross margins, fixed costs, value added and net agricultural benefits from the project for the year 1972-73 is furnished below :

<i>Item.</i>	<i>With Project</i>	<i>Without Project</i>
	(Million Rupees)	
Gross value of crop production.	308.13	173.91
Crop variable costs.	139.48	59.78
Crop gross margins.	168.65	114.19
Gross value of livestock production.	144.89	123.72
Livestock variable costs.	22.13	17.13
Livestock gross margins.	122.56	106.59
Total variable costs.	161.61	76.91
Total gross margins.	291.21	220.78
Fixed costs.	24.42	18.28
Value added.	266.79	202.50

**Net Benefits = 64.29**

**Project Costs.**

The overall capital cost of the project including electrification is Rs. 170.18 million. The total annual cost of the project for the year

under examination i.e. 1972-73 is Rs. 33:66 million. An abstract of the annual cost of the project for the said year is given below :

**Annual Costs of SCARP 1 for the Year 1972-73.**

	(Million Rs.)
I. Total project operation cost.	22.57
(a) Tubewell operation and maintenance.	22.37
(b) Project operation (services).	0.20
II. Amortization of capital cost of tubewells over 12 years at 4% rate of interest ( $104.10 \times 0.10655$ )	11.09
III. Total annual cost (I + II).	33.66

**Benefit—Cost Ratio.**

The benefit-cost ratio is determined as below :

<i>Project Benefits.</i>	<i>Project Costs.</i>	<i>Benefit-Cost Ratio.</i>
64.29	33.66	1.91 : 1

Thus the project satisfies the test of economic efficiency although the above calculated benefit-cost ratio is much less than the ratio of 4 : 1 envisaged in the project feasibility report. This has also come down from the benefit-cost ratios of the project computed for some earlier years as are depicted below :

<i>Year.</i>	<i>Computed Value of the Benefit-Cost Ratio.</i>
1968—69	3.1 : 1
1969—70	3.44 : 1
1970—71	2.71 : 1
1971—72	2.75 : 1

Source : Central Monitoring Organization, WAPDA.

This fall in the benefit-cost ratio since 1968-69 is but a reflection of the downward trend in crop yields and production noted and accounted for above. Increase in costs as a result of changes in the cost structure, however, also contributed somewhat to this result.

The downward trend lately observed in some of the 'performance parameters' in the case of SCARP I, as was shown above, has not been accorded due attention by the concerned authorities. More often than not they are prone to brush it aside on the plea that agricultural development projects are of long gestation period in which many factors thwart the growth impulses and lead to meagre benefits in the early years of operation, and that it is premature, therefore, to antici-

pate huge gains at the onset. Further, it is stressed that natural factors which are beyond man's control i.e., weather, rainfall, floods etc. largely account for the yearly variations observed in agricultural production. Both of these arguments, however, do not hold much water in view of the facts. Admitted that fuller returns from agricultural projects accrue after a time, but there is certainly no justification whatsoever for a relapse after already having achieved high production levels. Further, the downward movement in crop yields and production in the project area has continued, barring certain insignificant exceptions, for about five years now; this phenomenon, therefore discloses a downward 'trend' (and not simply a 'variation') which cannot be ascribed in any large degree to 'natural factors' in fact, there are other important factors, as were briefly enumerated above, accounting for this trend.

#### Financial Appraisal.

Financial appraisal of a project is a means of determining its financial justification in terms of its repayment capacity. The repayment capacity, in turn, is a function of the level of project costs and taxable capacity of beneficiaries. This section briefly examines the financial soundness of SCARP I in the context of results obtained so far.

It is common financial convention for the investing agency (in this case, the Government) to recover the initial cost with interest along with the annual operation and maintenance cost from the beneficiaries (in this case, the tillers). As per feasibility report of SCARP I, the project was to be self-liquidating. Available data, on the contrary, have revealed that even the operation and maintenance costs of the project could not be recovered fully from the project beneficiaries, let alone generation of adequate replacement funds. According to an estimate prepared by Central Monitoring Organization (WAPDA)<sup>1</sup>, government had to subsidise the project to the tune of Rs. 1.88 crore during the year 1969-70.

According to a more recent estimate<sup>2</sup>, annual government subsidy involved in the operation and maintenance of SCARP I alone was of

1. Central Monitoring Organization, WAPDA, 1971. "Financial Appraisal of SCARP I.
2. Govt. of the Punjab, 1974. "Final Report of the Special Committee on the Working of SCARPs". P.7.

the order of Rs. 2,56 crore. This subsidy is expected to multiply with the passage of time and it has been estimated that total annual subsidy when the present SCARPs in the Punjab become fully operational may be of the order of about Rs. 12.5 crore.

Financial implications of SCARPs are important in view of the fact that government's financial resources are much too limited in relation to the huge amounts required for financing these projects. Large subsidies involved in the operation of completed SCARPs as observed in the case of SCARP I will further aggravate financial difficulties already being encountered in implementing the waterlogging and salinity control programme. Ways and means must, therefore, be worked out for achievement of better financial results from SCARPs in future.

A few qualifications to this, however, deserve mention here. Firstly, an important question arises as to whether the government would be justified in recovering the entire project costs from the direct beneficiaries of the projects alone i.e. the farmers, although the projects are beneficial for the whole economy. Following aspects need careful consideration in this respect :

- (i) Sizeable secondary or indirect benefits that accrue to the economy cannot be properly quantified. With regard to the probable magnitude of the indirect benefits it has, however, been indicated in some studies<sup>4</sup> that where sizeable capital expenditure and significant increases in production are involved, the net secondary benefits commonly are of the order of twice the net primary benefits, or even more.
- (ii) As a corollary of (i) above, increased economic activity in the area also benefits labourers, transporters, industrialists and businessmen within and, to some extent, outside the area. Government revenues from these secondary beneficiaries in the form of taxes and levies increase as a result.
- (iii) Increased food and fibre production results in strengthening government's foreign exchange position.

Secondary another relevant consideration is that SCARPs are being undertaken primarily for the eradication of the twin menace of

3. Ibid.

4. M/s. Tipton & Kalmbach inc. 1967. "Regional Plan, Northern Indus Plains". Vol. II (Economics), Appendix F.



water-logging and salinity. These problems, however, have been caused by no great fault of the farmer. Where waterlogging has been caused by lack of drainage, inadequate provision of water for irrigation has been the major factor in the spread of salinity. Evidently the farmer cannot be held responsible for the appearance or accentuation of these major ills of land.

Thirdly, recovery of project costs in the form of additional revenues to be realised from beneficiaries raises certain administrative and political problems. As the experience in the case of SCARP I amply demonstrates, the government may not be in position, for administrative and/or political reasons, to levy appropriate rates on the project beneficiaries even though there should exist full financial justification for doing so.

Finally, recovery of project costs, though important, should not be regarded as the overriding consideration. The value of the project to the economy is a much more important consideration. In this connection it may be mentioned here that from the national point of view, the capital costs of SCARP I had been fully recovered within a short period of 3 years of project operation as a result of increase in agricultural production in the area. The problems of waterlogging and salinity are national problems and have got to be tackled, in any case, for the good of the nation as a whole. Consequently, the government stands committed to invest in SCARPs if our agriculture is to be effectively protected from the devastating effects of the twin-menace. This is not to deny, however, that all 'reasonable' efforts must be made for the recovery of project costs from the beneficiaries.

## *Notes and Comments*

### **THE FEDERAL BUDGET—1976-77**

The National Budget for the fiscal year 1976-77, announced on June 5, is not a soulless account of income and expenditure. It has been praised as a very prudent, forward looking and imaginative document. The most welcome aspect of this budget is mix of incentives and reliefs. Its weakest aspect on the other hand is the small development programme and its financing. In the financing of development outlay, apart from its heavy dependance on external resources there is a very low level of self-financing by autonomous organisations. Non-development expenditure shows an increase of Rs. 1252 million as compared to the last year.

The overall size of the budget will be higher by 12.4 per cent. To achieve the objectives and strategy of the economic plan, a six point programme has been presented by the Finance Minister. Optimism has been showed as regards setting the targets for this year. It has been proposed to consolidate and accelerate the progress in agriculture and increase production by 8 per cent. It is also expected by the budget makers to reverse the stagnation in industrial production and to increase the output of large-scale industry by 9 per cent. An over-all growth rate of 8 per cent of G.N.P. has been set as a target for this year. As regards the balance of payments position, it is planned to increase exports by 23 per cent, which will help in improving the present situation. It has been announced to accelerate public investment by 20 per cent. Price stability and anti-inflationary policies have also been included in the salient features of this budget.

It has been greatly stressed to strengthen the basic economic infrastructure in the country, so as to remove the basic constraints on economic growth. This will help to promote development of less developed areas and ensure their integration with the rest of the economy. Agriculture has been kept high on the list of priorities. A provision of Rs. 77.1 Crore has been made for the development of agriculture of which expenditure on plant protection would be of the order of Rs. 18.45 Crore denoting an increase of Rs. 3.43 Crore. The expenditure on rice cleaning processing and storage will be pushed

up from 1.11 Crore to Rs. 3 Crores, while a provision of Rs. 6.73 Crores has been made for food storage. Agriculture Research gets Rs. 2.75 Crore to finance its projects. The Government will continue to bear subsidy on fertilizers which is placed at Rs. 36.98 Crore during the current fiscal year. In order to enhance its lending capacity the capital of ADBP will be increased by Rs. 2 Crores.

For the education and training sector an allocation of Rs. 25.6 Crore has been provided for as against 25.3 Crore in 1975-76. This sector needs to be given greater importance. In the part it has never been given its due share in the Federal budgets. Other sectors such as industry, health, housing and population planning have also not been ignored. An important expenditure which seems hard to be justified is an increase of 8.4 per cent in the non development expenditure.

It is heartening to note that maximum rate of wealth tax 70% has been lowered to 60%. This is bound to reduce tax evasion, and provide motivation for increased productivity. However no proportionate reduction has been proposed in case of corporate taxation, which in our country is heavily taxed. The rate of tax ranges from 50% to 60%. There are very few countries where the corporate tax is in excess of 50%.

For relief to lower income groups, rate of personal allowance has been increased from Rs. 3,100 to 5,000 and earned income relief enhanced to a maximum of Rs. 7,500. In case of professionals the personal allowance has been increased from Rs. 2,000 to Rs. 3,000 and earned income relief to 20 per cent, subject to a maximum of Rs. 5000. In case of other assesseees personal allowance has been increased from Rs. 2000 to Rs. 2,500 and earned income relief to 15 per cent with a maximum of Rs. 3,500. Exemption limit in case of wealth tax has been enhanced from Rs. 2 lakh to Rs. 3 lakh. Rate of tax on various slabs of wealth tax have been reduced by 50 percent. For relief to retired employees, all retirement gratuities have been exempted from income tax and commuted value of person and the amount of Provident Fund has been exempted from wealth tax during the year they are received. Locally manufactured packing material, cotton bags and paper envelopes have also been exempted from sales tax. Chairs and carriages for invalids are also exempted from sales tax as are dentists chairs from import duty.

An effort has been made to make the budget investment oriented both in the public and private sectors. This is evident from a Rs. 452 Crore industrial expansion plan. Hopes have also been pinned on black money to be turned into white and then to flow into real investment. Perhaps the huge Rs. 650 Crore private sector investment is considerably dependent on unearthing of this black money. Government has offered to confer whiteness on black money after receiving 30 per cent in the form of tax. This could bring good results if it is followed up by schemes to mobilise these resources towards desired channels.

Despite new taxation efforts a widening resource gap is becoming visible in our Federal Budget. Its residuary resource gap is Rs. 170 Crore after new taxation proposals to the tune of Rs. 123 Crore and tax relief to the extent of Rs. 13 Crore. New tax proposals includes an import surcharge of 10 per cent on all imports except machinery and spares, tea, and duty free items has also been levied. The expectations are that the surcharges would bring a revenue of Rs. 93.84 Crore, and at the same time tend to reduce the quantum of imports.

Surcharges are in the nature of indirect taxes levied to mop up surplus profits of companies, representing the differential between production cost and the fixed prices of commodities, or between the average import prices and the prescribed prices of locally manufactured goods. A surcharge already exists on petroleum, natural gas fertilizers and cement. The surcharge on petroleum was levied as a "price stabilization" measure and the surcharge on natural gas and fertilizers as a "price equalization" measure. Now the surcharge levied on all imports, is not as a price equalization or price stabilisation measure but with the main object of netting additional revenue. This will therefore raise further the prices of raw materials as well as manufactured goods. Import duties have also been increased in case of certain items. These duties could result in inflating domestic prices. It is because of their regressive nature that most of the developed countries prefer to rely on direct rather than indirect taxes.

On the whole the past performance as officially presented seems very impressive. Admittedly, the 12.6 per cent to 18.6 per cent improvement in the fixed Investment-G N P Ratio during 1971-72 and 1975-76 is one of the most encouraging signs of resilience of Pakistan economy when it traversed from the pitiable G N P growth

rate of 1.4% to a respectable 5 per cent. The figure give for rate of inflation is 5.7 per cent as against per cent, which was calculated for 1974-75. This is no less encouraging a sign than the growth rate but the rate of inflation for 1974-75 was calculated on the basis of Indices of Whole-sale Prices whereas the calculations made for the year 1975-76 are on the basis of Consumers Price Index. Calculating the rate of inflation in the same way as it was done by the Government at the time of last years budget, we get a two digit figure, which comes to about 13.5 per cent.

Over looking a little bit of window dressing one can still cherish the hope that as the tempo of development gathers pace, it will be possible for our country to move towards and achieve the socio-economic revolution which was promised by our present Government. Even with its few weaknsses, we can consider this budget as a strategic link in the process of identifying the organic unity that exists between the immediacy of counteracting stagnation and inflation and the ultimacy of putting an end to the external vulnerability of the economy.

Azhar Mohyid Din

