The Development of Institutional Agricultural Credit in Pakistan

by

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The main purpose of this paper is to analyse the development of institutional agricultural credit in Pakistan since independence[1]. Although much has been written about the problems of rural credit in this country, the emphasis was usually on the role of the traditional village money-lender who was, and in many cases still is, the only significant source of credit for the small agriculturist[2]. Very little information is available on the operation of public or semi-public agricultural credit institutions, their relative growth in different areas of Pakistan, their sources of finance or their importance in view of the aggregate credit requirements.

It is today generally recognized in advanced as well as in less developed countries that the credit needs of agriculture cannot be met from private sources alone. Government-owned or government-supported credit institutions must carry a significant burden of the credit supply to agriculture if any major development is to take place in that sector. Even in countries as highly developed as the United States, government agencies, such as the Farmer's Home Administration, have been established to fill the big credit gap left by the commercial banking system. If private banks find it unprofitable in the United States to lend to agriculture on any significant scale, it is reasonable to expect this to be even more true in a relatively less developed country such as Pakistan. The need for government action in the rural credit field is further accentuated by the fact that many of the village money-lenders (predominantly non-Muslim) left Pakistan after Partition and migrated to India.

Assuming that the government's vital role in the rural credit field is accepted, our main interest in the present paper is to explore how these governmental credit agencies have performed over the past 15 years and to what extent they have filled the rural credit needs of agriculture in both wings

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1. The term 'institutional credit' as used in this paper refers to credit extended by governmental, semi-governmental and private credit institutions (banks) but not to credit given by village money-lenders.

2. The most exhaustive and authoritative study which has appeared in this field is by Sir Malcolm Darling, *The Punjab Peasant in Prosperity and Debt*, (Bombay: 1925).

of the country. The study is, therefore, confined to the credit operations of the government, the cooperatives and the Agricultural Development Bank of Pakistan.

Before one can appraise the importance and the performance of any one, or all of these credit agencies, it seems desirable to obtain some quantitative estimates of total credit needs in agriculture. The first section of this paper will, therefore, attempt to provide such a yardstick. At the same time, it will highlight the empirical problems encountered in estimating aggregate credit requirements under conditions where very little is known about private savings and input-output relationships either on the firm level or in the aggregate.

The second part of this paper will give a brief history of the existing credit institutions and show their relative contribution to total credit flow since 1947/48.

The regional distribution of loans and some of the factors which seem to determine size of loans as well as the purpose for which loans have been extended will be analysed in the third section, followed by a summary of policy-conclusions which emerge from the analysis.

ESTIMATION OF CREDIT REQUIREMENTS FOR AGRICULTURE IN PAKISTAN

This section deals with some of the theoretical and empirical problems encountered in the estimation of credit requirements for agriculture.

Here it seems appropriate to distinguish first of all between 'maintenance credit' and 'productive credit'. The former is needed so that the agriculturist may borrow during lean months or bad crop years and repay at the following harvest period or in years when production and income are high. The village money-lender and to some extent the government through its *taccavi* loans have traditionally performed the function of extending this type of credit.

'Productive credit', our major concern in this paper, is needed in agriculture in order to meet the production targets of the development plan. Assuming that in Pakistan the marginal productivity of labour in agriculture is close to zero, it is likely that every addition to total agricultural output over present levels requires additional capital investments either on the land already under cultivation or for new land developments. The total

amount of capital needed in order to meet the production targets depends upon the shape of the production function in each producing unit. The additional capital requirement can be met either out of savings within or through capital transfers from outside the agricultural sector or through a a combination of both.

Assuming for the moment that savings in agriculture are evenly distributed over all producing units according to the size of the output of each firm, then the amount of capital to be transferred from outside the agricultural sector minus that amount of capital which is public investment in agricultural overhead facilities (canals, drainage systems, *etc.*) provides a lower estimate of the total productive credit requirements.

If we relax the assumption that savings are equally distributed within the agricultural sector, then the function of the agricultural credit system is not only to infuse capital from outside but also to redistribute or reallocate that capital which has been generated within the sector through private savings. It is obviously difficult to make any realistic estimates of those components. To what extent a redistribution of savings within the sector is necessary depends furthermore on the government's plans for expanding output. Rather than attempt a uniform percentage increase of output over all producing units, the government may decide to concentrate credit and public overhead investment on those areas where the marginal productivity of capital is likely to be the highest—these are also the areas where private savings are likely to be high.

Officially, the agricultural credit requirement in Pakistan has been estimated to be in the range of Rs. 3,000 million per annum on the assumption that a minimum ratio of credit to output flow in agriculture is 25 per cent[8]. This estimate of credit requirements as given in the *Credit Enquiry Commission Report* does not appear to be based on the actual input requirements in agriculture. The *Report* does not indicate how this ratio has been obtained; it merely says: "It was represented before us that a minimum ratio of credit to output flow in agriculture was 25 per cent...". It is also not clear as to whether this refers to all credit or only productive credit as defined earlier in this paper. The concept of a ratio of credit to output flow is obviously an arbitrary criterion for estimation of credit requirements. A theoretically sound estimate of credit needs should be related to the production function, the savings ratio and the repayment capacity of the individual firms in the agricultural sector.

8. Government of Pakistan, *Credit Enquiry Commission Report, 1959*, (Karachi: Manager of Publications. 1959), Chap. III, p. 7.

If we begin by looking at the individual firm and we let c_r denote the total annual credit requirements, i_r the value of the total additional inputs required to achieve a given increase in output and s_a the savings generated annually on the farming unit, then the credit requirement is equal to the input requirement minus private savings:

1) $c_r = i_r - s_a$ (for any firm 'i')

Summing over all the individual firms in the agricultural sector would give us an estimate of total credit requirements in any one production year as indicated in Equation (2) below:

2) $C_r = I_r - S_a$

In order to estimate the input requirements (I_r), we would have to know the shape of the production function for all the individual production units. Since this is impossible to know, we will attempt to get an approximation based mainly on an estimate of the aggregate production function in agriculture.

In order to estimate the aggregate production function, we have to consider that on a fixed land area output (X) depends upon *i*) current inputs (C_i), *ii*) fixed capital inputs (K), and *iii*) labour (L). If we assume, however, that fixed capital is combined with labour in certain fixed proportions, then X can be made to depend only upon C_i and L so that the production function can be defined as

3) $X = [a(C_i) + b(L)]$ or $dX = [a(dC_i) + b(dL)]$

where a and b refer to marginal physical productivity of C_i and L (equipped with K) respectively and d means change in the variables.

Assuming that the cash wages paid to labour in agriculture are negligible because most of it is made up of family labour, then the cash input requirements (I_r), necessary to produce X+dX output, can be reduced to:

4) $I_r = C_i + d(C_i) + F_i$

where F_i means that part of fixed capital (K) which will be required to equip the increased labour force as well as to replace worn-out capital. It follows from Equation (3) that:

5) $C_i = \frac{1}{a}[X - b(L)]$ and

6) $dC_i = \frac{1}{a}[d(X) - b(dL)]$

Since F_i is required to equip additional labour as well as to replace worn-out and obsolete fixed capital, it can be defined by the following equation[4]:

7) $F_i = f(dL) + i(K) = f(dL) + i(fL)$

where

f = capital-labour ratio in agriculture

i = rate of depreciation on fixed capital

K = total fixed capital in agriculture

Substituting Equations (5), (6) and (7) into Equation (4), we obtain

8) $I_r = \frac{1}{a}(X+dX) + dL\left(f - \frac{b}{a}\right) + L\left(fi - \frac{b}{a}\right)$

Since $(X+dX) = X(1+r)$ (where r = rate of change in output) and $dL = p(L)$ (where p = rate of change in the agricultural labour force), Equation (8) can be rewritten as follows:

9) $I_r = X\left(\frac{-1+r}{a}\right) + L\left[\, f(p+i) - \frac{b}{a}(1+p) \,\right]$

On the basis of Equation (9), we can get an estimate of the total input requirements.

The next step is to assess the savings of the individual farming units in agriculture. By savings we mean the aggregate surplus of income on all the farming units over their consumption[5]. Consumption is a function of income and, therefore, savings depend upon the inverse of the consumption coefficient or, in other words, upon the propensity to save (s). The average propensity to save will enable us to obtain an estimate of aggregate savings of all the farmers such that

10) $S_a = X(s)$

Substituting Equations (9) and (10) into Equation (2), we obtain an expression which will measure total 'productive credit' requirements in agriculture in any single year:

11) $C_r = X\left[\frac{1+r}{a} - (s)\right] + L\left[f(p+i) - \frac{b}{a}(1+p)\right]$

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4. In order to get our formula based on ratios, we replace K by fL, which are equal to each other.

5. Savings here include only private savings which are accumulated in the hands of farmers. Savings through public policies and fiscal measures like taxation and price control are not savings which will offset the credit requirements of the farmers. Savings, as understood here, will depend upon the average propensity to save of the farmers alone, and not the entire agricultural sector.

There are seven parameters in this equation of which two, namely 'a' the marginal productivity of current inputs and 'i' the rate of depreciation on fixed capital in agriculture, are assumed to be constant over time. Others are likely to vary over time depending upon factors both inside and outside agriculture and the availability of credit itself. The remaining parameters have been estimated in the following way.

The rate of change in the agricultural labour force (p) will depend upon the rate of growth of population and the rate of growth of employment opportunities outside agriculture; it will be positive, zero or negative depending upon whether the rate of growth of employment opportunities outside agriculture is less than, equal to or more than, the rate of growth in populaton. At the present rate of growth of population (2.1 per cent), the total working force will increase by 3.3 million by the end of the Second Plan. It has been estimated that 1.87 million will be provided employment opportunities outside agriculture[6]. This means that by the end of the Second Plan the agricultural labour force will increase by 1.43 million at a compound rate of 1.27 per cent per annum. Therefore, the p in our equation is .0127.

The rate of growth in agricultural output (r) is a postulated rate (on the basis of the Second Plan) and its realization depends to a large extent upon the availability of credit, assuming that there is no change in the labour productivity (b). The Second Plan envisages an increase of 14 per cent in agricultural output[7], which comes to annual compound rate of about 2.66 per cent. Therefore, the r in our equation is .0266.

It is expected that the incremental output in agriculture at the end of the Second Plan will be Rs. 2,448 million of which Rs. 1,794 million is due to the application of current inputs[8]. The rest is attributable to fixed capital and labour. The Second Plan provides Rs. 688 million for current inputs[9]; and, therefore, the marginal productivity of current inputs is assumed to be $\frac{1,794}{688} = 2.6$ rupees. As we have assumed that fixed capital and labour are combined in a fixed proportion, the rest of the incremental output can be

6. J.C.H. Fei and Others, *An Analysis of the Long-Run Prospect of Economic Development in Pakistan*, (Karachi: Institute of Development Economics, 1962), p. 80.

7. Government of Pakistan, Planning Commission, *The Second Five Year Plan (1960-65)*, (Karachi : Manager of Publications, June 1960), p.5.

8. *Ibid*, p. 142. Physical quantities have been converted into value on the assumption that prices will rise by 20 per cent at the end of the Second Plan. Prices have been obtained from Government of Pakistan, Cooperative and Marketing Department, *Market and Prices*, December 1955.

9. *Ibid*, p. 192.

attributed to the increase in labour which is equipped with fixed capital provided in the Second Plan. Therefore, the marginal productivity of equipped labour is $\frac{2,449 - 1,794}{1.43} = 458$ rupees.

In order to estimate the private capital-labour ratio in agriculture, we need an estimate of private capital-output ratio and output-labour ratio in agriculture. Agricultural output averaged Rs. 12,343 million during the period from 1954 to 1960[10]. According to the Census of 1961 the population of Pakistan stood at 93.7 million persons in 1960/61. The 1951 Census indicated that the ratio of working force to total population was 31.3 per cent and that the agricultural labour force was 75 per cent of the total working force. Assuming that these ratios have been maintained, the agricultural labour force can be estimated at about 22 million in the middle of 1960/61. Assuming on this basis that the private capital-output ratio in agriculture is 2.2, the private capital-labour ratio comes to about Rs. 1,250.00[11] per worker. Therefore, the 'f' in our equation is 1,250.

The C.S.O. deducts 5 per cent of the agricultural income for maintenance, repairs and depreciation of agricultural implements and farm buildings *etc*[12]. This come to about 2.41 per cent of the fixed capital in agriculture. The rate of depreciation 'i' is, therefore, assumed to be .0241.

We are now in a position to estimate on the basis of Equation (11) the credit requirements from 1960/61 to 1964/65. On this basis, the average annual credit requirement is estimated at Rs. 1,953 million which comes to about 14.84 per cent of the average annual output flow in agriculture. It must be emphasized again that this estimate does not include public investment in overhead facilities (*e.g.*, irrigation and drainage works).

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[10]. *Second Five Year Plan, op. cit.*, p. 45.

[11]. Capital here refers only to private capital and excludes public investment in agriculture. The assumption that the private capital-output ratio in agriculture is 2.2 seems to be realistic and conforms with similar estimates for India. *See*, in this connection:

i) Government of India, Ministry of Food and Agriculture, *Studies in Economics of Farm Management in West Bengal*, Report for the year 1955/56, p. 167; and the same Report for East Punjab, p. 28. The average value of total capital per farm in West Bengal is Rs. 1,165 and for East Punjab is Rs. 3,195, the average of these two being Rs. 2,180. Assuming that each farm consists of 2 labourers on the average (p. 23, West Bengal Report and p. 15 East Punjab Report), the capital-labour ratio comes to Rs. 1,090 which is close to our capital-labour ratio estimate of Rs. 1,250.

ii) Planning Commission of India, *Second Five Year Plan*, (Summary), 1956, p. 4 and 5.

[12]. C.S.O., "Estimation of National Income in Pakistan", *Pakistan Development Review*, Vol. I, No. 3, Winter 1961, p. 81.

Table I presents a summary statement of estimated credit requirements from 1960/61 to 1964/65. It is apparent that according to this estimate the productive credit requirements of agriculture never exceed 15 per cent of the annual output flow in agriculture.

TABLE I

ESTIMATED CREDIT REQUIREMENTS IN AGRICULTURE
(1960/61 to 1964/65)

(in million rupees)

Year	Output in agriculture [a] (X)	Credit requirements (C_r)	Credit required as a percentage of output during the previous year $\frac{(C_r\ (t+1))}{X\ (t)}$
1959/60	12,578	—	—
1960/61	12,862	1,811	14.40
1961/62	13,153	1,880	14.62
1962/63	13,450	1,951	14.83
1963/64	13,754	2,024	15.05
1964/65	14,065	2,100	15.27
Total	65,797	9,766	14.84
Average	13,159	1,953	14.84

(a). Assuming that the output (X) increases annually at a compound rate of 2.66 per cent starting from a level of 12,578 in 1959/60 (Government of Pakistan, Ministry of Economic Affairs, *Economic Survey, 1960-61*, Statistical Appendix, p.7). In the total of this column, output of 1959/60 is included; and the output of 1964/65 is excluded because of a lagged relationship between output and credit required, *i.e.*, credit required in year (t+1) is expressed as a percentage of output in year (t).

In addition to these estimates which are based on the most likely values of the parameters, we also estimated credit requirements under changing assumptions about labour productivity, capital-labour ratio and rate of growth in output. Alternatively, we shall see how much improvements can be brought about in labour productivity and what level of rate of growth in output can be achieved with varying amounts of credit. These estimates are shown in Table II. Accordingly, it appears that, at the present level of productivity and rate of growth in the labour force, the agricultural sector needs annually about Rs. 1,682 million of credit merely to maintain the present level of annual output. This credit requirement comes to about 13.4 per cent of the existing level of output in agriculture. On the other hand, if credit were increased to Rs. 2,166 million (which is 17.2 per cent of the annual output), output could be expected to rise by 10 per cent. If fixed inputs increased by 6.6 per cent, the capital-labour ratio would increase

TABLE II

ESTIMATED CREDIT REQUIREMENT IN AGRICULTURE UNDER VARIOUS ASSUMPTIONS

(in million rupees)

Credit required for percentage increase in output (X)	For no increase in output (X)		For 2% increase in output (X)		For 4% increase in output (X)		For 6% increase in output (X)		For 8% increase in output (X)		For 10% increase in output (X)	
Credit required with percentage changes in b, f and L	C_r	% of X	C_r	% of X	C_r	% of X	C_r	% of X	C_r	% of X	C_r	% of X
With the present value of b, f & p	1,632	13.4	1,779	14.9	1,876	14.9	1,973	15.7	2,069	16.5	2,166	17.2
With 5% increase in f	1,726	13.7	1,823	14.5	1,920	15.3	2,017	16.0	2,113	16.8	2,210	17.6
With 5% increase in b	1,481	11.8	1,581	12.6	1,678	13.3	1,775	14.1	1,871	14.9	1,968	15.7
With 5% increase in f and b	1,528	12.2	1,625	12.9	1,722	13.7	1,819	14.5	1,915	15.2	2,012	16.0
With p=o	1,374	10.9	1,471	11.7	1,568	12.5	1,665	13.2	1,761	14.0	1,858	14.8
With p=o and 5% increase in b	1,176	9.4	1,273	10.1	1,370	10.9	1,467	11.7	1,563	12.4	1,660	13.2
With p=o & 5% increase in f & b	1,220	9.7	1,317	10.5	1,414	11.2	1,511	12.0	1,607	12.8	1,704	13.6
With p= – .02	892	7.1	989	7.9	1,086	8.6	1,183	9.4	1,279	10.2	1,376	10.9
With p= – .02 & 5% increase in f	899	7.2	996	7.9	1,093	8.7	1,190	9.5	1,286	10.2	1,383	11.0
With p=.02 & 5% increase in f and b	723	5.6	820	6.5	917	7.3	1,014	8.1	1,110	8.8	1,207	9.6

b=marginal productivity of agricultural labour
f=private capital-labour ratio in agriculture
p=rate of change in agricultural labour force
C_r=annual credit required by agriculture
X=annual output in agriculture.

by about 5 per cent. At the present rate of growth in agricultural labour and with these changes in the capital-labour ratio, the productivity of labour is likely to increase. Assuming that the productivity of labour also rises by 5 per cent, output could be increased by 10 per cent with a credit of Rs. 2,012 million (which is about 15.7 per cent of the output in agriculture). If the rate of increase in employment opportunities in the nonagricultural sector is such that the entire increase in the labour force is absorbed there, then for a 10-per-cent rise in output, a credit of Rs. 1,858 million (14.8 per cent of the output) would be required. A two-per-cent reduction in the agricultural labour force could lead to a ten-per-cent increment in output with only Rs. 1,376 million as credit and so on.

The main conclusion derived from this analysis is that the strategic factor in the growth of agriculture is the rate of change in the agricultural labour force and labour productivity in agriculture. A rate of change in the agricultural labour force which is less than the rise in labour productivity will lead to rapid growth in agricultural output. The labour productivity can be raised by raising the capital-labour ratio in agriculture, *i.e.*, investing more in fixed inputs. Since saving in agriculture is low, credit must be provided to finance the investments in fixed inputs at the initial stages of growth unless the propensity to save increases sufficiently.

In the following section, we shall compare our estimates of credit requirement with the credit actually provided to agriculturists from institutional sources.

CREDIT INSTITUTIONS IN AGRICULTURE

1. CREDIT AGENCIES

At the present time, there are three main institutional sources which provide credit facilities to agriculture ; they are the government (revenue department), the cooperatives and the Agricultural Development Bank of Pakistan.

The Government

The government is the oldest lending agency in the field of agriculture. Government loans are granted under *1*) the Land Improvement Loans Act

of 1883, and *2*) the Agriculturists' Loans Act of 1884. Loans under the Act of 1883 are granted for the purpose of making any improvement on land[13]. Loans under the Act of 1884 are granted for the prevention or relief of distress, for the purpose of purchasing seed or cattle or for any other purpose not specified in the Act of 1883 but connected with agricultural objects. In East Pakistan, loans are granted only under the Act of 1884. The governments' loan operations are administered by the revenue departments of the provincial governments.

In West Pakistan, the following rules are applicable in the case of government loans: For loans granted under the Act of 1883, the land to be improved serves as a security while loans under the Act of 1884, can be secured by any transferable interests in immovable property. Movable property is rarely accepted as security. Personal security is accepted (even that of one person) provided that his solvency is certain. For large loans, immovable property is invariably taken as security.

In East Pakistan, government loans are issued to groups of co-villagers varying from 8 to 20 on a joint bond system according to which the borrowers are jointly and severally liable for repayment. The total amount granted to each group ordinarily does not exceed Rs. 350.

Interest is charged on all loans at the prescribed rate. At present, the government charges 6-1/2 per cent per annum on loans for relief and distress in East Pakistan[14]. Loans in West Pakistan were charged at a rate of 4¼ per cent per annum which was raised to 4-1/2 per cent in April 1956 and to 5-1/2 per cent after the raising of the bank rate in January 1959[15].

The Cooperatives

With the passing of the Cooperative Societies Act in 1904, Primary Credit Societies were organized. This Act was amended in 1912 as a result of which central societies came into existence. The structure of the cooperative system is made up of Provincial Cooperative Banks at the highest level, Central Cooperative Banks below them and the Primary Cooperative Credit Societies affiliated with the central banks. The main purpose of the

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[13]. Improvement means any work which adds to the rental value of the land. It includes *i*) construction of wells, tanks and other works for the storage, supply or distribution of water, *ii*) drainage, reclamation and protection from flood or erosion or other damage, *iii*) preparation of land for irrigation, *iv*) reclamation, clearance, enclosure or permanent improvement of land, and *v*) any other work declared by the provincial government as constituting an improvement.

[14]. *Second Five Year Plan, op.cit.*, p. 181.

[15]. *Credit Enquiry Commission Report, op. cit.*, p. 14-15.

all the assets and liabilities of the two predecessor agencies as of that date. In 1960/61, it had twenty one branches, five subbranches, and eleven pay-offices in West Pakistan and sixteen branches, sixteen subbranches and nine pay-offices in East Pakistan. The authorized capital is Rs. 200 million of which 102.5 million has been issued and Rs. 95 million has been paid up.

ADBP requires pledge, mortgage, hypothetication or assignment of movable or immovable property of the borrower or his surety against its loans. The bank also accepts pledge or assignment of gold, government securities and life insurance policies as security[20]. Interest is charged at the fixed rate of 6 per cent.

2. AMOUNT OF CREDIT EXTENDED TO AGRICULTURE FROM INSTITUTIONAL SOURCES

During the period 1947/48 to 1959/60 the agricultural sector has received an average annual amount of 230 million rupees against an estimated minimum requirement of 1,682 million rupees. Since a substantial portion of credit provided by the cooperative banks has gone to marketing intermediaries, the 230-million figure overstates the amount actually received by agriculturists. Excluding the cooperative banks, the average annual credit flow has been 45 million rupees, approximately three per cent of estimated minimum credit requirements. Data on the average amount of credit provided by various agencies is shown in Table III:

TABLE III

ANNUAL CREDIT FLOW TO AGRICULTURE

(1947/48 to 1959/60 Average)

Agency	Credit provided (000 Rs.)	% of total
Government	12,809	5.6
Primary Cooperative Societies	22,123	9.6
Cooperative banks[a]	184,663	80.4
ADBP	9,960	4.3
All agencies	229,555	100.0
All agencies excluding cooperative banks	44,892	19.6

(a). Credit extended by cooperative banks refers to loans granted to individuals only and excludes loans by banks to primary societies.

[20]. The amount of an individual loan shall not exceed: *i)* 80% of the market value or face value (whichever is lower) of the government securities; *ii)* 75% of the appraised value of tea crops; *iii)* 75% of the surrender value of life insurance policies; *iv)* 70% of the value of gold determined at Rs. 100 per tola for gold of maximum fitness; and *v)* 50% of the appraised value of the security in other cases and in certain cases where land is offered as security upto 60%.

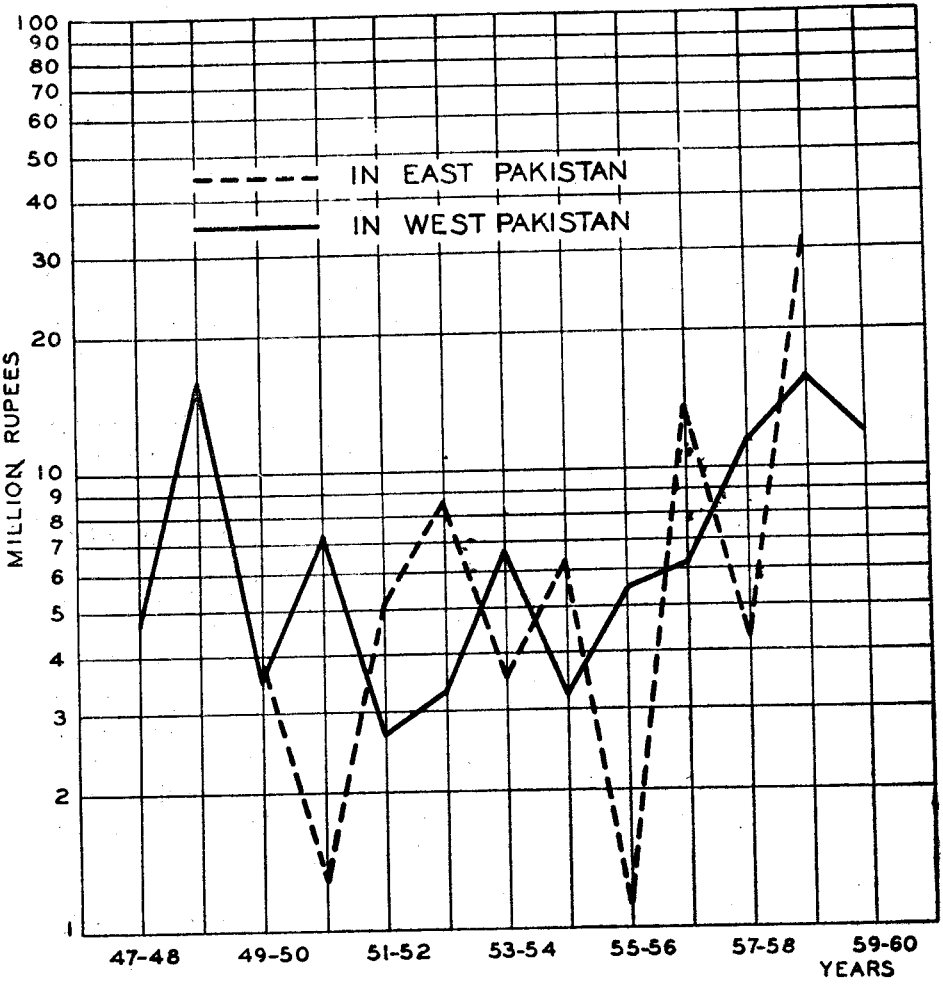

FIGURE I

LOANS PROVIDED BY THE GOVERNMENT

Regional Differences in Credit Flow

During the period 1947/48 to 1959/60, West Pakistan's agricultural sector had received an average annual amount of 216,299 thousand rupees whereas East Pakistan's agricultural sector had received only 13,256 thousand rupees over the same period. This difference in the flow of credit in the two wings of Pakistan is largely explained by the successful growth of cooperatives in West Pakistan and its rapid decline in East Pakistan. The major portion of the credit in West Pakistan has been provided by cooperatives.

The annual flow of credit from all agencies is shown in Table IV. The share of cooperative credit in the total credit of West Pakistan during 1947/48 to 1959/60 is 9.31 per cent while the share of cooperative credit in the total credit in East Pakistan is only 41.3 per cent. The government, on the other hand, has provided only 3.5 per cent of the total credit in West Pakistan whereas it has provided 39.8 per cent of the total credit in East Pakistan. The credit shares of the Agricultural Development Bank in the total credit of East and West Pakistan are 18.9 and 3.4 per cent respectively.

There is also a wide annual fluctuation in the annual credit flow into agriculture as shown in Table V and Figures 1 to 4. Government credit has shown the greatest year-to-year fluctuations, between 2.5 million to 16.0 million in West Pakistan and between 1.0 million to 14.0 million in East Pakistan[21]. The credit provided by the Primary Cooperative Credit Societies has been steadily rising in West Pakistan and constantly declining in East Pakistan. Starting with a very low base, the statutory bodies (*i.e.*, ADFC and Agricultural Bank and now the Agricultural Development Bank) have provided a rapidly rising amount of credit to the agriculturists in both wings. There has been very little year-to-year fluctuation in the lending operations of the Agricultural Development Bank.

Although the total amount of credit received by farmers in West Pakistan is still far short of requirements, it is significant that credit provided by the Primary Cooperative Credit Societies has been steadily rising. One reason behind this growth appears to be the presence of landlords who provide the major part of the funds to these societies. It appears that in West Pakistan the migration of non-Muslims did not affect the cooperative movement as severely as it did in East Pakistan because there was a sufficient number of wealthy Muslim landlords to take the place of the non-Muslim financiers.

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[21] These fluctuations are explained in detail in the following section of this article where they are related to variations in crop production.

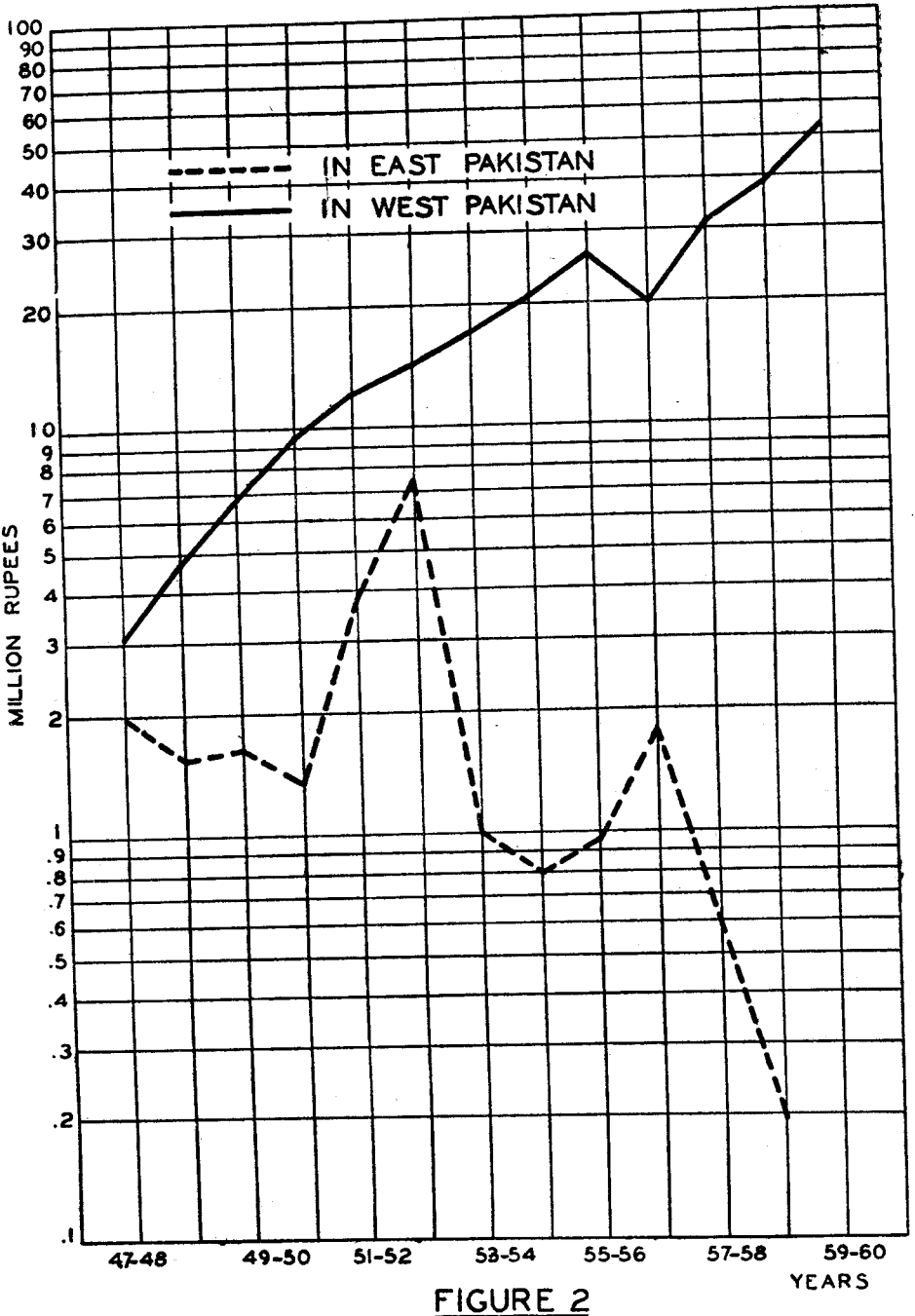

FIGURE 2

LOANS PROVIDED BY COOPERATIVE SOCIETIES

TABLE IV

AVERAGE ANNUAL CREDIT FLOW TO AGRICULTURE IN EAST PAKISTAN (From 1947/48 to 1957/58) AND WEST PAKISTAN (From 1947/48 to 1959/60)

Credit agencies	East Pakistan			West Pakistan		
	Amount (000 rupees)	Percentage of		Amount (000 Rs.)	Percentage of	
		Total credit	Total credit excl. cooperative banks		Total credit	Total credit excl. cooperative banks
Government	5,270	39.8	52.0	7,539	3.5	21.7
1883 Act/Cattle Purchase Loans[a]	1,427	10.8	14.1	2,422	1.1	7.0
1884 Act	3,843	29.0	37.9	5,177	2.4	14.7
Cooperatives	5,476	41.3	—	2,01,310	93.1	—
Cooperative Societies	2,350	17.7	23.2	19,773	9.2	56.9
i) Ltd. Primary Coop. Society [b]/Multi-purpose Societies	661	12.7	6.5	9,021	4.2	26.0
ii) Un-Ltd. Primary Coop. Societies	1,689	5.0	16.7	10,751	5.0	30.9
Central Cooperative Banks	181	1.4	—	155,546	71.9	—
Provincial Cooperative Banks	2,945	22.2	—	25,991	12.0	—
Agricultural Development Bank	2,510	18.9	24.8	7,950	3.4	21.4
Total all agencies	13,256	100.0		2,16,299	100.0	
Total all agencies except cooperative banks	10,130		100.0	34,762		100.0

(*a*). Loans under the Act of 1883 are granted only in West Pakistan: and Cattle Purchase Loans refer to loans granted only in East Pakistan.

(*b*). There are no Ltd. Primary Cooperative Societies in East Pakistan and similarly there are no Multipurpose Societies in West Pakistan.

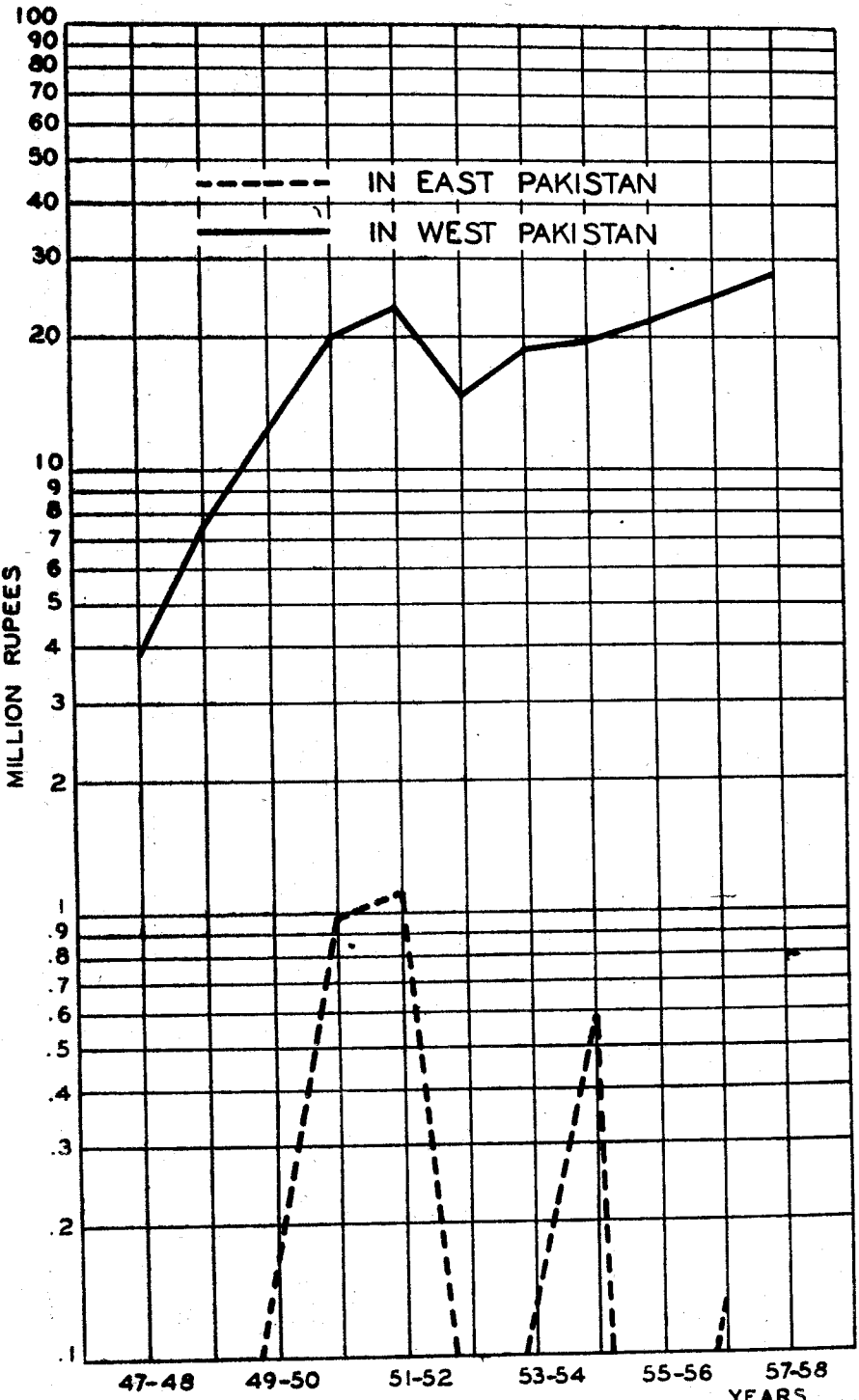

FIGURE 3

LOANS PROVIDED BY THE COOPERATIVE BANKS
(TO INDIVIDUALS ONLY)

TABLE V

CREDIT FLOW IN AGRICULTURE SINCE 1947/48

(in thousand rupees)

Year	East Pakistan							West Pakistan						
	Govern-ment	Primary societies	Mutli-purpose societies	Central Coope-rative Banks	Provin-cial Co-operative Banks	Agricul-tural Bank	Total	Govern-ment	Limited socie-ties	Un-Ltd. socie-ties	Central Coope-rative Banks	Provin-cial Coope-rative Banks	Agricul-tural Bank	Total
1947/48	—	1,973	—	—	—	—	1,973	4,707	442	2,652	29,601	8,759	—	46,161
1948/49	—	1,545	—		55	—	1,600	15,739	1,190	3,467	64,948	9,822	—	95,166
1949/50	3,843	937	731	195	1,346	—	7,052	3,508	2,383	4,366	1,06,914	13,318	—	1,30,489
1950/51	1,281	329	1,019	685	8,942	—	12,256	7,229	44,157	5,465	1,76,683	21,727	—	2,15,261
1951/52	5,168	831	3,013	247	10,766	—	20,025	2,656	5,443	6,602	1,77,623	52,282	—	2,44,606
1952/53	8,536	726	6,631	404	—	—	16,297	3,306	6,182	7,828	1,28,089	19,148	—	1,64,553
1953/54	3,508	231	792	7	1,261	673	6,472	6,770	8,332	8,620	1,46,338	40,126	2,107	2,12,293
1954/55	6,257	163	632	10	5,799	688	13,549	3,200	10,793	9,803	1,55,216	39,721	1,558	2,20,291
1955/56	1,124	175	777	3	—	817	2,896	5,493	13,343	12,956	1,87,024	31,704	1,333	2,51,653
1956/57	13,416	216	1,563	46	1,283	2,388	18,911	6,108	4,617	16,700	2,23,278	25,092	3,005	2,77,800
1957/58	4,296	149	44	28	*N.A.*	7,985	12,502	11,473	14,182	17,387	2,42,037	34,898	6,491	3,26,468
1958/59	31,000	*N.A.*	*N.A.*	*N.A.*	*N.A.*	11,276	*N.A.*	15,908	18,092	19,986	2,16,451	24,820	11,110	3,09,367
1959-60	*N.A.*	*N.A.*	*N.A.*	*N.A.*	*N.A.*	24,749	*N.A.*	11,914	28,111	24,943	1,64,898	16,468	34,193	2,80,527
1960-61	*N.A.*	*N.A.*	*N.A.*	*N.A.*	*N.A.*	41,078	*N.A.*	*N.A.*	*N.A.*	*N.A.*	*N.A.*	*N.A.*	36,500	*N.A.*

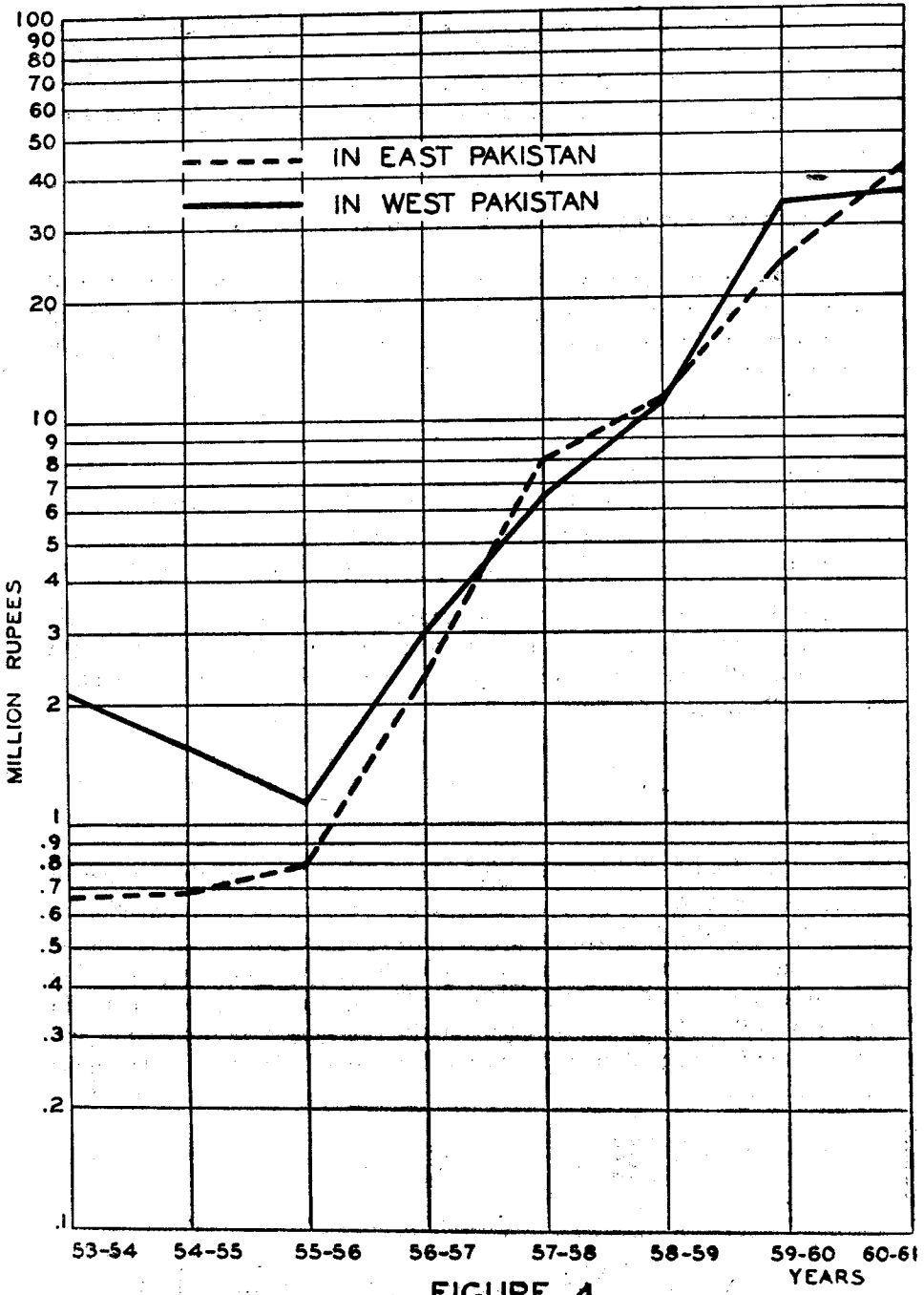

FIGURE 4

LOANS PROVIDED BY AGRICULTURAL DEVELOPMENT BANK

In East Pakistan, in the absence of a big landlord class, prior to Partition, the migration of wealthy non-Muslims appears to be mainly responsible for the failure of the cooperatives. It is an encouraging development, therefore, to see the relatively rapid expansion of government credit in the East Wing.

FACTORS AFFECTING VARIATIONS IN AGRICULTURAL CREDIT

In this section, we will examine *1*) the factors determining annual variation in government loans, *2*) factors affecting regional differences in the quantity and type of loan received, and *3*) the purpose for which credit has been given.

1. ANNUAL VARIATION IN GOVERNMENT LOANS

We have shown previously that the amount of government loans has been fluctuating considerably from year to year. This fluctuation can be explained largely by the variation in crop production. A good crop reduces, and a bad crop raises, the borrowings from, government in the following year.

Let L denote the amount of government loans extended and C the physical quantity of production of major food and cash crops. Then the average variation of loans as a result of bad and good crops can be measured by the following expression:

$$V = \frac{\Delta \bar{L}}{\Delta \bar{C}}$$

Where V is the average variation, $\Delta \bar{L}$ the average change in the amount of loans taken and $\Delta \bar{C}$ is the average percentage change in the production of crops[22]. We shall add subscript 'g' (for good crop years) if we are measuring the change in the amount of loan due to positive changes in crop production and 'b' (for bad crop years) for negative changes in crop production. In addition to the relationship between variation in total crop production and variation in the amount of credit extended, it may be of interest to determine

22. $\Delta \bar{L} = \frac{1}{n} \sum_{i=1}^{n} \Delta L$ where $\Delta L = L_{(t)} - L_{(t-1)}$

and $\Delta \bar{C} = \frac{1}{n} \sum_{i=1}^{n} C$ where $\Delta C = \left[\frac{C(t-1)}{C(t-2)} - 1 \right]$ 10)

this relationship also for food (F) and cash crops (N) separately. These relationships are shown in Table VI :

TABLE VI

AVERAGE VARIATION OF GOVERNMENT LOANS RELATED TO VARIATION IN CROP PRODUCTION[a]

(in thousand rupees)

Regions	East Pakistan			West Pakistan		
	Food	Cash	All	Food	Cash	All
Variation in government loans related to crops	$\frac{\Delta\bar{L}}{\Delta\bar{F}}$	$\frac{\Delta\bar{L}}{\Delta\bar{N}}$	$\frac{\Delta\bar{L}}{\Delta\bar{C}}$	$\frac{\Delta\bar{L}}{\Delta\bar{F}}$	$\frac{\Delta\bar{L}}{\Delta\bar{N}}$	$\frac{\Delta\bar{L}}{\Delta\bar{C}}$
V_b	994	498	1,339	229	46	43
V_g	—258	374	—241	—291	—12	—16

(*a*). Crop-production data has been obtained from C.S.O. *Statistical Bulletin*, April 1962.

On the average, for every one-per-cent increase in the production of food crops in East Pakistan, government loans go down by 258 thousand rupees in the following year. Every one-per-cent decline in the production of food crops is followed by an increase of 994 thousand rupees in the following year. The remaining figures in Table VI can be interpreted by the reader in the same way. It appears that in East Pakistan good cash crops have not decreased government loans to the same extent apparently because a number of good cash-crop years have been accompanied by below-average food production.

Variation in crop production apparently has a significant effect on variations in the volume of government loans. It also appears that the average variation in government loans is much more in East Pakistan than in West Pakistan which is explained by the fact that the average variability in crop production is much higher than in the West Wing.

The extent to which increase in loans due to bad crops is more or less than the decrease in loans due to good crops, given equal percentage rate of decrease and increase in crop production, can be measured by the ratios between the average percentage variation in good years and the average percentage variation in bad years. Denoting this ratio by r, we can measure it by the following equations:

1) $r(F) = \frac{\Delta \bar{L}_b}{\Delta \bar{L}_g} \times \frac{\Delta \bar{F}_g}{\Delta \bar{F}_b}$ (for major food crops[23])

2) $r(N) = \frac{\Delta \bar{L}_b}{\Delta \bar{L}_g} \times \frac{\Delta \bar{N}_g}{\Delta \bar{N}_b}$ (for major cash crops)

3) $r(C) = \frac{\Delta \bar{L}_b}{\Delta \bar{L}_g} \times \frac{\Delta \bar{C}_g}{\Delta \bar{C}_b}$ (for all major crops)

The value of r, in case of East Pakistan, is 3.78 for food crops, 1.35 for cash crops and 5.51 for all crops[24]. In case of West Pakistan, it is 1.43 for food crops, 3.84 for cash crops and 2.73 for all crops. The following conclusions can be drawn from this analysis:

1) Food crop growers or subsistence farmers are the most important group of borrowers of government loans.

2) The influence of bad crops on raising the amount of government loans is much higher than the influence of good crops in lowering it. This suggests that there may be an increasing number of farmers who need government loans irrespective of bad or good crops while there are others who need government loans only when there is a bad crop particularly when there is a bad food crop.

3) *Taccavi* loans are mainly taken for the consumption needs of the farmers.

Areas Receiving Credit

The availability of credit depends to a large extent on the nature of the area where credit is needed. In areas where incomes and repayment capacity are better credit appears to be more easily available. The income, and thus

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[23]. The value of r can be less than, equal to or more than, one; and its implications are:

1) $r(F) < 1$ means that increase in loans due to bad food crops is less than the decrease in loans due to good food crops, given equal percentage rate of decrease and increase in food-crop production.

2) $r(F) > 1$ means just the reverse of (1).

3) $r(F) = 1$ means that increase and decrease in loans are equal, given the equal rate of decrease and increase in food-crop production. Similar is the case with r(C) in respect of production of all crops and r(N) in respect of production of cash crop

[24]. The value of r(N) for East Pakistan (which is 1.35) suggests that increase in *taccavi* loans due to bad cash crops is more than *increase* (not decrease) in *taccavi* loans due to good cash crops.

the repaying capacity of an agricultural region, is determined partly by the size of the holdings in that area partly by the value of production per acre.

Seven regions for which data relating to the Agricultural Development Bank are available have been analysed to determine the relationship between the average size of loans granted by the bank, the average size of cultivator's holdings and the percentage share of acreage under cash crops in the total acreage of that region. The relevant data are shown in the Table VII:

TABLE VII

Average Size of Loans Related to Average Size of Cultivators' Holdings and Percentage Share of Acreage under Cash Crops

Regions	Average size of loans (Y)	Average size of cultivators' holdings (X_1)[a]	Percentage share of acreage under cash crops in total acreage (X_2)
Dacca	352	2.9	9.02
Rajshahi	324	5.1	7.71
Khulna	426	3.8	5.29
Rawalpindi	599	5.4	16.98
Lahore	1,197	6.2	25.98
Multan	2,413	10.8	38.83
Sukkur	2,073	8.8	39.20

(*a*). Government of Pakistan, *Census of Agriculture*, West Pakistan, 1961, and *Census of Agriculture*, East Pakistan, 1961.

The average size of loan appears to be highly correlated with the average size of cultivators' holdings as well as the percentage share of acreage under cash crops in the total cultivated area.

Two simple linear equations were computed, one relating the average size of loans to the average size of cultivators' holdings and the other relating the average size of loan to the percentage share of acreage under cash crops in the total cultivated area. The equations obtained are of the following form:

1) $Y = -784.37 + 299.41 X_1$

2) $Y = -138.66 + 58.42 X_2$

The results have been plotted in Figures 5 and 6. The coefficient of correlation for Equation (1) is .96 and for Equation (2) it is .97. Apparently because they have a much higher repayment capacity, big landholders and cash-crop growers have received most of the bank's loans.

The concentration of credit in the relatively wealthy cash-crop producing areas is brought out further by the data in Table VIII. Taking the total number of loan applications approved as 100, it appears that three districts, namely Lahore, Multan and Sukkur, had only 13 per cent of all loan applications but they accounted for 43 per cent of the total amount of loans sanctioned whereas in the three East Pakistan regions 83 per cent of all approved loan applicants received only53 per cent of the total amount of loans granted. A similar picture emerges within regions: Dacca, the principal cash-crop producing region of East Pakistan appears to have received a greater share of total credit extended in that province whereas the poorest region of West Pakistan, Rawalpindi, has received much less credit than the remaining areas of that province.

On the basis of the data provided by the 1960 Agricultural Census and on the basis of certain assumptions about the average size of cooperative and government loans for which no detailed information on size of individual loans was available, an attempt has been made to estimate the average number of farmers (annually) who are likely to have received loans from any of the credit agencies. For West Pakistan the number of 'farmers' as used here includes only landlords and peasant proprietors and owner-tenants but excludes tenants on the assumption that loans received on farms operated by tenants the landlord usually receives and repays the loan. Moreover, on larger landholdings operated by several tenants one loan received by a landlord may affect several tenant holdings. Excluding tenants from the agriculturists results in a more liberal estimate of the percentage of agriculturists who are likely to have been affected by credit from institutional sources. As shown in Table IX even under these liberal assumptions only 8.5 per cent of all farmers in Pakistan have received credit from *any* institutional source whereas the ADBP loans have reached only about 1—2 per cent of the total farm population.

Purpose for which Credit has been Given

One aspect of this study has been the analysis of various purposes for which credit has been extended to buy current inputs, such as fertilizer, to make investments in land improvements or to buy capital items. The

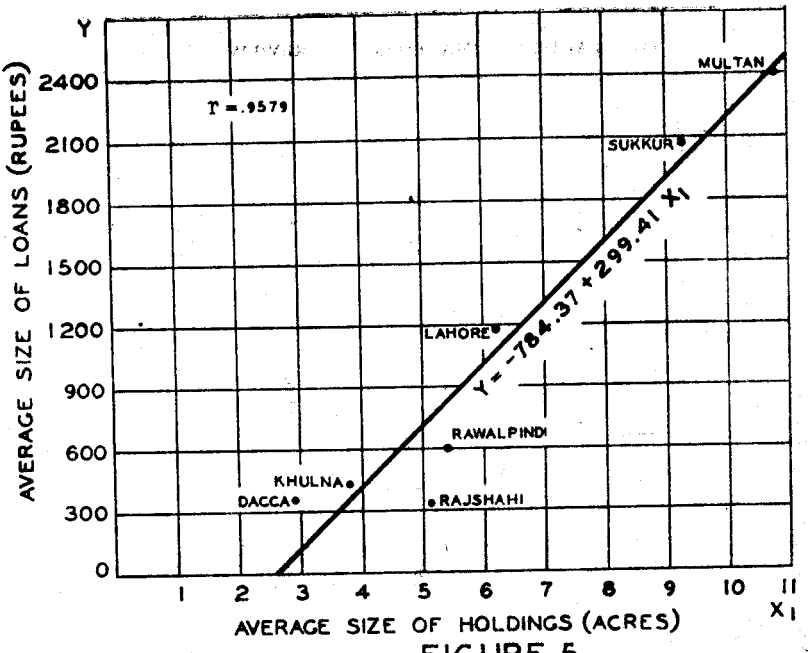

FIGURE 5

AVERAGE SIZE OF LOANS GRANTED BY ADBP (Y) RELATED TO AVERAGE SIZE OF HOLDINGS (X_1)

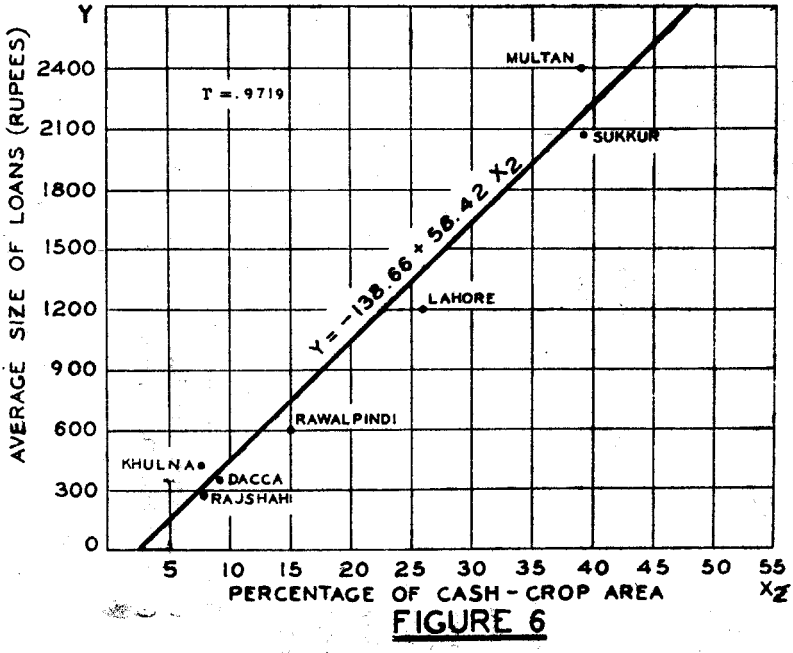

FIGURE 6

AVERAGE SIZE OF LOANS GRANTED BY ADBP (Y) RELATED TO PERCENTAGE SHARE OF ACREAGE UNDER CASH CROPS IN THE TOTAL CULTIVATED AREA (X_2)

TABLE VIII

ACREAGE UNDER CASH CROPS AND LOAN SANCTIONED BY ADBP

Regions	Acreage under cash crops in 1957/58[a]								Loans sanctioned in 1960/61[b].			
	Jute/Cotton		Tea/Tobacco		Sugarcane		Total		No. of applications approved		Amount sanctioned	
	Acres (000)	%	Acres (000)	%	Acres (000)	%	Acres (000)	%	No.	%	Rs. (000)	%
Dacca	798	19	76	52	63	6	937	17	61,342	44	21,590	28
Rajshahi	323	8	—	—	109	10	432	8	33,236	24	10,778	14
Khulna	239	6	—	—	75	7	314	6	20,425	15	8,710	11
Lahore	467	11	21	14	352	23	840	15	6,872	5	8,228	11
Rawalpindi	7	0	32	22	157	14	196	4	5,111	4	3,060	4
Multan	1,577	38	13	19	306	28	1,896	35	6,986	5	16,867	21
Sukkur	757	18	4	3	30	3	791	15	4,030	3	8,355	11
Total	4,168	100	146	100	1,092	100	5,406	100	1,38,002	100	77,578	100

N.B. Jute and tea relate to East Pakistan while cotton and tobacco relate to West Pakistan.

(*a*). Government of Pakistan, ***Land and Crop Statistics of Pakistan***, Fact Series III, (Karachi: March 1959), pp. 65-69, 72-76.

(*b*). Agricultural Development Bank of Pakistan, Karachi.

TABLE IX

AVERAGE NUMBER OF LANDOWNERS RECEIVING CREDIT FROM INSTITUTIONAL SOURCES ANNUALLY

(1947/48 to 1959/60 Average)

Areas	Total number of peasant proprietors and landlords [a]	Government loans		Cooperative loans		Agri. Dev. Bank loans		All agencies	
		Number[b]	%	Number[b]	%	Number	%	Number[c]	%
East Pakistan	61,70,610	2,10,800	3.42	94,000	1.52	1,15,003	1.86	4,19,803	6.80
West Pakistan	22,37,678	75,390	3.37	1,97,730	8.84	22,999	1.03	2,96,119	13.20
All Pakistan	84,08,288	2,86,190	3.40	2,91,730	3.47	1,38,002	1.64	7,15,922	8.51

(*a*). *Agricultural Census*, East and West Pakistan, *op. cit.*, p. 9 and 13 respectively.

(*b*). The number of cultivators receiving loans from government and cooperative societies in East and West Pakistan has been estimated on the assumption that the average size of government and cooperative loans in East and West Pakistan is Rs. 25 and Rs. 100 respectively.

(*c*). There may be overlapping in this respect as one cultivator may receive loans from all of these three agencies. But the possibility of expanding loans to a person who is already indebted to others is very small and therefore the overlapping may not be very significant.

former would contribute mostly to raise output along an existing production function whereas the latter would produce in the long run an upward shift in the production function, thereby raising the marginal productivity of labour and other inputs.

Table X shows the purposes (or type of inputs) for which the special agencies have provided credit to the agriculturists in Pakistan.

TABLE X

LOAN SANCTIONED BY SPECIAL AGENCIES FOR VARIOUS PURPOSES

Purposes	ADFC(1953-59)		ABP(1957-59)		ADBP(1960/61)		Total	
	Amount (000 Rs)	Per cent	Amount (000 Rs)	Per cent	Amount (000 Rs)	Per cent	Amount (000 Rs)	Per cent
Livestock (bullocks)	17,665	38	9,837	40	27,589	41	55,091	40
Levelling of land	3,537	8	—	—	30,028	5	6,565	5
Exacavation & embankments	2,838	6	—	—	1,344	2	4,182	3
Tractors, implements & equipments	8,649	19	480	2	5,172	8	14,201	10
Tubewells & other wells	9,566	21	3,307	13	10,904	16	23,777	17
Power pumps & engines	1,486	3	—	—	595	1	2,081	2
Seeds	1,627	3	—	—	5,088	8	6,715	5
Fertilizers	782	3	—	—	1,922	3	2,704	2
Labour charges	427	1	—	—	11,436	17	11,863	9

It appears that a major part of the loans, granted by the statutory agencies has gone to finance the purchase of bullocks. Capital items have claimed up to 77 per cent of the loans given by these agencies. Whereas the share of loans extended for fertilizers and seeds seems to be relatively insignificant. This suggests one of two things: *i*) statutory lending agencies are convinced that the marginal productivity of current inputs in agriculture is lower than that of capital inputs ; or *ii*) what is more likely, they follow the traditional pattern of all lending agencies in Pakistan which is to lend on the basis of tangible assets rather than on the basis of prospective increases in output. It is well known that the farmers in Pakistan lack good fertilizer as well as good seeds although their awareness of availability and profitability of these inputs may be limited. To raise the existing productivity in agriculture, good seeds and scientific manures are essential. It may be advisable, therefore, on the part of the ADB to infuse the knowledge and advantages of good seeds and fertilizer into the farming population by granting loans of fertilizer and seeds in kind rather than to extend cash loans.

Data regarding regional differences in the purpose for which loans have been extended are shown in Table XI. The data cover only the loan opera-

tions of the Agricultural Bank and its successor the Agricultural Development Bank of Pakistan.

TABLE XI

LOANS SANCTIONED BY ABP AND ADBP FOR VARIOUS PURPOSES

Purposes	ADBP				ADP[a]			
	E.P.		W.P.		E.P.		W.P.	
	Amount (000 Rs.)	Per cent	Amount (000 Rs.)	Per cent	Amount (000 Rs.)	Per cent	Amount (000 Rs.)	Per cent
Livestock (bullocks)	18,955	52	8,633	28	6,472	38	3,865	49
Levelling of land	946	3	2,082	7	—	—	—	—
Exacavation & embankments	1,233	3	111	0	—	—	—	—
Tractors, implements and equipments	214	1	4,958	16	31	0	450	7
Tubewells and other wells	—	—	10,904	35	1,165	10	1,227	18
Power pumps and engines	49	0	546	2	—	—	—	—
Total fixed inputs	21,397	59	27,234	88	7,668	46	5,042	73
Seeds	3,703	10	1,385	5	—	—	—	—
Fertilizers	851	2	1,071	4	—	—	—	—
Labour charges	10,299	28	1,137	4	—	—	—	—
Total current inputs	14,853	41	3,593	12	9,178	54	1,895	27
Total	36,250	100	30,827	100	16,846	100	6,937	100

(*a*). Total current inputs are not classified into seeds, fertilizers and labour charges Only the total figure was made available.

These data suggest that loans for fixed inputs are proportionately much greater in West Pakistan than in East Pakistan. For example, the ADBP has granted 88 per cent of the loans for fixed inputs in West Pakistan in comparison with only 59 per cent in East Pakistan. Loans for capital items such as tractors have been insignificant in East Pakistan but of much greater importance in the West Wing where the scope for mechanized farming is certainly much greater.

CONCLUSION

The analysis of institutional agricultural credit presented in this paper suggests that even under the most optimistic assumption about input-output

coefficients, the credit presently supplied to agriculture from institutional sources falls far short of credit requirements. The implications of this conclusion for the development of agriculture in Pakistan are obvious: unless private capital investments can be increased substantially, the probability of achieving the targets of the Second and subsequent five-year plans in the agricultural sector remains small. The method of estimating credit requirements for agriculture as used in this paper is new in the sense that an attempt has been made to base it on the best available estimates of production function parameters. Although this method is more sound conceptually than the informed guess used by the Credit Enquiry Commission, it still is deficient in a number of ways: *i*) The production function parameters used are averages for the entire country. Regional deviations from this average are likely to be large in the sense that in certain areas of Pakistan the marginal productivity of capital is much higher than in others. If the major share of the planned increase in agricultural output is expected to come from these areas then it may be for this reason that the total credit requirements are lower than estimated in this paper. *ii*) Our estimation procedure ignores direct and indirect government investment in agriculture which has the effect of either raising the existing production function or, if it results in opening new land areas, contributes to absorb the annual increase in the rural labour force. Failure to incorporate this factor again leads to an upward bias of the estimated credit requirement.

In addition to pointing out the vast discrepancy between credit needs and credit requirements, the analysis has shown that Partition and the consequent departure of non-Muslim financier class had a profound effect on the then existing credit institutions. Particularly, East Pakistan experienced a rapid decline, and we may say almost a complete collapse, of the cooperative credit structure. The Agricultural Development Bank has attempted to fill this vacuum although to date it has not been able to do this completely. In West Pakistan, based on a much larger class of wealthy Muslim landlords, the cooperative credit movement did not decline in importance as it did in East Pakistan.

Analysis of the lending pattern of existing credit institutions suggests that at the present time their activities have been concentrated largely in the relatively wealthy cash-crop producing areas and within these areas mostly among the biggest landlords. The acquisition of bullocks and other capital items has been the major purpose for which the loans were used. Less than 10 per cent of the funds extended appear to have been used for current inputs such as fertilizer and improved seeds where the prospective increase in output is the only security to the lending agencies. Although this result is not surprising in view of the banking traditions prevailing in most under-

developed countries[25], it is nevertheless important to point out that real development in the agricultural sector as envisaged in the country's development plans requires that scarce resources be used where their potential contribution to output is greatest. In order to achieve this goal, substantial changes in the lending philosophy of credit institutions will be required. The creditworthiness of a potential borrower will have to be determined not only on the basis of the tangible assets which the bank can claim in case of default but rather on the basis of the potential repayment capacity out of increased production. In this connection one may cite in conclusion the practice of the Farm Home Administration, a government agency lending to small farmers in the United States. This agency requires every loan application to be accompanied by a detailed plan of operation for the farm, showing land use, crop rotation as well as a summary of expected costs and returns covering the entire loan period. On the basis of such a feasibility plan, it is possible for a lending agency to make an appraisal of the repayment capacity out of the revenue surplus and consequently determine the size of the loan as well as its duration. If a similar scheme were started in Pakistan by the Agricultural Development Bank, it would be possible to gain a better understanding of potential repayment capacity out of current production. At the same time, it would yield criteria for the minimum farm size necessary to qualify for credit in different areas. For production units falling below that size, it will be necessary for the government to develop schemes whereby consolidation of several of these subsistence units will raise their production potential to the point where they become creditworthy.

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[25]. For, a vivid description of lending practices in another underdeveloped country —Iran, *see* R.E. Benedick, "The Money Market in Iran", *The Pakistan Development Review*, Volume II, No. 3, Autumn 1962, pp. 406-421.