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Eliminating Dependence on Foreign Aid— Some Policy Implications

A.R. KEMAL*

The domestic resources of the developing countries are usually too limited even to permit a steady maintenance of their per capita income. In their attempt to improve the level of their per capita income, such countries resort to the strategy of increasing their growth rate by relying on foreign resources. In an economy, where population is growing at the rate of 3 percent per annum, and saving capacity is less than 10 percent of the G.N.P., the chances of increasing the per capita income are very low. Capital inflow allows an economy to grow at a higher rate. It is expected that an increasing proportion of increased income will be saved so that the economy would be self-reliant after some years. However, most of the aid to the developing countries is in the form of loans, often on very unfavourable terms, with the result that the debt servicing problem becomes quite serious. The huge burden of debt servicing makes it rather difficult for the developing countries to attain self-reliance. Since a continuous aid inflow means a surrender of national sovereignty to some extent, almost all the developing countries want to eliminate their dependence on aid as soon as possible. To achieve this objective, many developing countries set a time period after which the capital inflow would hopefully be zero. If a time limit is to be set, then we must know the policies that a government will have to follow in order to eliminate aid flows. In particular, we need to know the maximum allowance for consumption out of the increase in national income. Similarly, if there is a limit to the marginal propensity to save, we must determine the period over which a country can realistically hope to do away with the aid.

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Pakistan's Perspective Plan [see 7], issued in 1965, estimated that the aid requirements by 1985 would be zero. The Plan had assumed a target growth rate of 7.2 percent, a capital-output ratio equalling 3, and a marginal saving rate of 18.4 percent in 1965 rising to 22.9 percent in 1985. Chenery and MacEwan [1], on the basis of an optimising model, came to the conclusion that Pakistan's net aid requirement would be zero by 1983. The aid requirements of Pakistan over time showed the same trend in Chenery's model as given in the Perspective Plan, i.e. they rose, reached a peak and then tapered off. Rehman[9] criticised both the studies mentioned above on the ground that they ignored the inflow of capital for financing debt servicing. Ignoring the aid required for the amortization of the debt results in a very large error because accumulated debt becomes so large that huge amount of capital inflow is needed to finance the debt servicing. For its second Conference, UNCTAD[10] prepared aid projections on the basis of a lower growth rate, viz. 5 to 5.7 percent, and thus their saving-investment gap turned out to be small. Naqvi [4] estimated both net and gross aid requirements of Pakistan. Assuming a 7.2 percent compound growth rate, a 25 percent marginal saving rate and a 2.9 capital-output ratio, he shows that the economy would still need huge amount of aid by 1985, although the net aid inflow would be very low in 1985. All these projections, except those of the UNCTAD, were made on the basis of high growth rates of the G.N.P. in the earlier years, implying a huge capital inflow. However, the experience has shown that over the period 1965-75, the growth was relatively sluggish, i.e. 5.3 percent compared with the planned 7.2 percent. Thus the aid requirements projected in these earlier studies are not very useful any more. Similarly, the fixation of 1985 as the terminal year when aid requirement would cease does not appear realistic. More significantly, the aid projections made in the Sixties were for all Pakistan which then consisted of both East and West Pakistan. There is a need for new aid projections based on data relating to the former West Pakistan only and for taking a specific account of the problem of debt servicing. In the solution to the model developed in this study, a grace period of 10 years, an interest rate of 3 percent and an amortization period of 33 years are assumed. These assumptions are in line with the situation applicable to foreign loans received by Pakistan in the past few years.

The plan of the paper is as follows. In the First Section, a model is presented which is later used for aid projections. Results are presented in the Second Section and Conclusions are presented in the Third Section. Detailed projections are given in the Appendix.

I. Model

It is assumed that the country has a net capital inflow initially, i.e. the absorption is higher than the available domestic resources. The following accounting relation is set up:

$$C_t + I_t + G_t + X_t = Y_t + M_t - DS_t \quad \dots I$$

where

C_t = Consumption expenditure in the year t ,

I_t = Investment in the year t ,

G_t = Government expenditure in the year t ,

X_t = Exports in the year t ,

Y_t = Gross national product in the year t ,

M_t = Imports in the year t , and

DS_t = Debt servicing in the year t .

The left-hand side of equation I is the total absorption of the economy and the right-hand side represents the available resources in the year t . Equation I may be rewritten as

$$I_t + (C_t + G_t + DS_t - Y_t) - I_t - S_t = M_t - X_t - A_t \quad \dots II$$

where

A_t = Gross inflow of capital in the year t , and

S_t = Savings in the year t .

Ex post $I_t - S_t = M_t - X_t$, but *ex ante* they need not be equal. In the literature on two gap models, $(M_t - X_t)$, trade gap is normally said to be the dominant gap. No attempt is made for the projections of trade gap in this study. The aid requirements projected on the basis of $I_t - S_t$ may be taken as the lower bound of aid requirements.

The growth rate of the G.D.P., i.e. g , is assumed constant, and is exogenously given. This growth rate could be fixed either on the basis of observed growth rates in the past few years, or by a planning agency.

$$Y_t = Y_0 e^{gt} \quad \dots III$$

The constant marginal propensity to consume (MPC), a , is assumed. Therefore, consumption function is as given in (IV)

$$C_t = C_0 + a(Y_d - Y_0) \quad \dots IV$$

where

Y_d = disposable income in the year t , and is defined as in (V)

$$Y_d = Y_t - T_t \quad \dots V$$

where

T_t = Taxes in the year t .

Tax function is postulated as given in (VI):

$$T_t = T_0 + i(Y_t - Y_0) \quad \dots VI$$

where i is the ratio of the change in tax revenue to change in income.

Substituting VI in V, and V and III in IV, we get

$$C_t = C_0 + a(1 - i)(e^{gt} - 1)Y_0 \quad \dots VII$$

Government expenditures are assumed to increase by b units with a unit increase in the income, i.e.

$$G_t = G_0 + b(Y_t - Y_0) \quad \dots \quad \text{VIII}$$

Substituting III in VIII, we get

$$G_t = G_0 + b(e^{gt} - 1)Y_0 \quad \dots \quad \text{IX}$$

Investment requirements in a year depend upon the increase in income and incremental capital-output ratio (k). Investment relation is formulated as in (X):

$$I_t = kY_t = kg Y_0 e^{gt} \quad \dots \quad \text{X}$$

Debt-servicing in a particular year is assumed to be a fraction of the outstanding debt at time t , i.e.

$$DS_t = \delta D_t \quad \dots \quad \text{XI}$$

where D_t is debt outstanding for debt-servicing in the year t .

The debt at time t will be the value of initial debt in the year t plus the accumulation of net inflow. Since debt matures for debt servicing purposes with a lag of a grace period, the accumulation of net capital inflow takes place from $t=0$ to $t=t-B$, where B is the grace period. Thus

$$D_t = D_0 e^{rt} + \left[\int_0^{t-B} \left[\{ C_0 + G_0 + (a(1-i) + b)Y_0 \} e^{rt} + \{ a(1-i) + b + kg - 1 \} Y_0 \frac{(r+g)^t}{e} dt \right] e^{rB} \right] \quad \dots \quad \text{XII}$$

After integration and rearrangement we get

$$DS = \delta D_0 e^{rt} + \left[C_0 + G_0 + \{ a(1-i) + b \} Y_0 \right] \left[\frac{1}{r} \right] \{ e^{rt} - e^{rB} \} + \{ a(1-i) + b + kg - 1 \} \{ Y_0 \} \left[\frac{1}{r} \right] \{ e^{g(t-B)} - e^{rB} \} \quad \dots \quad \text{XIII}$$

Substituting XIII, X, IX, VII, and V in III, we get

$$A_t = \left\{ (C_0 + G_0 - bY_0) - a(Y_0 - T_0) \right\} \left\{ 1 + (e^{rt} - e^{rB}) \right\} + \{ a(1-i) + b + kg - 1 \} \{ Y_0 \} \left\{ e^{gt} + \frac{\delta}{g+r} (e^{g(t-B)} - e^{rB}) + \delta D_0 e^{rt} \right\} \quad \dots \quad \text{XIV}$$

The unknowns in the final equation (XIV) are a , i , b , k , g and t . One can fix five of them exogenously, and solve the system for the sixth. In particular, one can set a , i , b , k , and g and solve for t , the time horizon, when $A_t = 0$. Similarly, one can solve for marginal propensity to consume, when the target date for the termination of the foreign capital inflow is specified.

II. Results

The model was solved for the time periods over which the aid requirement was expected to cease, given the marginal propensity to consume, capital-output ratio, and other parameters. Similarly, the model was solved for marginal propensity to consume, given the time period, capital-output ratio and other parameters. The most recent year, i.e. 1974-75, is not used for projection purposes mainly because this was not a normal year. The economy underwent severe strains during the year leading to a fall in per capita income. Thus the analysis has been carried out on the basis of 1973-74 as the base year. All the calculations done are in the prices of 1973-74. The data have been obtained from the *Economic Survey of Pakistan* [5] and the *Annual Plan* [6]. The basic data used are:

$$Y_0 = 84,549$$

$$C_0 = 69,310$$

$$G_0 = 8,560$$

$$T_0 = 8,830$$

$$D_0 = 44,000$$

(All the figures are in million rupees.)

The values of the parameters used in the study are given in the following:

$$r = 0.05$$

$$\delta = 0.03$$

$$B = 10$$

$$i = 0.11$$

$$b = 0.10$$

Three different growth rates, viz. 5, 6 and 7 percent are used. Similarly three capital-output ratios, viz. 3, 2.5 and 2.25 are used in the study. To calculate the time period, three alternative rates of marginal saving are used, viz. 0.20, 0.25 and 0.30. Similarly, to calculate the required minimum marginal propensity to save, three separate time periods by the end of which aid flow is reduced to zero are fixed, i.e. 15, 20 and 25 years.

Required Minimum Marginal Rate of Saving

By specifying alternative values of growth rate, capital-output ratio, and time by which aid flow needs to be eliminated and fixing the value of marginal propensity to tax at 11 percent and marginal propensity to spend of government at 10 percent, the model was solved for the minimal value of the required marginal rate of savings. Table 1 presents the results.

With the target growth rate of 6 percent, capital-output ratio of 3 and a time horizon of 25 years to eliminate aid flows, the marginal propensity to save has to be increased to 25 percent. Reducing the targeted growth rate to 5 percent, but assuming the same values about time horizon and capital intensity,

Table 1
Required Minimum Marginal Propensity to Save
if $A_T=0$

k \ g	T=15			T=20			T=25		
	.05	.06	.07	.05	.06	.07	.05	.06	.07
3.00	27.0	30.0	33.0	24.0	27.0	30.0	22.0	25.0	28.0
2.50	18.0	23.0	25.0	17.0	21.0	23.0	16.0	20.0	22.0
2.25	16.0	19.0	23.0	15.0	17.0	22.0	14.0	16.0	20.0

the required marginal saving rate is reduced to 22 percent. Increasing the targeted growth to 7 percent, but keeping other parameters at the same level, increases the required marginal saving rate to 28 percent. Reducing the targeted time horizon to 15 years and assuming the growth rate at 6 percent and capital intensity as 3, the required saving propensity is 30 percent. Reducing capital intensity to 2.25 and keeping other parameters at the previous specified levels implies a marginal propensity to save of 16 percent. In view of the fact that marginal saving rate in Pakistan at present is much less than 10 percent, it is easily seen that the required marginal saving rates implied in the calculations in the above table are all unrealistic to achieve. Reducing the capital intensity in the economy has a relatively stronger influence on the required rates of saving than increasing the period for which aid flows are permitted. It is, thus important to reduce the capital intensity in the economy. This can be done by adopting less capital intensive techniques or by changing the sectoral composition of investments towards sectors which have lower capital output ratios. A recent study on the patterns of growth in Pakistan [3] suggests that the main factor in the future growth of industrial sector would be import substitution in capital goods. Adoption of labour-intensive techniques by relying on intermediate technology can help to some extent. The overall conclusion suggested by the exercise in Table 1 is that the reliance on foreign resources would have to be tolerated for a period longer than 25 years.

Time Horizon for Zero Aid Requirement

To determine the exact period by which the foreign aid flow can be terminated, the model has been solved with alternative values of marginal saving rates, growth rates, capital intensity and other parameters in the model. Table 2 presents results.

Some interesting results emerge. When saving rate is 15 percent or less, it is not possible to eliminate the aid flow at all except when the targeted growth rate is 5 percent and capital intensity is 2.5 or 2.25. In the case when saving rate is 10 percent in the initial year and rises to 25 percent in 15 years, assuming 6 percent growth rate and capital-output ratio of 3, 54 years are needed to eliminate the aid flow. However, if the capital-output ratio is reduced to 2.25, it will take 35 years to eliminate aid flow. If the rate of growth is 5 percent and capital-output ratio is 2.25, the aid inflow can be eliminated in 26 years.

Table 2

Number of the Years in which Gross Capital Inflow will be Zero.

Output Ratio (k)	m.p.s. = 0.10			m.p.s. = 0.15			m.p.s. = 0.20		
	Growth Rate (g) of G.N.P.								
	.05	.06	.07	.05	.06	.07	.05	.06	.07
3	∞	∞	∞	∞	∞	∞	47	84	∞
2.5	∞	∞	∞	50	∞	∞	21	31	54
2.25	∞	∞	∞	25	∞	∞	14	20	29

Output Ratio (k)	m.p.s. = 0.25			m.p.s. = 0.30			m.p.s. = 0.10 in the initial year, rises to 0.25 in 15 years and then stays constant		
	Growth Rate (g) of G.N.P.								
	.05	.06	.07	.05	.06	.07	.05	.06	.07
23	31	45	15	18	21	42	54	62	
12	16	21	8	10	13	30	42	52	
8	11	14	5	7	9	26	35	38	

Since the most important variables in the model are capital-output ratios, growth rates and marginal propensity to save, we have looked at the effect of changes in capital-output ratios and changes in growth rate on the required marginal propensity to save. For this purpose, we have used what is known as transformation elasticity. Transformation elasticity of marginal propensity to save with respect to capital-output ratio is defined as the proportionate change in marginal propensity to save due to a proportionate change in capital-output ratio, i.e. $\frac{k}{s} \frac{ds}{dk}$. Similarly the transformation elasticity of marginal

savings to growth rate is defined as $g/s \cdot ds/dg$. These elasticities are measured by regressing log of required minimum marginal saving rates on log of capital-output ratios and log of required marginal savings rates on log of growth rates. The value of the first elasticity is 1.47 and of the second .90. These values mean that the required savings rate is more sensitive to changes in capital-output ratio than to changes in the growth rate. This again indicates that an effort should be made to reduce capital-intensity in the economy.

Trend in Gross Aid Requirements

So far we have presented results on the required marginal savings rate and on the time period by which aid flows can be terminated. Magnitude of gross aid inflows is also important for both aid recipients and aid donors. Appendix Tables 1 through 6 present estimates of gross aid requirements under varying assumptions about growth rate, capital intensity and marginal saving rates. Five alternative values of marginal savings rates and three alternative values of both growth rate and capital intensity are used in the projections.

Three distinct patterns emerge from the detailed results in Appendix tables. If the marginal savings rates are lower than 15 percent, the gross aid requirement keeps on increasing in all cases except when growth rate is 5 percent and capital-output ratio is 2.5 or less. With a saving rate higher than 25 percent, gross aid requirement starts decreasing from the base year except when growth rate is 7 percent and capital output ratio is 3. For the case when saving rate is between 15 and 25 percent and capital-output ratio is equal to 3, the aid requirement first increases and then decreases.

Conclusions

In view of low saving capacity and high capital intensity in Pakistan, domestic resources need to be supplemented with foreign resources to generate a growth rate that would permit some increase in per capita income. The magnitude of foreign resources needed to fill the resource gap in Pakistan is large. The time period for which foreign aid is required is long. The elimination of aid flows within a reasonable time period implies increasing the marginal rate of saving and lowering the capital intensity either through the adoption of less capital-intensive techniques or by changing the sectoral compositions of investment towards sectors with lower capital-output ratios.

The estimates of the required marginal propensity to save, of terminal years by which gross aid flow is reduced to zero and of the magnitude of gross aid requirements are based on many implicit and explicit assumptions. Some mention of the limitations is warranted to put the conclusions in proper perspective.

The projections in this paper are based on the assumption that increased income is just a function of investment. In the real world, some growth always results from technological improvements. No information on this aspect was available for Pakistan. Any assumption about the prospective changes in the pace of the technological development in Pakistan would have been a conjecture. If somehow the effect of technical change on growth could have been quantified, the aid requirements, the time horizon by which aid flow ceases and the required marginal propensity to save would all be lower than those estimated in the present study.

Another basic assumption in the analysis is that foreign resources complement the country's own resources. If foreign aid substitutes for domestic resources, as has been argued by Rehman [8] and Griffin and Enos [2], then the gap would continually widen and one can never expect aid requirements to be eliminated. Not only should aid complement the domestic resources but the country should save a continually increasing proportion of increasing income if foreign aid is to be eliminated.

Lastly, it should be pointed out that the requirement for the gross inflow of foreign resources was determined on the basis of saving-investment gap. This was based on the implicit assumption that the trade gap was less than the resource gap. This assumption may not be necessarily correct. If the trade gap turns out to be greater than the resource gap, additional foreign resource flow would be needed to finance the deficit in the balance of payments. To eliminate the trade gap, export-oriented and import-substituting development strategy would need to be adopted. More research work on these lines is needed to quantify the trade gap in Pakistan, however.

Appendix Table I
 Gross Aid Requirements at 1973-74 Prices
 M.P.S. = 0.30

(in million Rupees)

Years	g=.05			g=.06			g=.07		
	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3
1974-75	1624	2452	4110	2854	3876	5920	4171	5396	7853
1975-76	1260	2159	3956	2478	3598	5840	3825	5181	7903
1976-77	866	1838	3783	2061	3286	5737	3430	4928	7934
1977-78	440	1489	3589	1601	2937	5609	2983	4633	7943
1978-79	0	1110	3373	1093	2547	5456	2478	4291	7927
1979-80	—	699	3132	535	2114	5273	1911	3899	7885
1980-81	—	254	2867	0	1635	5060	1276	3452	7813
1981-82	—	0	2574	—	1106	4813	568	2945	7709
1982-83	—	—	2253	—	523	4530	0	2374	7569
1983-84	—	—	1900	—	0	4208	—	1732	7390
1984-85	—	—	1515	—	—	3844	—	1015	7169
1985-86	—	—	1095	—	—	3435	—	214	6901
1986-87	—	—	638	—	—	2976	—	0	6581
1987-88	—	—	141	—	—	2465	—	—	6206
1988-89	—	—	0	—	—	1898	—	—	5771
1989-90	—	—	—	—	—	1269	—	—	5269
1990-91	—	—	—	—	—	755	—	—	4695
1991-92	—	—	—	—	—	0	—	—	4043
1992-93	—	—	—	—	—	—	—	—	3306
1993-94	—	—	—	—	—	—	—	—	2476
1994-95	—	—	—	—	—	—	—	—	1547
1995-96	—	—	—	—	—	—	—	—	508
1996-97	—	—	—	—	—	—	—	—	0
1997-98	—	—	—	—	—	—	—	—	—
1998-99	—	—	—	—	—	—	—	—	—
1999-2000	—	—	—	—	—	—	—	—	—

Appendix Table II
 Gross Aid Requirements at 1973-74 Prices
 M.P.S. = 0.25

(in million Rupees)

	g = .05		g = .06			g = .07			
	K = 2.25	K = 2.5	K = 3	K = 2.25	K = 2.5	K = 3	K = 2.25	K = 2.5	K = 3
1974-75	1997	2830	4484	3309	4391	6740	4706	5931	8378
1975-76	1764	2667	4460	3106	4286	6833	4577	5934	8646
1976-77	1509	2486	4426	2877	4162	6918	4421	5919	8914
1977-78	1232	2286	4381	2620	4016	6994	4234	5884	9184
1978-79	931	2067	4323	2332	3846	7060	4014	5827	9453
1979-80	604	1826	4253	2012	3651	7115	3757	5746	9721
1980-81	251	1563	4169	1656	3428	7158	3462	5638	9988
1981-82	0	1275	4070	1262	3175	7188	3123	5500	10254
1982-83	—	962	3955	828	2891	7203	2738	5331	10516
1983-84	—	622	3823	349	2571	7202	2303	5127	10775
1984-85	—	253	3673	0	2215	7184	1812	4885	11029
1985-86	—	0	3503	—	1819	7146	1262	4601	11277
1986-87	—	—	3312	—	1379	7088	647	4271	11519
1987-88	—	—	3098	—	893	7007	0	3892	11752
1988-89	—	—	2861	—	358	6901	—	3459	11976
1989-90	—	—	2597	—	0	6768	—	2968	12189
1990-91	—	—	2307	—	—	6607	—	2413	12390
1991-92	—	—	1987	—	—	6413	—	1789	12576
1992-93	—	—	1636	—	—	6186	—	1090	12746
1993-94	—	—	1252	—	—	5922	—	309	12898
1994-95	—	—	833	—	—	5617	—	0	13029
1995-96	—	—	376	—	—	5270	—	—	13137
1996-97	—	—	0	—	—	4876	—	—	13219
1997-98	—	—	—	—	—	4432	—	—	13273
1998-99	—	—	—	—	—	3932	—	—	13299
1999-2000	—	—	—	—	—	3400	—	—	13300

Appendix Table III
 Gross Aid Requirements at 1973-74 Prices
 M.P.S.=0.20

(in million Rupees)

Years	g=.05			g=.06			g=.07		
	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3
1974-75	2362	3199	4857	3764	4787	6831	5243	6467	8915
1975-76	2258	3166	4964	3734	4857	7097	5331	6688	9400
1976-77	2142	3124	5069	3693	4920	7370	5412	6911	9907
1977-78	2014	3073	5172	3639	4978	7649	5486	7136	10437
1978-79	1872	3012	5274	3572	5028	7935	5551	7364	10991
1979-80	1716	2941	5374	3489	5070	8228	5605	7594	11570
1980-81	1544	2859	5472	3389	5104	8528	5649	7825	12176
1981-82	1355	2765	5567	3272	5128	8834	5680	8057	12811
1982-83	1149	2659	5658	3136	5141	9147	5697	8290	13476
1983-84	924	2538	5745	2979	5144	9468	5699	8523	14172
1984-85	679	2403	5831	2799	5133	9795	5684	8757	14902
1985-86	413	2253	5911	2595	5109	10130	5650	8989	15667
1986-87	124	2085	5986	2365	5070	10972	5596	9220	16469
1987-88	0	1900	6056	2107	5014	10821	5519	9450	17311
1988-89	—	1696	6120	1819	4941	11177	5418	9677	18195
1989-90	—	1472	6177	1498	4848	11541	5289	9900	19123
1990-91	—	1226	6227	1142	4734	11912	5131	10120	20098
1991-92	—	957	6269	748	4598	12290	4940	10334	21122
1992-93	—	663	6303	314	4437	12675	4713	10542	22200
1993-94	—	344	6328	0	4249	13068	4448	10743	23333
1994-95	—	0	6342	—	4033	13467	4141	10935	24525
1995-96	—	—	6345	—	3786	13874	3787	11118	25780
1996-97	—	—	6336	—	3505	14287	3384	11290	27101
1997-98	—	—	6315	—	3187	14707	2926	11448	28493
1998-99	—	—	6282	—	2787	15134	2542	11590	29883
1999-2000	—	—	6230	—	2337	15568	2113	11720	31273

Appendix Table IV
Gross Aid Requirements at 1973-74 Prices
M.P.S.=0.15

(in million Rupees)

Years	g=.05			g=.06			g=.07		
	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3
1974-75	3008	3911	5496	3858	5507	7551	6043	7267	9716
1975-76	2994	3971	5691	3962	5709	7949	6308	7664	10377
1976-77	2975	4030	5893	4067	5918	8368	6585	8083	11080
1977-78	2952	4088	6102	4174	6135	8807	6875	8525	11826
1978-79	2928	4146	6318	4281	6360	9268	7179	8993	12620
1979-80	2895	4203	6542	4390	6594	9751	7499	9487	13464
1980-81	2857	4260	6773	4500	6836	10260	7833	10009	14362
1981-82	2813	4316	7013	4611	7088	10793	8185	10562	15317
1982-83	2763	4370	7260	4723	7349	11354	8553	11146	16333
1983-84	2707	4424	7517	4836	7620	11943	8940	11765	17415
1984-85	2643	4475	7782	4949	7901	12563	9347	12420	18566
1985-86	2572	4525	8056	5063	8194	13214	9775	13113	19792
1986-87	2490	4574	8340	5177	8498	13899	10224	13848	21099
1987-88	2402	4620	8634	5291	8813	14619	10697	14627	22490
1988-89	2395	4663	8939	5405	9141	15376	11194	15453	23973
1989-90	2207	4705	9254	5518	9482	16173	11718	16329	25554
1990-91	2029	4743	9580	5631	9836	17012	12269	17258	27239
1991-92	1900	4778	9918	5743	10205	17895	12850	18245	29036
1992-93	1759	4801	10268	5854	10588	18824	13463	19291	30952
1993-94	1605	4828	10630	5964	10987	19803	14108	20403	32996
1994-95	1438	4852	11005	6071	11401	20833	14789	21584	35177
1995-96	1286	4870	11394	6177	11833	21918	15508	22838	37504
1996-97	1059	4884	11796	6279	12282	23062	16266	24172	39987
1997-98	846	4891	12213	6379	12749	24266	17067	25589	42638
1998-99	618	4893	12644	6475	13236	25536	17913	27097	45469
1999-2000	369	4889	13092	6568	13743	26874	18897	28700	48491

Appendix Table V
Gross Aid Requirements at 1973-74 Prices
M.P.S.=0.10

(in million Rupees)

Years	g=.05			g=.06			g=.07		
	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3
1974-75	3556	4218	5877	5081	5968	8012	6759	7804	10253
1975-76	3716	4434	6232	5399	6371	8612	7286	8444	11157
1976-77	3882	4659	6604	5734	6796	9247	7848	9128	12124
1977-78	4055	4893	6993	6086	7245	9918	8497	9857	13158
1978-79	4235	5138	7400	6458	7719	10628	9085	10635	14262
1979-80	4422	5394	7827	6850	8220	11379	9767	11467	15443
1980-81	4617	5660	8273	7264	8748	12174	10494	12354	16706
1981-82	4820	5939	8740	7700	9307	13015	11269	13303	18057
1982-83	5031	6229	9229	8160	9897	13904	12097	14315	19501
1983-84	5251	6533	9741	8645	10520	14846	12980	15397	21046
1984-85	5480	6850	10278	9157	11178	15843	13923	16553	22699
1985-86	5719	7181	10839	9697	11874	16898	14931	17789	24466
1986-87	5968	7526	11427	10268	12610	18014	16008	19109	26358
1987-88	6227	7887	12043	10870	13387	19196	17155	20521	28382
1988-89	6497	8264	12688	11505	14209	20448	18382	22029	30547
1989-90	6778	8658	13363	12177	15078	21773	19693	23643	32865
1990-91	7071	9069	14071	12885	15996	23177	21094	25368	35346
1991-92	7377	9499	14812	13634	16968	24663	22591	27212	38001
1992-93	7695	9949	15589	14425	17995	26237	24191	29185	40843
1993-94	8027	10418	16402	15260	19082	27904	25902	31295	43885
1994-95	8373	10909	17255	16143	20232	29670	27731	33553	47142
1995-96	8734	11422	18148	17076	21448	31540	29686	35968	50630
1996-97	9111	11958	19083	18061	22738	33521	31777	38552	54363
1997-98	9503	12518	20064	19103	24096	35621	34013	41317	58362
1998-99	9912	13104	21092	20205	25537	37845	36404	44276	62643
1999-2000	10339	13716	22168	21369	27062	40210	38963	47442	67228

Appendix Table VI
Gross Aid Requirements at 1973-74 Prices

(Value in million Rupees)

M.P.S.=0.10 in the initial years, rises to 0.25 in fifteen years, and then stays constant.

Years	g=.05			g=.06			g=.07		
	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3	K=2.25	K=2.5	K=3
1974-75	3556	4218	5877	5081	5968	8012	6759	7804	10253
1975-76	3685	4355	6147	5621	6386	8684	7256	8494	11135
1976-77	3782	4532	6435	5934	6745	9181	7758	9028	12102
1977-78	3973	5084	7501	6213	7932	10513	8247	9747	13074
1978-79	4185	6076	7614	6540	8180	10916	8985	10515	13647
1979-80	4449	5738	8003	6882	8565	11465	9567	11317	14412
1980-81	4468	5400	8199	7237	8818	11867	10294	12164	16201
1981-82	4433	5413	8351	7608	9010	12269	10904	13208	16914
1982-83	4344	5372	8502	7693	9145	12599	11155	13727	17585
1983-84	4192	5272	8652	7890	9211	12872	11323	14075	18203
1984-85	3971	5212	8802	8004	9298	13079	11394	15039	18756
1985-86	3866	5186	8954	8126	9398	13412	11644	16507	19234
1986-87	3796	5146	9106	8299	9453	13814	11894	17489	22546
1987-88	3716	5090	9258	8592	9797	14245	12144	17623	23034
1988-89	3656	5034	9169	8164	9758	14697	12349	17673	23174
1989-90	3387	4833	9175	8027	9716	14952	12384	17723	23324
1990-91	3101	4620	9179	7881	9670	15222	12418	17773	23466
1991-92	2801	4396	9182	7725	9618	15506	12451	17823	24273
1992-93	2484	4159	9185	7556	9560	15805	12484	17873	25134
1993-94	2150	3909	9186	7375	9500	16118	12517	17932	26053
1994-95	1799	3645	9186	7183	9440	16451	12552	18345	27035
1995-96	1428	3367	9185	6977	9380	16801	12584	18782	28080
1996-97	1037	3073	9182	6761	9348	17106	12616	19249	29197
1997-98	623	2761	9176	6545	9268	17462	12646	19743	30388
1998-99	188	2434	9168	6262	9187	17962	12675	20269	31659
1999-2000	0	2098	9169	5971	9072	18374	12702	20827	33015

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