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An Analysis of Capital Flows Between the Agricultural  
and Non-agricultural Sectors of India

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AN ANALYSIS OF CAPITAL FLOWS BETWEEN  
THE AGRICULTURAL AND NON-AGRICULTURAL  
SECTORS OF INDIA

I. Introduction

1. The purpose of the study is to determine the direction and magnitude of capital flows between the agricultural and non-agricultural sectors of India within the context of rising agricultural income, supplemented by subsidies, which almost entirely escapes direct taxation. Not only is direct taxation of agriculture extremely low, it is even declining with the abolition of direct taxation in several states, thus contributing indirectly to a further rise in income in the agricultural sector.

2. Information on the flow of funds between the agricultural and non-agricultural sectors of India is limited. FAO in its Indicative World Plan for 1962 to 1975 has concluded that although "the savings rate in agriculture proves to be lower than postulated for the entire economy, the agricultural sector could finance the industrial sector to a significant extent."<sup>1/</sup>

3. The study, which in Part II attempts to analyze these capital flows shows that a large and rapidly increasing outflow of capital from India's agricultural sector appears to be taking place just when agriculture requires a large volume of investible funds for rapid expansion of food grain production. Details of conclusions and policy implications relating to this capital outflow are discussed in Part III of the study.

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<sup>1/</sup> FAO, "Main Conclusion and Policy Implications of the Indicative World Plan Regional Study for Asia," Ninth FAO Regional Conference for Asia and the Far East, Bangkok, Thailand, November 1968, p. 50.

## II. Analysis

### Growth of Agriculture

4. Net output of agriculture<sup>1/</sup> for the period 1960/61 to 1968/69 has been growing at an annual compound rate of 1.2 percent on a semi-logarithmic trend.<sup>2/</sup> During the first four years (1960/61-1963/64) of the Third Plan (1960/61-1964/65) the growth of agricultural value added was 2.2 percent compounded annually on a trend basis. However, the severe drought of 1965/66, and the sharp decline of agricultural output depressed agricultural growth and resulted in an annual compound growth rate of 1.76 percent in the entire Third Plan period. Thus, the gap between projected production growth of 3 percent for the Third Plan and actual achievements was substantially widened.

Table 1: Growth of Agricultural Value Added  
in India 1960/61 to 1968/69

(at constant 1964/65 factor prices)

	<u>Trend rates of growth per annum<sup>a/</sup></u>		
	<u>1960/61-1964/65</u>	<u>1960/61-1965/66</u>	<u>1960/61-1968/69</u>
	- in percent -		
Major, minor crops and livestock	2.21	1.76	1.19

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<sup>a/</sup> Least squares estimate of "b" in the equation  $\log Y = a + b \cdot \text{time}$ .

Source: Computed from Revised Estimates of National Product, Central Statistical Organization, GOI, 1969 unpublished, to be incorporated in the 1969 White Paper. The new revision constitutes a considerable downward revision of previous estimates.

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<sup>1/</sup> Refers to value added of major, minor crops and livestock at constant 1964/65 factor prices.

<sup>2/</sup> Because of the fundamental revision of the national product estimates by the Central Statistical Organization, which covers only the period 1960/61 to 1968/69, it was not possible to extend this analysis over previous years.

5. Agricultural output during the Third Plan fell far short of the projected growth because of severe weather conditions and neglect of agriculture in the Third Plan in its reluctance to allocate to agriculture the resources necessary to accelerate adequately the growth of agricultural production. Particularly deterrent to growth was the inadequate supply of inputs, the absence of detailed planning, and the dispersal of limited resources over large areas.<sup>1/</sup>

6. Changes in agricultural policy and programs, reflected by increased public expenditure in agriculture during 1965/66, and the adoption of new technologies associated with a nearly doubling of fertilizer consumption in 1966/67, and higher prices paid to farmers created conditions favorable for a potential rapid growth of the agricultural sector. A second severe drought in 1966/67 caused some setback to growth but in 1967/68 the value added in agriculture increased sharply. The Central Statistical Office estimates a real growth (of value added) in agriculture by about 3 percent in 1968/69.

7. The Fourth Plan, which after 3 years of delay is supposed to be implemented beginning 1969/70, aims at an annual compound rate of growth of 4.6 percent in gross value added at factor cost. Although a growth of this magnitude is a substantial acceleration compared with the trend

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<sup>1/</sup> The Third Plan Progress Report, 1963/65, p. 47. GOI Planning Commission.

value of 1.2 percent from 1960/61 to 1968/69, it is not an unrealistic proposition in light of the recent development and the rapid adoption of new technology in the agricultural sector. The main contributions to growth are expected to come from new irrigation systems, increased application of fertilizer and adoption of high yielding crop varieties. A striking evidence of this development is the installation of 70,000 new tubewells during 1966 and 1967 which compares with only 80,000 during the Third Plan, thus adding about 1½ million ha to the net area irrigated.<sup>1/</sup>

8. Table 1 of the Annex shows the trend values from 1960/61 to 1968/69 of gross value added at factor cost in constant 1964/65 prices. Based on the trend value for 1968/69 of agricultural value added of Rs. 10,128 crores at 1964/65 prices and the projected growth rate of 4.6 percent for the Fourth Plan we estimate a value added of Rs. 12,682 crores for 1973/74 and at Rs. 13,265 for 1974/75, assuming a continuation of the projected growth rate.

Estimates of Investment Requirements for Agriculture 1964/65 to 1974/75

9. Because we can assume that a potential for an accelerated growth process in the agricultural sector was created at the end of the Third Plan and investment decisions were geared to this objective, we choose the 1965/66 trend value of value added as the benchmark. The potential growth of agriculture from 1965/66 to 1974/75 is estimated by fitting an exponential trend from the benchmark value of 1965/66 to the projected level of value added of Rs. 13,265 crores in 1974/75. (See Annex, Graph 1). A potential growth rate of 3.45 percent per annum was found, and the possibility that investment decisions were made to attain this growth seems very likely.

<sup>1/</sup> FAO, "Main Conclusion and Policy Implications of the Indicative World Plan. Regional Study for Asia," Ninth FAO Regional Conference for Asia and the Far East, Bangkok, Thailand, November 1968, p.10.

10. Because this growth rate of 3.45 percent will not only be induced by investment inputs but also by current inputs, any investment estimate based upon this growth rate and a marginal capital output coefficient will result in an upward bias. The impact of current inputs upon agricultural growth must, therefore, be estimated to determine a rate of growth net of the impact of current inputs which can be entered into equation (1). From production coefficients, and actual data and projections of fertilizer consumption, adoption of improved seeds and plant protection, we derive at a rough estimate of additional value added arising from the incremental use of current inputs. On this basis we estimate that from 1965/66 to 1974/75, about 1.4 percent of the annual growth will result from current inputs. Stated differently, about 40 percent of the annual growth during this period is projected to be accounted for by current inputs. Hence, of the potential growth of 3.45 percent per annum about 2 percent can be expected to result from fixed investment inputs.

11. Investment requirements for agriculture are estimated from growth in value added and a marginal capital output coefficient. Total investment in agriculture required to produce a fixed output can be written as:

$$I_A = \lambda \cdot V_t' (g-1)g \quad (1)$$

in which ( $I_A$ ) represents total required investment in agriculture, ( $\lambda$ ) the marginal capital coefficient, ( $V_t'$ ) the gross value added net of the impact of current inputs, ( $g$ ) the growth index of the gross value added in agriculture net of the impact of current inputs and ( $g-1$ ) the growth rate.<sup>1/</sup>

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<sup>1/</sup> Wouter Tims, Analytical Techniques for Development Planning, A Case Study of Pakistan's Third Five Year Plan. Pakistan Institute of Development Economics, 1968, p. 92.

Total investment in agriculture ( $I_A$ ) is composed of public investment ( $I_P$ ) and private investment of the agricultural sector ( $I_{Pr}$ ), hence,

$$I_A = I_P + I_{Pr} \quad \underline{1/} \quad (2)$$

### Marginal Capital Coefficients

12. The danger of using capital coefficients to estimate investment requirements from growth in value added are well recognized, but we adopt this methodology in the absence of a more accurate estimation. Beside capital coefficients and growth in value added, an additional variable determining investment is the time lag between investment and output. An increase in the time lag will increase the investment requirements. If investment expenditures in year  $t_0$  are equally distributed over the year, and it takes on the average  $\frac{1}{2}$  year before the investment generates output, a time lag of 1 year between the investment year  $t_0$  and the full output year  $t_1$  is implicit. In our analysis we assume that the time lag between the investment year and the full output year is at the average  $1\frac{1}{2}$  years in the agricultural sector. Hence, investment in year  $t_0$  is related to a production increase between  $t_1$  and  $t_2$ .2/

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1/ ( $I_P$ ) consists of public domestic investment ( $I_{Pd}$ ) and investment externally financed ( $E_P$ ),

$$I_P = I_{Pd} + E_P \quad (3)$$

No data of foreign aid disbursement to the agricultural sector are available for India. We have to neglect, therefore, equation (3) and consider only public investment ( $I_P$ ).

2/ Wouter Tims, Analytical Techniques for Development Planning, A Case Study of Pakistan's Third Five Year Plan. Pakistan Institute of Development Economics, 1968, p. 88.

13. The marginal capital coefficients for the period 1961/62 to 1964/65 are estimated from trend values of agricultural output and investment.<sup>1/</sup> This period was chosen, because an inclusion of 1965/66 and 1966/67 into the trend calculations would have resulted in large deviations of actual output observations which were entirely the result of droughts and not related to investment activities.

14. Public investment expenditures by Central and State Governments and Union Territories for major, minor crops and livestock were estimated from actual investment data as reported in the Third Plan Progress Report of the Planning Commission.<sup>2/</sup> Information on private sector investment is very fragmentary for the period under concern. Data of private fixed capital formation by cultivators and non-cultivators were only available for 1961/62. Based on the All-India Rural Debt and Investment Survey <sup>3/</sup> they are estimated at Rs. 166.8 crores in 1961/62 and constitute 48 percent of total investment. For the years 1962/63 to 1964/65 we assume that the share of private investment remained constant. Table 2 shows public and private investment figures and trend values of total investment based on a semilogarithmic trend:

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<sup>1/</sup> The marginal capital coefficients are estimated from 1961/62, which is the first year of the Third Plan and the only year for which an estimate of private fixed capital formation is available (see paragraph 14).

<sup>2/</sup> They are exclusive of current expenditures and include investment for agricultural programs, major and minor irrigation systems, flood control, rural electrification and rural works.

<sup>3/</sup> "All India Rural Debt and Investment Survey, 1961/62," Reserve Bank of India Bulletin, June 1965.

Table 2: Public and Private Investment in Agriculture  
1961/62 to 1964/65

	Rs. in Crores			
	1961/62	1962/63	1963/64	1964/65
- in current prices -				
Public Investment	180.2	197.1	226.2	283.0
Private Investment	166.8	181.9	208.8	261.0
Total Investment	347.0	379.0	435.0	544.0
- in constant 1964/65 prices - a/				
Public Investment	203	212	236	283
Private Investment	187	196	217	261
Total Investment	390	408	453	544
Trend Values of Total Investment	377	421	470	525
a/ Index of investment cost at 1964/65 prices, (Planning Commission).	89	93	96	100

Source: The Third Plan Progress Report, 1963/65, GOI Planning Commission. "All India Rural Debt and Investment Survey, 1961/62," Reserve Bank of India Bulletin, June 1965.

15. Table 3 shows agricultural output (gross value added) in constant 1964/65 prices and trend values net of the impact of current inputs. From 1960/61 to 1964/65 output shows a growth rate of 2.2 percent per year on the trend value. Again on a trend basis, it is estimated that from 1961/62 current inputs accounted for about 20 percent of the estimated annual growth of output.

Table 3: Agricultural Output (gross value added)  
in Constant 1964/65 prices

	Rs. in Crores						
	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67
Agricultural Output	9,313	9,527	9,329	9,510	10,396		
Trend Values of Output	9,197	9,400	9,607	9,819	10,036	(10,258)	(10,485)
Trend Values of Output net of impact of current inputs		9,400	9,566	9,736	9,908	(10,083)	(10,261)

Note: The figures in brackets are extensions of the trend.

16. Based on the trend values shown in table 2 and 3, and the assumption of a  $1\frac{1}{2}$  year time lag between the investment year and the full output year we derive the following marginal capital coefficients for agriculture:

Table 4: Marginal Capital Coefficients in  
Agriculture 1961/62 to 1964/65

Assumed time-lag in years	Total investment (Rs. crores)	% Rate of output growth	Marginal Capital Coefficient		
			Total average	Average 1961/62-1962/63	Average 1963/64-1964/65
1.5	1,793	2.21	2.58	2.33	2.82

17. We will use in our model the four year average of the capital coefficients of 2.6, which seems to be a better representation of the capital output relations than the capital coefficient of 2.8 at the end of the Third Plan period. In comparison, FAO 1/ estimates for eight Asian countries 2/

1/ FAO, *ibid.*, p. 50.

2/ The FAO study covers Ceylon, India, Pakistan, Philippines, Thailand, Malaysia, South Korea and Taiwan.

incremental capital output ratios of 2.6 for the period 1962 to 1975.

Public Investment Expenditures 1961/62 to 1973/74

18. Table 2 of the Annex shows public investment expenditures for major, minor crops and livestock from 1961/62 to 1968/69 as reported in the Third Plan Progress Report and the Annual Plans. These data are actual expenditures with the exception of 1968/69 which are estimates. The projected public investment from 1969/70 to 1973/74 is derived from the revised Fourth Five Year Plan document and amount to Rs. 2,137 crores at constant 1964/65 prices. This amounts to an increase of about 55 percent of public investment during the Fourth Plan as compared with Rs. 1,376 crores based on trend values over the past five years (1964/65 to 1968/69). On the trend basis, public investment shows an annual increase of 4.45 percent from 1961/62 to 1968/69. Using the 1968/69 trend value of Rs. 300 crores at constant (1964/65) prices, public investment in agriculture during the Fourth Plan would have to increase yearly by about 12 percent to reach the anticipated target. Considering the financial problems which the government faces to mobilize the necessary resources to carry out its development program, it remains uncertain whether such a step-up of public investment in agriculture is obtainable.

19. Two assumptions for public investment during the Fourth Plan period will be used in the model:

- (i) a low assumption based on an extension of the 1961/62 to 1968/69 trend, thus assuming an annual increase of 4.45 percent; and
- (ii) a high assumption based on the Fourth Plan investment target, thus implying an increase of 12 percent per year from the 1968/69 trend value (see Annex, table 2).

For the analysis of capital flows in 1974/75 we assume a continuation of the trend as outlined under the low and high assumptions.

Savings of the Agricultural Sector

20. Monetized and non-monetized savings by individuals is estimated to have varied from 1963/64 to 1967/68 between a low of 6.4 percent to a high of 7.8 percent of NNP.

Table 5: Monetized and Non-Monetized Savings by Individuals

	1963/64	1964/65	1965/66	1966/67	1967/68
	- in percent of NNP -				
Individual Financial Savings	3.7	3.4	4.1	3.2	3.0
Individual Physical Savings	2.9	3.8	3.7	3.2	3.6
Total	6.6	7.2	7.8	6.4	6.6

Source: IBRD, Economic Situation and Prospects of India, April 1969.

Unfortunately, no estimate exists on sectoral saving rates and, in particular, the picture on savings of the agricultural sector is incomplete.

21. The rate of monetized saving by rural households has been estimated at no more than 2.5 percent of income on an average over 1950/51 to 1962/63, with a marginal propensity to save of 1.56 percent.<sup>1/</sup> Because non-monetary savings are not included in these estimates, the rates of rural savings are considerably depressed. This is particularly true if one considers the progress of agricultural development in India between 1950/51 and 1962/65. The above estimates of rural saving are also depressed by the fact that savings

<sup>1/</sup> Uma Datta Roy Choudhury, "Income, Consumption and Saving in Urban and Rural India," The Review of Income and Wealth, March 1968.

in the form of bullion and other forms of hoarding are excluded from the concept of financial savings of agricultural households.<sup>1/</sup>

22. To obtain an estimate of the magnitude of total savings by the agricultural sector, we estimate savings for 1963/64 as a function of the average propensity to save (s) of the previous years income ( $V_{t-1}$ ), of direct taxes (T) and of the previous years indirect taxes ( $T'_{t-1}$ ) on the consumption of farm households. Savings ( $S_A$ ) can now be written as:

$$S_A = s(V_{t-1} - T - T'_{t-1}) \quad (4)$$

Under the low assumption we assume an average propensity to save of 5 percent and under the high assumption of 8 percent. For the following years, we estimate marginal propensities to save ( $s'$ ). We define the marginal propensity to save as:

$$s' = e \left( \frac{V_{t-1}}{V_{t-2}} - p \right) + s \frac{2}{2}$$

where (e) is elasticity of the rate of savings with respect to the per capita income growth, (p) is the growth rate of the agricultural population, and (s) is the average propensity to save. The elasticity of the rate of savings was estimated from various country data at 4.00. The growth rates for India's agricultural population from 1962 to 1975 is estimated by FAO at 1.8 percent compounded per annum.<sup>3/</sup> Again, under the low assumption we assume an average propensity to save of 5 percent and of 8 percent under the high assumption and derive the following marginal propensities:

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<sup>1/</sup> Arun Ghosh, "Consumption and Savings," Economic and Political Weekly, October 19, 1968, p. 1,619.

<sup>2/</sup> Wouter Tims, Indonesia Debt Simulation Models, IBRD/IMF, unpublished.

<sup>3/</sup> FAO, Indicative World Plan for Agricultural Development, Asia and Far East, Volume II, p. 2, Rome 1968.

Table 6: Estimated Marginal Propensities to Save of the Agricultural Sector

Year	Growth rate of agricultural population p	$\frac{V_{t-1}}{V_{t-2}}$	Average Propensity to save s		Marginal Propensity to save s'	
			Low	High	Low	High
- in percent -						
1963/64-1969/70	1.8	1.19 <u>a/</u>	5	8	2.6	5.6
1970/71-1974/75	1.8	4.6 <u>b/</u>	5	8	16.0	18.0

a/ Based on the trend rates of growth of 1.19 percent per year from 1960/61 to 1968/69.

b/ Based on the projected growth of 4.6 percent during the Fourth Plan and the assumption of a continuation of this growth during 1974/75.

Hence, the achievement of the anticipated growth target of agriculture during the Fourth Plan would bring forth a substantial increase of savings. In comparison to the above estimates, the Planning Commission estimates the marginal propensities to save for the economy as a whole at about 21 percent during the Fourth Plan.

23. The incremental saving can now be estimated as

$$\Delta S_t = s'(\Delta V_{t-1} - \Delta T_{t-1}) \quad (5)$$

Because value added at factor costs excludes indirect taxes on factor inputs but includes subsidies on these inputs, we derive income net of taxes but gross of subsidies and deduct direct taxes and indirect taxes on the consumption of the farm household. Sale and excise taxes on agricultural produce are not deducted. We accept the widely held notion that the incidence of these taxes falls upon consumers of the non-agricultural sector and not upon the

producers.<sup>1/</sup>

24. The direct taxes (T) affecting Indian farmers are primarily the land revenue tax and the agricultural income tax. Land revenue declined in real terms from about 1.4 percent of gross value added in 1963/64 to merely 0.8 percent in 1966/67, whereas the income tax remained over nine years at 0.1 percent of gross value added (see Annex, Table 3). While, public investment in agriculture increased on a trend basis by 4.5 percent compounded annually during the 1960's direct tax receipts declined by 5.6 percent per year. This fact, as well as the large inequity of the tax burden between the agricultural and non-agricultural sector, is widely recognized by Central Government authorities. Because the likelihood of any increase of direct taxes seems very low, we assume in our projections that the trend value of direct taxes (T) for 1966/67, which is estimated at 1,000 million Rs., will remain constant over the projected period.<sup>2/</sup>

25. The indirect taxes upon the consumption of farm households (T'), i.e., gasoline, kerosine, clothing, etc., are estimated to be 10 percent of all indirect taxes upon agriculture. Indirect taxes upon agriculture in their turn constituted from 1960/61 to 1966/67 on the average about 29.8 percent of total indirect taxes levied by Central and State Governments. Receipts from these taxes increased progressively and are estimated at 6.2 percent of agricultural value added in 1966/67 compared to 3.5 percent in

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<sup>1/</sup> V.P. Gandhi, Tax Burden on Indian Agriculture, Harvard Law School, 1966.

<sup>2/</sup> For a detailed discussion of agriculture taxation see:

F. Abbate, "Agricultural Taxation in India," IBRD, 1968, unpublished draft.

V.P. Gandhi, Taxes, Subsidies and Agricultural Production, Indian Institute of Management, Ahmedabad, 1968.

1960/61. On a trend basis, indirect taxes upon the consumption of farm households increased annually by about 10 percent. With a high income elasticity of consumption of rural households, we assume for the purpose of our projections a continuation of the trend up to 1974/75.

Investment-Savings Gap of the Agricultural Sector

26. After having quantified the parameters of our model, we can write the investment-savings gap of the agricultural sector (K) as

$$K = I_A - I_P - S_A \quad (6)$$

which can be rewritten to

$$K_t = \lambda \cdot V_t \cdot (g-1)g - I_P - S_A \quad (7)$$

From equation (6) it becomes evident that if private capital formation in the agricultural sector ( $I_A - I_P$ ) is smaller than savings out of agriculture ( $S_A$ ), there will be a net outflow of funds to the non-agricultural sector. Or if ( $I_A - I_P$ ) is larger than  $S_A$ , an additional inflow of public funds will be needed to meet the investment requirements necessary to achieve a certain anticipated growth target. In case capital transfers from the non-agricultural sector ( $S_F$ ) occur, thus increasing the funds available for agricultural investment, the outflow will increase or the necessary inflow of funds can be reduced by the amount of ( $S_F$ ). Equation (6) can be extended to

$$K = I_A - I_P - S_A - S_F \quad (8)$$

Because no information is available on the magnitude of capital transfers from the non-agricultural sector, we will focus our analysis only upon equation (7).

Table 7: Capital Outflow from the Agricultural Sector in India

Rs. in crores at 1964/65 prices

Year	Investment Requirements in Agriculture $I_A$	Public Investment in Agriculture $I_p$		Direct Taxes $T$	Indirect Taxes $T'$	Saving $S_A$		Capital Outflow <u>1/</u> $K = I_A - I_p - S_A$	
		<u>Low</u>	<u>High</u>			<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
1964/65	525	251	251	113	472	448	719	-174	-445
1970/71	593	328	376	100	837	521	809	-256	-592
1973/74	629	374	529	100	1113	725	1039	-470	-939
1974/75	645	391	592	100	1225	798	1121	-544	-1068

1/ Negative figures indicate positive outflow.

27. The degree of uncertainty attached to the estimates of the parameters would make it unrealistic to give anything else than a range for the net outflow of private savings from the agricultural sector. The range of this outflow under the assumptions of low public investment and savings and high public investment and savings is presented in Table 7. For 1964/65 the capital outflow from the agricultural sector is estimated to have been in the range of Rs. 175 to 445 crores. In the subsequent years the outflow is estimated to increase substantially and will range from Rs. 255 to 590 crores in 1970/71 and Rs. 540 to 1,070 crores in 1974/75.

28. The magnitude of this outflow is substantial in relation to both the investment requirements and to the estimated investment by the public sector. Even under the low savings assumption, the domestic resource availability from the agricultural sector will about equal the investment requirements in this sector by 1970/71. By 1973/74, at the end of the Fourth Plan period, savings will surpass the investment requirements by 15 to 60 percent and by 20 to 75 percent in 1974/75.

29. In order to fully evaluate the policy implications which can be drawn from this analysis, it must be emphasized that the net outflow is rather insensitive to plausible changes in the basic parameters of the model. Even a lower growth rate would not change the direction of the capital flow. because the reduction of investment requirements would be larger than the reduction of savings. In addition, any increase in the contribution of current inputs to the growth of gross value added would reduce the investment requirements and would consequently increase the outflow. This outflow would also be increased by any decline in the assumed time lag of  $1\frac{1}{2}$  years between investment and output because it would cause a substantial reduction of investment

requirements.

30. Further evidence that an outflow of capital from the agricultural sector is not implausible is provided by an analysis of branch expansions by commercial banks into rural and semi-rural areas in India. Over the past years commercial banks were able to substantially increase their deposits in rural areas. Estimates of credit deposit ratios indicate that funds are transferred from rural to urban centers. The credit deposit ratio in urban centers is estimated at 73 percent compared to 43 percent in rural areas. Hence, a large part of rural deposits with the commercial banks are not used for credit expansion in rural areas but are diverted to industrial centers.<sup>1/</sup>

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<sup>1/</sup> "Debits to Deposit Accounts with Scheduled Commercial Banks 1961-65,"  
Reserve Bank of India Bulletin, Vol. XXIII, February 1969, p. 141-169.

### III. Conclusion and Policy Implications

31. With the anticipated increase in expenditures during the Fourth Plan the task of resource mobilization becomes of vital importance to economic development. The problem of financing Plan outlays makes a larger participation by the State Governments necessary. The States, however, are not willing to raise more resources either through increased taxation<sup>1/</sup> or other means and find it therefore impossible to contribute a much higher share to the Plan than in the past. The financial constraint is aggravated even further by the Plan objective to reduce the net foreign assistance by half as compared with the level at the end of the Third Plan. This vicious cycle of financial constraints can certainly not be broken entirely by resorting to more deficit financing. Under these circumstances the overriding aim of the Fourth Plan -- growth with stability -- becomes a meaningless slogan, unless adequate domestic savings can be mobilized.

32. What policy implications can be drawn from our analysis in the light of the financial constraints of the Fourth Plan? In an effort not to sacrifice the Plan's priority of agricultural development and its impact on price stability, State Governments have to overcome resistance to fully utilize the taxable capacity of the agricultural sector to enable them to

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<sup>1/</sup> During the past years, land revenue taxes were abolished in many states, thus reducing the already low incidence of this tax even further, despite increased productivity of agricultural land. The receipts from this tax could have been more elastic if there had been assessments at short intervals, thus taking account of changes in the price level as well as in productivity of land. Since the 1930's such reassessments were constantly postponed by State Governments. Hence, the land revenue has lost its effectiveness as a source of taxation of the agricultural sector. Similarly to the land revenue, the agricultural income tax is only levied in some states of India. This practice results in an extremely low incidence per hectare which is almost nil on the nonplantation agriculture. In the last months the Union Cabinet debated proposals to alter the direct tax structure and to introduce a farm wealth tax. These proposals were objected to in the Parliament and among State Governments out of the fear that an increased tax burden for the agricultural sector might impair agricultural productivity.

carry out the plan outlays of public investment programs in agriculture. It must be realized that the large taxable capacity of the agricultural sector is hardly utilized at all, and an increase in direct taxation does not have a disincentive effect upon production as it is often argued by politicians, but rather an incentive effect. Furthermore, it should be emphasized that part of the financial problem lies in the direction of controlling the level and the growth rate of subsidies to agriculture. As it is with any general subsidy scheme so is the case with India: the larger farmers are the main beneficiaries. But it is this group of farmers with higher incomes who account for a large part of the capital outflow. A complete elimination of the subsidy programs would have a disincentive effect upon production. But subsidies on a selective basis benefiting only certain groups of small farmers or certain disadvantaged regions would restore most of these incentives. In 1964/65, when direct taxes of the agricultural sector were about Rs. 113 crores, total subsidies paid to this sector were estimated at Rs. 50 crores, of which the subsidy on irrigation amounted to about Rs. 37 crores. Some of the subsidy programs might have been justified to provide the initial necessary incentive to farmers to adopt a new technology. As farmers become more aware of the high returns from new technologies, it is not conceivable that an elimination of subsidies will effect the further adoption of these technologies. Thus, the disincentive effect upon production can be regarded as minor.<sup>1/</sup> Although measures to increase taxation and

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<sup>1/</sup> The recent elimination of fertilizer subsidies was a step in this direction, but it must be recognized that this subsidy was rather small and the total subsidies granted to agriculture are still very large.

reduce subsidies are necessary from the point of fiscal policy, it seems unlikely that actions on this line will be sufficient to deal with the immediate need for raising funds for agricultural development.

33. It therefore becomes necessary for the Indian authorities to resort to means of mobilizing funds other than by a sole reliance on fiscal policy.<sup>1/</sup> The most effective way to reduce the capital outflow would be by voluntary mobilization of these funds through the savings institutions and the back-plowing of these funds into agriculture. A large outflow of capital from this sector to the rest of the economy is certainly not desirable at a time when agricultural development programs by the public sector are threatened by financial restraints and when agricultural credit institutions are faced with a shortage of funds to meet the credit requirements. The dichotomy between agricultural development and its financing becomes apparent if we consider that the capital outflow from agriculture is primarily the result of deposits by larger farmers, who not only are the main beneficiaries of subsidy programs and tax concessions, but are also the major recipients of credit from the agricultural credit institutions.<sup>2/</sup>

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<sup>1/</sup> An examination of these non-fiscal alternatives has been presented in: IBRD, "India: Agricultural Credit Mission," Draft Report, March 26, 1969, pp. 62-77.

IBRD, "Economic Situation and Prospects of India," April 18, 1969, p. 50.

<sup>2/</sup> In 1961/62, 13.3 percent of rural households with assets of more than Rs. 10,000 received 53.3 percent of total cooperative credit, whereas 53.0 percent of rural households with assets of less than Rs. 2,500 received only 11.7 percent of credit disbursed by cooperative institutions.

34. The Fourth Five Year Plan, and the report of the "Banking Group for Formulation of the Fourth Five Year Plan on Cooperation," stress the importance of resource mobilization and the increase of deposits with the cooperative credit system, but provide no suggestions as to how this can be achieved. At present, the agricultural financial institutions in India (the cooperative credit system and the land development banks) are predominantly channels of budgetary and semi-budgetary funds as well as compulsory funds of captive lenders (i.e., Life Insurance Corporation, commercial banks).<sup>1/</sup>

35. As long as these institutions consider that budgetary and semi-budgetary funds are limitless and can be obtained at negative rates of interest, they are not inclined to show a dynamic effort to mobilize their own resources. In addition, a policy of low interest rates to agricultural borrowers combined with other concessionary features makes it too expensive for these institutions to raise a large part of their loanable funds through voluntary mobilization of deposits. Hence, the most effective way to mobilize agricultural savings would be through increased deposit and interest rates. The expansion of branches into rural areas is another important factor and accounted primarily for the increased resource mobilization by commercial banks. However, the high cost associated with the opening of new branches in rural areas prevents the commercial banks from establishing an intensive branch coverage. It usually takes three to four years until a newly-opened branch becomes profitable. In contrast, agricultural credit institutions already have

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<sup>1/</sup> Over a three year period (1963/64 to 1965/66), funds from the Government and Reserve Bank accounted on the average for 53 percent of total outstanding loans by the cooperative credit institutions. The dependence of land mortgage banks on funds from the Government, Reserve Bank and captive lenders was even higher and amounted on the average to 65 percent of total productive loans. (See IBRD, "India: Agricultural Credit Mission," Draft Report, March 26, 1969, Annex 15 and 16.)

a large network of branches in rural areas and would, therefore, be in a more favorable position to mobilize agricultural savings. However, these institutions were never forced to rely upon their own resources, and consequently did not find it necessary to market such banking services as provided by commercial banks. They therefore lack the necessary confidence in them to compete effectively with commercial banks in mobilizing private savings.

36. Agricultural credit institutions can only improve their image if they are made more responsible for generating their own funds and if they show a more responsible attitude in their lending policies. As long as such changes, which certainly would be revolutionary for India's agricultural credit institutions, are delayed, the only way these institutions could compete with commercial banks in mobilizing deposits and thus reduce the capital outflow from agriculture, would be by raising their deposit rates above those of the commercial banks.

	1960/61	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75
1. Gross Value Added in Agriculture <sup>1/</sup>	9,313	9,510	10,396	8,913	8,912	10,463	10,777						
2. Trend Values of Gross Value Added in Agriculture (i) Projected annual growth of 4.6 percent (1968/69-1974/75)	9,215	9,547	9,661	9,776	9,892	10,009	10,128	10,594	11,081	11,591	12,124	12,682	13,265
3. Potential Growth of Gross Value Added from the Benchmark of 1965/66			9,661	9,776	10,113	10,462	10,823	11,197	11,583	11,982	12,396	12,823	13,265
4. Potential Growth of Gross Value Added Net of the Impact of Current Inputs			9,661	9,741	9,943	10,148	10,359	10,573	10,792	11,015	11,243	11,476	11,714

<sup>1/</sup> Revised Estimates of National Product, Central Statistical Organization, GOI, 1969 unpublished, to be incorporated in the 1969 White Paper.  
The new revision constitutes a considerable downward revision of previous estimates.

# INDIA: GROSS VALUE ADDED IN AGRICULTURE AT FACTOR COST AT CONSTANT 1964/65 PRICES (RUPEES IN CRORES)

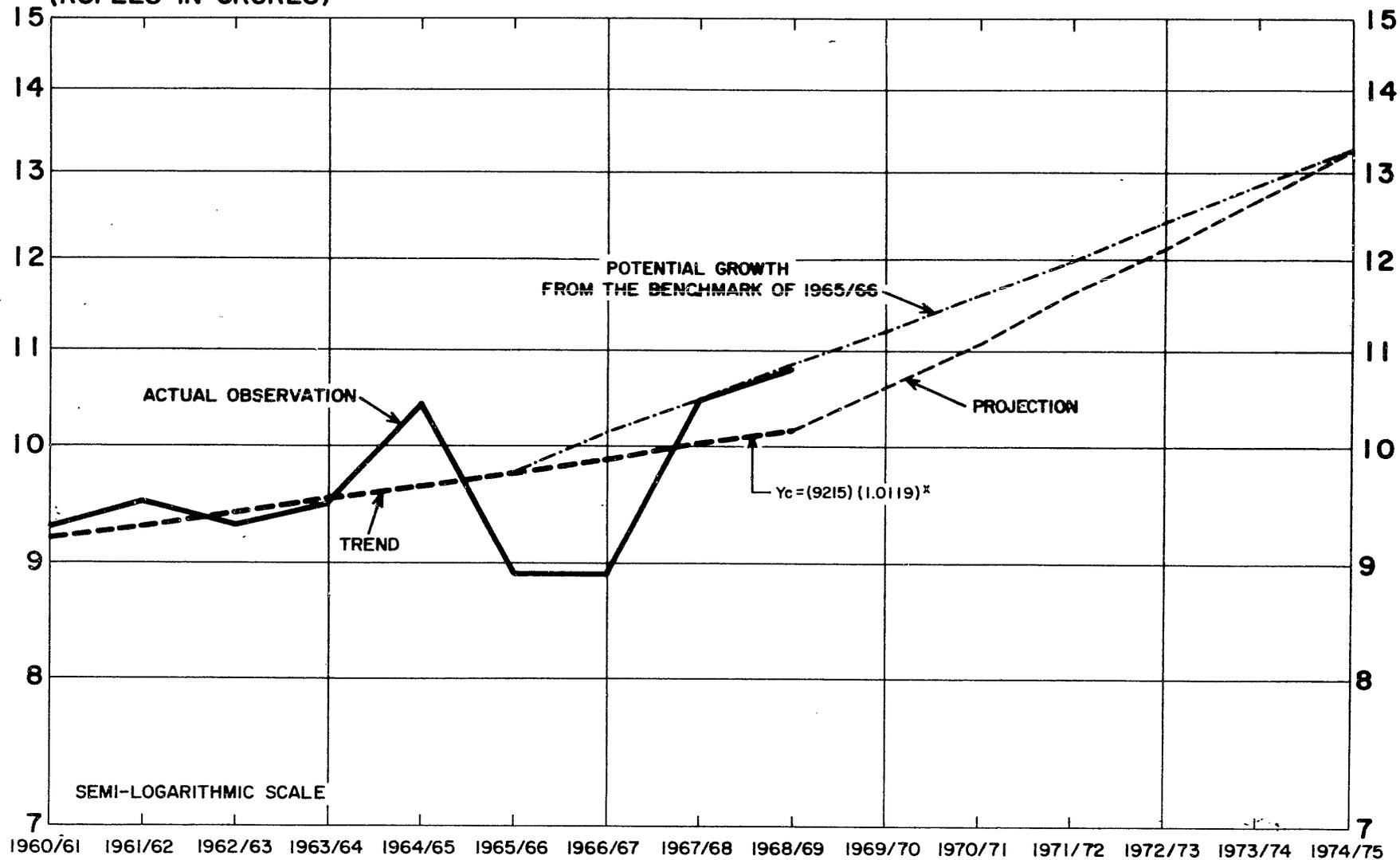


Table 2 : Actuals and Projections of Public Investment in Indian Agriculture  
Rs. in crores

	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75
<u>Public Investment</u> (in current prices) <sup>1/</sup>	180.3	197.1	226.2	283	348	366	373	364						
<u>Public Investment</u> (in constant 1964/65 prices) <sup>2/</sup>	203	212	236	283	319	295	268	262						
<u>Trend of Public Investment</u> (1961/62-1968/69) <sup>3/</sup>	219.8	229.8	240.3	251.3	262.7	274.6	287.2	300.3						
(i) <u>High Assumption</u> (1969/70-1974/75) <sup>4/</sup>									336	376	421	472	529	592
(ii) <u>Low Assumption</u> (1969/70-1974/75) <sup>5/</sup>									314	328	343	358	374	391

<sup>1/</sup> Exclusive of public expenditures for forestry, fishery, community development and cooperation, but inclusive of investment expenditures for agricultural programs, major and minor irrigation, flood control, rural electrification and rural works. The net investment for agricultural programs is estimated from the Plan documents at 64 percent of total public outlay for agricultural programs. Data from 1961/62 to 1969/68 are based on actual investment and for 1968/69 on Plan estimates.

<sup>2/</sup> Deflated by the Index of Investment cost at 1964/65 prices. Source: Planning Commission.

<sup>3/</sup> Least square estimate of equation  $\log Y = a + b \cdot \text{time}$ . Estimate of "b" = 1.0445.

<sup>4/</sup> The high assumption is based on projected public investment expenditures during the Fourth Plan of Rs. 2,650 crores at 1966/67 prices or Rs. 2,137 crores at 1964/65 prices.

<sup>5/</sup> The low assumption is based on an extension of the trend (1961/62 to 1968/69) thus assuming an annual increase of 4.45 percent and a total public investment of Rs. 1,717 crores at 1964/65 prices during the Fourth Plan.

Table 3: Direct Taxes on Indian Agriculture and Indirect Taxes on the Consumption of Farm Households

	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67
- Rs. in crores at current prices -							
Land Revenue	97.78	95.79	120.65	123.70	119.85	112.05	88.05
Agricultural Income Tax	9.49	9.44	9.59	9.26	10.73	10.24	10.57
Total Direct Taxes	107.27	105.23	130.24	132.96	130.58	122.29	98.62
Indirect Taxes on Consumption of Farm Households	28.24	29.88	36.18	44.69	44.74	60.00	68.00
- Rs. in crores at constant 1964/65 prices <u>1/</u> -							
Land Revenue	113.70	107.63	129.73	128.85	119.85	102.80	71.01
Agricultural Income Tax	11.03	10.61	10.31	9.65	10.73	9.39	8.52
Total Direct Taxes	124.73	118.24	140.04	138.50	130.58	112.19	79.53
Trend of Direct Taxes <u>2/</u>	139.85	132.43	125.41	118.76	112.46	106.51	100.87
Indirect Taxes on Consumption	328.4	335.7	389.0	465.5	447.4	550.5	548.4
Trend of Indirect Taxes <u>2/</u>	322.7	355.0	390.48	429.5	472.4	519.7	571.6
- In percent of agricultural output (gross value added) at constant (1964/65) prices -							
Land Revenue	1.22	1.13	1.39	1.35	1.15	1.15	0.80
Agricultural Income Tax	0.12	0.11	0.11	0.10	0.10	0.11	0.10
Total Direct Taxes	1.34	1.24	1.50	1.45	1.25	1.26	0.90
Indirect Taxes on Consumption	3.5	3.5	4.2	4.9	4.3	6.2	6.2

1/ Deflator: Index of Investment cost at 1964/65 prices, Planning Commission.

86                      89                      93                      96                      100                      109                      124

2/ Least squares estimate of "b" in the equation  $\text{Log } Y = a + b \cdot \text{time}$ .

Source: Ved P. Gandhi, Taxes, Subsidies and Agricultural Production (India).  
Ved P. Gandhi, Tax Burden on Indian Agriculture, Harvard Law School, 1966, Tables 12 and 13.  
Report on Currency and Finance 1966-67, Statements 52 and 56.

Table 4: Open and Concealed Subsidies to Indian Agriculture  
Rs. in million

	1963/64	1964/65	1965/66	1966/67	1967/68
	- in current prices -				
<u>Open Subsidies for:</u>					
Fertilizer and Manure	22.7	30.0	42.9	18.5	17.1
Seeds	7.1	8.1	9.1	11.4	12.1
Pesticides	5.6	7.2	9.7	12.6	13.3
Other inputs	33.7	38.6	42.6	57.4	48.3
Sub-total	69.1	83.9	104.3	99.9	90.8
<u>Concealed Subsidies for:</u>					
Irrigation	324	366	388	415	
Electricity	6	6	6	6	10
Fertilizer	-	-	15	407	-
Tacari Loans	9.8	9.4	9.4	9.8	
Co-operative Credit	29.39	30.21	36.18	38.85	
Sub-total	369.19	411.61	454.58	876.65	
<u>Total Subsidies</u>	438.29	495.51	558.88	976.55	
<u>Total Subsidies (constant 1964/65 prices<sup>1/</sup>)</u>	456.55	495.51	512.73	787.54	

<sup>1/</sup> Deflated by Index of Investment Cost, Source: Planning Commission.

Source: Ved P. Gandhi, Taxes, Subsidies and Agricultural Production (India),  
Indian Institute of Management, Ahmedabad, September 1968.