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M. Kalecki; Louis Lefebvre and M. Dutta Chaudhuri

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FOREWORD

Shri Jawaharlal Nehru, Prime Minister of India, inaugurated in the Indian Statistical Institute in November 1954, studies on planning for national development. Since then the Institute has been actively engaged in studies on planning in collaboration with the Planning Commission, the Central Statistical Organisation and other Government agencies. A part of the work was done either directly by foreign experts who visited the Institute during the last seven or eight years or in cooperation with them. Indian scholars were responsible for the remaining part of the work. Some of these papers by the visiting experts are of considerable interest from the methodological and theoretical point of view. Some others are of value because they contain interesting analyses and estimates. The collaboration of the Planning Commission, the Central Statistical Organisation and the Economic Wing of the Finance Ministry was available for the preparation of a number of these studies and the findings are something more than abstract speculations by isolated research workers. On the other hand, there are papers which are exercises by junior staff.

These studies were issued in the form of a mimeographed series, "Studies Relating to Planning for National Development", as well as in other mimeographed reports and papers. As there has been continuing demand for the mimeographed papers, it has been decided to bring them out in a printed form to make them available to all research workers interested in this matter.

Publication of these papers should be of help in promoting studies on planning in India. Experience of the last few years has shown the need of persons outside government agencies participating in the thinking on planning in concrete terms. In India it is now generally accepted that planning is necessary

ECONOMIC STRATEGY AND THE THIRD PLAN

and desirable. It is also necessary to make the public understand what planning really implies at a technical and technological level. Wide dissemination of ideas is, therefore, essential.

The present publication is the tenth in the printed series. Unlike the previous volumes, it is a collection of papers mostly by distinguished foreign experts who have critically reviewed different aspects of the economic strategy of the third five year plan. Professor J. K. Galbraith of Harvard University contributed his paper on the rationale of economic organisation when he came to the Institute for the second time in April 1959. Mr. Thomas Balogh of the University of Oxford prepared his notes on Indian economic strategy during his visit to the Institute in the winter months of 1960-61. Dr. M. Kalecki, Vice-Chairman, Planning Commission, Poland worked in the Institute in the winter season of 1959-60 on the financial policy for the Third Plan and on agricultural production. Dr. Louis Lefebvre who came to India under the M.I.T. Research Project, worked with Shri M. Dutta Chaudhuri of the Planning Unit of the Institute on transportation policy.

It is intended to bring out other selected papers based on earlier and current studies. We hope the present series would add something of value to the growing body of literature on planning in India.

30 August, 1963.

P. C. Mahalanobis

CONTENTS

	PAGE
Foreword <i>P. C. Mahalanobis</i>	v
Some Notes on the Rationale of Indian Economic Organisation <i>J. K. Galbraith</i>	1
Notes on Indian Economic Strategy <i>Thomas Balogh</i>	8
An Outline of Financial Policy for The Third Five Year Plan <i>M. Kalecki</i>	57
Measures to expedite the Increase in Agricultural Production in The Third Five Year Plan <i>M. Kalecki</i>	68
Transportation Policy in India <i>Louis Lefebvre and M. Dutta Chaudhuri</i>	72

SOME NOTES ON THE RATIONALE OF INDIAN ECONOMIC ORGANISATION

By J. K. GALBRAITH

1. Returning to India after an absence of three years I am impressed by the progress in many directions. I must confess I am also impressed by the lack of progress in working out a rationale of Indian economic institutions. This seems to me the most urgent problem that India now faces. This note is more to state the problem than to suggest solutions—although I have a few solutions to suggest. The time has come when India must seriously consider the pattern and shape of its economic institutions. Matters that are now being regarded traditionally and piecemeal must, if this is possible, be viewed pragmatically and as a whole. Let me illustrate.

2. The basic division in Indian economic institutions is between the public and the private sectors. This distinction is commonplace in everyday discussion as is the question of what industries and activities should be in the public sector. There is also a good deal of debate over cooperatives, small industries and other such issues. But there is very little public discussion of the organisation of the public sector. The decisive question is nationalisation. Once in public hands, things will work out. The real issue, to which the most attention is paid, is how to scrape together resources to establish or expand industries especially in the public sector and what the priorities should be.

3. I venture the view that the public sector has reached the point where its organisation requires a great deal of attention. India has a kind of post office socialism which is out of date and which is working far less well than it should and must. Even a fairly brief stay at the actual sites of the new steel mills reveals numerous faults and further difficulties are on the way. Competent executives are frustrated and angry over the centralisation of purchasing, personnel and financial decision in New Delhi. These delays are a source of discouragement to the

younger engineering and technical personnel who should be showing great enthusiasm. The result is poor morale where it should be high.

4. Moreover, people in the field feel no responsibility for the next steps in the development, i.e. for the enlargement of these plants. Nor is there much concern over how the present ones, when they come in, can be operated at low cost and with satisfactory earnings. Expansion is a matter for New Delhi. Presumably the foreign engineers will be called on again. Nor is the economics of plants operation a local question although success or failure will be decided locally.

5. The problem of earnings and investment in the public sector is especially urgent. Until now the most difficult problem in Indian planning has been where to get resources for investment. In a competently guided country like India—as distinct from most Middle-Eastern or Latin American countries—this, not administrative capacity, is the bottleneck. Everything turns, or seems to turn, on what can be mobilised in taxes and voluntary savings at home and what can be obtained in loans and grants from abroad.

6. Obviously, a prime aim of India must be to plan its way out of reliance on such uncertain and exiguous sources of domestic savings. (Foreign resources present a somewhat different problem.) To give people income and then remove it by taxation, inflation or appeals to thrift is an inefficient and self-limiting procedure. In both the capitalist and the communist countries, investment is in very large measure from the earnings of the industrial enterprises. These accumulate surplus which becomes available either for their own expansion or elsewhere. The enterprise thus assumes responsibility for both the technical side of its own growth and improvement and also for getting the requisite resources.

7. Something very like this must happen in India as all Indian economists recognise. Industrial plants must take on their full job which is to be efficient producers and to accumulate the surpluses which will provide for future expansion. It is very important that these surpluses be immediately identified with such further expansion. Otherwise they may become the

target of workers in the industry who can easily be persuaded that they have a privileged claim on them, and consumers may also insist on low prices as in the present case of rail passenger travel. The result will be small surplus (or none) and hence no resources from this source. What I have called post office socialism—public ownership that contents itself with avoidance of loss or a modest profit which it returns to the treasury—will inevitably prove a stagnant form of economic organisation.

8. I now come to another and somewhat related point. The proper organisation of the great establishments is not the only problem of the public sector. There is also the task of generating effort and enthusiasm in small activities—those of the village, extension blocks, cities and perhaps also the States. The need for this is well recognised and is, indeed one of the recurring themes in Indian discussion. The best planning provides people with an opportunity for doing what is beyond the mind and even the imagination of the planners.

9. But the things that arise here in the public sector—expanding local control over local public finances, the sponsorship and development of local industries, the organisation of volunteer labour effort, of cooperatives, the provision for a period of rural service by university graduates—have little relation to the problems of organising steel production or fertiliser manufacturing. They require a different organisation and, to a considerable extent, they call for a different type of mind. This type of public activity and enterprise will be blighted if it is too closely identified with ordinary large-scale industrial development.

10. We may think, indeed, not of one *public* sector but three. One sector is concerned with bringing totally new industries into existence. This has been the important sector so far—it has been creating such industries as electrical generation, fertilisers, iron and steel. The second sector, an outgrowth of the above, is concerned with the operation, expansion and regeneration of the existing industries and with providing capital for the establishment of new industries. Finally, there is the wholly different sector which seeks to develop local responsibility and the release of local energies.

11. By way of making this more explicit let me suggest in

summary form, without extensive argument, what each sector involves. I hope this will not be taken as any sort of final suggestion but rather as a basis for discussion.

(1) The three parts of the public sector may be denoted as follows :

Sector A : Initiation ;

Sector B : Operation, Expansion and Financing ;

Sector C : Spontaneous Development.

(2) The *Initiation* sector will be concerned with the launching of *entirely* new industries. This, as in the past, will be a ministerial function. However, this does not preclude the granting of more autonomy of effort than at present to companies developing new industries. And existing public firms should often be called upon to foster and develop new ones. Still initiation is a distinct function. It calls for decision as to what and where and in the early stages of creation of an industry considerations of efficiency and earnings are not vital. It is getting things started which counts. This stage of initiation has principally characterised the industrial public sector in India up to this time. However, a new phase is rapidly approaching.

(3) The *Operation, Expansion and Financing* sector embraces those industries which are now fairly launched. While in the initiation sector a considerable measure of ministerial initiative and supervision may be necessary—in the *Operation, Expansion and Financing* sector ministerial supervision and intervention must shrink to a minimum. Civil service decision making is inevitably and properly slow and deliberate and demanding in quality. Operating decisions must be prompt and they need not always be right for most such decisions are reversible. So ministries have as their principal function the selection of good managers supported by competent (though not powerful) boards and the provision of firm but workable rules by which the public enterprises shall live¹. Beyond this, ministries must hold the companies responsible for results. To this end officials should

¹ Covering, in particular, recruitment and labour relations, accounting and financial procedures and procurement policies. While the rules should effectively exclude dishonesty and favouritism it should be remembered that excessive precautions can be very costly. Rules should be enforced not by advance clearance but by post-audit.

never be members of the Boards. If they are the autonomy of the enterprises will almost certainly be lost as the Board becomes a link in the civil service hierarchy. Parliamentarians must have clearly in mind that when they question individual decision of companies they force ministries to protect themselves by asking for advance knowledge and approval of all decisions. This destroys the autonomy and hence the effectiveness of the public enterprise. And again, it must be stressed, the public enterprise must be free even to make some mistakes for these are inevitable in efficiently rapid decision making.

(4) The success of the *Operation, Expansion and Financing* sector will be measured broadly by the efficiency of its operations—its ability to organise ample production at low cost and to sell at remunerative prices.² This means that there will be earnings—profits—and these are the most important test of the effectiveness of the public enterprise. (As a measure of performance the USSR attaches about the same importance to profits as the US). Production is not the only task. The existing concern is also the logical agency to undertake expansion in its own line and even to bring into existence related industries. When it is efficiently organised for operation it will usually be efficiently organised for expansion. In any case it will be more effective for this than a wholly new, inexperienced and untested organisation.

(5) Expansion and operation in this sector should be tied together by the financing function. When a firm is given an expansion target it should be asked to prepare a plan for financing it. This plan would have first claim on earning. It would come to the Government only for what would not be supplied from earnings. If the expansion schedule does not absorb all the planned earnings these should be used to repay capital and thus become available for investment in other industries. A public development bank is a logical part of this sector.

² Control of prices is a separate chapter. To the largest possible extent they should also be under the control of the enterprise. Then prices will not be an excuse for low earnings. This decentralisation of price-making has been a major accomplishment of recent Yugoslav experience. However, there will be cases, electricity and doubtless steel are examples, where central or group price setting are inescapable.

(6) These accounting procedures, which incidentally are also broadly common to capitalist and socialist countries, have the great virtue of keeping the essential character of the enterprises and their tasks in the public view. Thus, if the enterprise is obliged to use its earnings for the planned expansion rather than return them to the Treasury, their use for development will be clear to workers and consumers. They will be less likely to assert a privileged claim on the assumption that they are profits in the old sense. It will be seen that excessive wage or salary claims—or indeed any waste—is at cost to the nation's development.

(7) Time does not allow me to comment on the *Spontaneous Development* sector which I think has great possibilities. Development is not confined to the great industrial enterprises. As a growing body of opinion in India clearly realises, much must be done—always speaking of the public sector—in releasing the energies and efforts of local bodies and organisations. Community Development is an important beginning but I hazard the guess that opportunities here have scarcely been touched.

(8) These are hurried comments. As I have observed they are intended more to provoke decision, not answer questions. I have assumed that India has made a firm decision in favour of a public sector. But this decision is the beginning, not the end, of the discussion. In the old days the principal enemy of public enterprise was, no doubt, those who disapproved socialism. Now it is socialists themselves. For it is socialists who refuse to consider seriously the peculiar requirements of the modern productive enterprise, whether public or private; who decline to give it the autonomy it must have; who destroy it by meticulously passing on its decisions and thus forcing upon it an intolerable and unworkable centralisation; who decline to see that the organisation of public enterprises must keep pace with new conditions and new tasks; who are careless about the standards to which management of the enterprises must be held; and who, on occasion encourage workers and consumers to appropriate the surplus on which expansion and growth depend and without which there will be stagnation. Above all it is

socialists who are responsible for the paralysing belief that success is a matter of faith, not works.

12. In many parts of the world, including India, there is in fact no real alternative to extensive public enterprise. And while public enterprise is often successful the record is highly uneven. It is sufficiently imperfect so that no one concerned with the success of economic development can take it for granted.

NOTES ON INDIAN ECONOMIC STRATEGY*

By THOMAS BALOGH

I. THE MEANING OF THE THIRD PLAN

1. The Third Plan has an exceptional importance of its own. Its success or failure will in fact decide whether the establishment of a socially balanced and increasingly prosperous and integrated community is feasible without compulsion by non-violent revolution. It will decide whether India is able to lay the foundations for an eventually self-sustaining growth.

2. While at the end of the Third Plan foreign help will still be needed in almost undiminished absolute quantity, the decisively important feature of the Plan is that in relative terms the importance of the foreign aid will fall at the end of the Plan as much as from 27 to less than 20 per cent of total net investment while total investment continues to increase both absolutely and even in terms of an expanding national income.

3. In this way, according to the present provisions, complete economic independence will be reached by 1970. After that date India is no longer to depend on foreign help at all but would stand entirely on her own feet¹. By continuing to divert an increasing part of the growth of income, investment would be further raised and expansion maintained despite the cessation of aid.

4. The conception of the Third Five Year Plan is admirable. It is an earnest attempt to face up to the fundamental problem of social and economic inequality; the success of which will

* These notes were prepared during a brief assignment at the Indian Statistical Institute in the winter of 1960, while working in the Planning Unit of the Institute at New Delhi. I was much benefited from discussion with Professors Lefebvre and Mahalanobis, as well as Messrs. Pitambar Pant, Ramaswami and M. J. Solomon. The shortcomings, analysis and opinions are my responsibility alone.

¹ Foreign private investment would, of course, still flow to India to utilise the greatly enhanced opportunities for profitable expansion of the supply of consumer goods in the private sector due to the increased well-being of the population.

entirely depend on the determination and self-discipline with which the execution is undertaken. Good intentions are not enough. After all, the basic conception of the Third Plan closely follows the original pattern of the Second. The Second Plan too reached up to increased national investment and savings to a level at which self-sustained expansion might be assumed to be secure, i.e. roughly a level of national savings of 10-11 per cent. This meant an increase in the rate of saving of some 50 per cent. It was hoped to accelerate the growth of the economy towards 5 per cent per annum and divert an increasing part of the increment towards saving.

5. This has not happened. Public investment failed to reach the level prescribed in the plan. The shortfall might be as large as 20 per cent in real terms. While most of this was made good by an unplanned extra expansion in private investment (which was one of the causes of the exchange crisis), the real failure has been through the insufficient level of the national effort. While consumption per head has increased by as much as 16 per cent in the last ten years and a good part of this increase was concentrated in the hands of a relatively small stratum of the population, national savings have hardly increased at all—from 6-7 per cent of national income during the First Plan to about 8 per cent during the Second. The "strain" of accelerated investment was taken not by the domestic economy but by foreign aid. From a national point of view the failure of establishing the basis of stable growth was complete. The important advances in production and social development must not blind one to this basic weakness.

6 At this level of savings the national effort is totally insufficient by itself to sustain an appreciable growth of the national income. The obvious aspect of this failure is the continued incapacity of India to obtain by her own efforts the capital goods required physically for a process of cumulative expansion. While restraint on her consumption might enable her to import them, the measures which would be required to accomplish such a curtailment of consumption, would probably be incompatible with a survival of a democratic regime.

7. Perhaps the most disappointing feature of the actual progress of the Second Five Year Plan was the failure—despite the immense extension of foreign help which could not have been expected by even the most optimistic—of an appreciable acceleration in the rate of growth towards 5 per cent per annum. The foreign aid was used for no more than to maintain the growth of the economy at the rate achieved during the First Plan, of little over 3 per cent. No doubt during the First Plan period India could rely on unused productive capacity while in the Second Plan a large part of the investment, e.g. in iron and steel and large-scale irrigation, will only benefit the country in subsequent periods. Nevertheless, the net result is disappointing. In this respect too, the Third Plan is a mere reiteration of the ambitions of the Second. And it should be realised that even the fulfilment of this target, a rate of growth of 5 per cent per annum or some 70 per cent above the rate achieved, represents a per capita improvement of less than 3 per cent per annum. It can hardly be said to deal with the problem of poverty; it cannot even provide employment for the growth of the population. It is the most modest rate of growth which is politically tolerable.

8. All in all, it may be said that the national testing time, the great challenge to India which was to have been triumphantly overcome during the Second Plan period has been postponed. Those who talk about the “dangerous strains and stresses” on the “economic system” on the basis of the experience during the Second Plan period, in fact, perform a signal disservice to the nation. It would be more accurate to speak of a national evasion of the strains and stresses by relying on foreign aid from both sides, made available mainly by the competitiveness in benevolence induced by the cold war, and by postponing the day on which an effective attack can be made on unemployment and underemployment and the poverty connected with them. It will be argued below that the targets envisaged even for the Fourth Plan seem insufficient. Unless net investment is lifted towards 20 per cent of the national income and the overall cost of expansion accelerated towards at least 8 per cent per annum

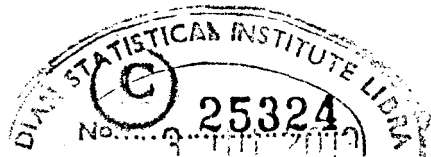
these fundamental problems of India cannot be alleviated² Even such an effort will not deal with the problem for a considerable time. It should be realized that investment per man in industry in order to give a reasonable level of productivity and income is at least \$ 2500. This would mean if industrialization is to absorb only half the increase in total population (the rest being absorbed in services) a requirement per capital investment of some \$ 5000 m. or some Rs. 2500 p.a. or more than the total investment foreseen in the Third Plan. To absorb the 20-25 m. unemployed and alleviate the fate of the countless underemployed is a gigantic task. As the population is probably increasing at an accelerated rate the backlog threatens to become unmanageable. Time is not on the side of India. A much greater sense of urgency and of danger seems absolutely essential.

II. THE FUTURE ROLE OF FOREIGN AID

9. In discussing this dependence on foreign aid and the conception underlying the Third Plan, stress should be laid not so much on the actual achievement of self-sufficiency in the sense of total ending of foreign aid, but on national independence in the sense of being able to achieve a tolerable rate of growth on the basis of purely domestic resources. While the total ending of foreign aid is neither probable nor desirable even after 1970, for reasons which I want to discuss later, it is absolutely essential in view of the vagaries of the foreign policy of the Great Powers, the growing clamour of other parts of the world, e.g. Africa and South America, on the resources of the US that India should achieve self-sufficiency in the sense of being able to stand alone and yet achieve a socially tolerable rate of economic progress without aid³. It is therefore imperative to make the most of foreign aid in the next few years.

² It should be remembered that Russia was unable to liquidate the past neglect for over 40 years after the revolution and that until recently her agricultural population was still increasing in absolute terms, despite the savage efforts undertaken.

³ Indian poverty is much greater than in most of the other underdeveloped areas, and from a purely humanitarian point of view the Indian claim for further help is unassailable. But the distribution of foreign aid is not determined by rational humanitarian considerations alone.



10. My doubts of the desirability of being without foreign aid after 1970 are based on the insufficiency of advance in India from an international humanitarian point of view, which would be possible without it, even if the Third and Fourth Plans as contemplated now were fully successful. National income per head in India would still be lower than \$ 100 per capita. Net national investment would still be only 16 per cent of the national income. These figures mean that India would still be amongst the poorest nations, probably slipping behind China, without a possibility within that framework of beginning a reduction in international inequality. Indeed it is likely that international inequality would still be on the increase, for it is improbable that the expansion of per capita income in the more dynamic part of the industrial world, such as the Common Market countries of Europe and Japan, would have slowed down to half their present rate—which would correspond to the maximum Indian rate of expansion now contemplated. Nor is it likely that the national income of Britain and America will not expand faster than it has in the past five years in which the gap between them and India was indeed narrowed.

11. Even more evident is the fact that on the basis of a rate of growth of per capita income by, say, 2 per cent per annum internal inequality in India will also persist, if not become more acute than it is at present. So long as the agricultural population is growing in absolute numbers no real relief from inequality can be expected. Yet this growth is to continue not merely up to 1971 but beyond. In 1981 the population of rural areas, for instance, is now estimated to increase absolutely by the colossal figure of 80 million. Yet this estimate is arrived at on the assumption of a sharp fall in birth rates after 1966—a fall which is based on hopes rather than facts. An immense effort will be required if this increase is not to result in a further aggravation of the disparity of the productivity between the overcrowded rural and urban India⁴.

12. Thus I discount the desirability of dispensing with foreign aid. Foreign aid will still be necessary and I have little doubt that a continuation of foreign aid will be easier and not

Cf. below.

more difficult to secure, even if the present main motivating force, the cold war competition, should abate⁵. The sense of international responsibility has been steadily growing. Foreign aid, from being a voluntary contribution by sovereign nations, is becoming slowly (as it is already within communities organised as States) a civic or human duty to contribute in proportion, or more than in proportion to wealth to the progress of the less privileged populations. Foreign aid will then become a conscious weapon controlled internationally to combat poverty and inequality in an international framework. From being needed to secure the bare necessity of economic progress, foreign aid would become a means by which the rate of growth of national income in India can be increased towards what is needed if the problem of abject poverty and growing inequality is to be solved within a generation or so. From the point of view of the international community this seems obviously the only morally acceptable strategy. All friends of India abroad, I am sure, would gladly work to make it possible. I feel, therefore, that too much stress on national self-sufficiency might diminish the sense of need and responsibility abroad. Some such formula might be adopted as :

“The Indian Government and people will do their utmost to ensure the creation by 1971 of conditions in which a steady and appreciable economic and social progress is feasible in India without recourse to external governmental help. Help will still be needed for a further acceleration of economic and social advance in India as in other less privileged countries of the world. Without it the strain in the world economy created by the seemingly remorseless increase in inequality of standards of life and opportunity cannot be alleviated.” This does not mean, however, that the Indian Government and people need not press on to render their basic development independent of foreign contributions.

⁵ Fears about the effects of foreign aid on India's political freedom of action seem exaggerated. India is sufficiently important for both sides in the cold war to make either side refrain from any pressure or policy which might drive India towards the opposite camp. So long as the cold war lasts India's freedom of action will remain unimpaired.

III. EQUALITY AND PROGRESS

13. Even such a modest end requires a concentration of effort, the intensity of which does not seem to be fully realised. When people in India talk about the strain and stress experienced by her economic system, they seem to forget that the strain hitherto experienced was—as has already been mentioned—not more than an increase of the internal contribution to investment from 6–7 per cent to about 8 per cent of the national income⁶. This small increment measures the internal effort brought towards the increase in national income. To regard this as the limit of effort is to accept failure in advance and condemn India to stagnation and eventual revolution.

14. No doubt the physical demands on the administration, as well as on the managements of various new undertakings, were very great. This strain is in some way a measure of the failure to plan adequately the physical needs of the increased output and national income. Looked at from this viewpoint the difficulties in the coal and steel sectors represent not a strain as a consequence of planning, but a stress caused by its failure.

15. What needs to be emphasised over and over again is that far from involving any sacrifice, and more especially any sacrifice on the part of those who were already above the poverty level, the Second Plan enabled a very appreciable increase in consumption of certain of the urban classes of industrial and transport workers, and some industrialists and businessmen. Without any doubt it has also meant a very appreciable improvement in the standard of life of medium and large size farmers who have begun to take what might be called an 'entrepreneurial' attitude towards their work. As against these sections of the community, there remain large rural areas and sections of the population which have hardly been affected by the progress made. There remains the basic problem of rural underemployment which has hardly been diminished, if it did not increase as a result of the growth of the population, and

⁶ The increase in taxation was so slight (from 6.9 per cent of the national income to 9.3 per cent, direct taxes rising only from 2.4 to 2.7 per cent—the regressiveness of taxation seems to have been accentuated) as not to merit much consideration in this respect.

there remains urban unemployment which is still on the increase⁷.

16. All this means an increase in inequality, against the professed aim of the Government. The impression is very strong that in industry and transport wages have risen well above 100 rupees a month. The number of skilled and semi-skilled workers who get between Rs. 150 and 200 or more per month is appreciable. At the same time the bulk of unskilled workers' wages might be as low as Rs. 45 to 60 a month for full-time work, which is not always available. With an average per capita income in the rural areas below Rs. 200 a year, and the degree of underemployment of the landless rural worker rising, the general degree of inequality must on the whole have increased.

17. I am in no position to assert that there are many in India whose situation may have actually deteriorated, though this seems not improbable in view of the rise in prices, but it would be safe to say that a great number of people still remain pressed down to a level which from all human points of view may be regarded as totally insufficient. Any successful attempt to cope with this particular problem implies, as I shall argue, the maintenance of a minimum rate of economic progress measured in conventional terms of national real income. Given the rate of increase in India's population and the character of the Indian economic system, the prevalence of unemployment and underemployment, a failure to attain a certain rate of expansions means that the degree of underemployment and unemployment increases, and with it the number of those who despite the growth of national income are unable to obtain income. Thus the degree of inequality in the community also increases. Only when the increase in employment at average income increases more than the growth of the population can progress towards greater equality be claimed.

⁷ This is evident from the Rural Labour Enquiry. The distinction is extremely difficult and fuzzy between unemployment and underemployment (or inferior employment with a social productivity approaching nil)—such as retail "trade" or superfluous service employment—even in certain parts of highly industrial countries (e.g. hill farmers in Tennessee.) In underdeveloped countries it is well nigh impossible. The only test which can be applied is earnings. So long as employment at around average income is not increasing as fast as the number of those seeking jobs, inequality, in a relevant sense, will continue to increase.

18. The annual increase in population now is probably above 8 million and will soon rise towards 10 million per annum. If these people are to be cared for, the necessity of accelerating investment and growth in the organised sector is evident. Otherwise the expansion in the organised industrial sector will show an ever-increasing sharp contrast with the continued stagnation of the rest of the economy. The relationship between the attainment of other meritorious social aims in India and the size of the plan, and especially the size of investment in organised large-scale industry on which the hopes for an accelerated increase in the national income must be based, is thus evident. Any attempt to whittle down the plan, and especially to cut its productive part, any attempt to short-cut solutions by way of spreading work or trying to cope with the problem of unemployment through solutions such as the dispersal of industry, or subsidising cottage industries without due attention to the productivity of the proposed schemes, will therefore be self-defeating and in view of the relentless increase in the population might be worse than self-defeating, decidedly harmful. Any attempt to deflect attention from the concentrated consideration of the maximum increase of the national capacity to provide productive employment *ipso facto* reduces the capacity to cope with inequality. This capacity will depend either on the capacity to enforce saving or increasing the ease with which saving will be forthcoming on increase of income. The need for a strict regard for the capacity to create increase of a given investment becomes evident if we consider that the value of increments to income decreases as income increases⁸. Thus schemes which produce greater income more quickly will facilitate increased investment which in its turn will permit further increases of output and investment.

19. This does not mean that rural industries should not be supported, or that community development projects should not try to augment the standard of life of rural populations by such means as mobilisation of unemployed through linked public

⁸ There is no need therefore to speculate on the grounds whether the individual's preference for current over delayed consumption is justifiable from the social point of view, from that of the community as a whole.

works based on schemes which might increase productivity, (e.g. dams, irrigation and drainage canals⁹) or through handicraft centres which might represent net additions to available supplies. But it does mean that the main consideration must be the most effective and largest possible increase in the organised industrial sector of the economy, the development of which represents the only hope of being able eventually to provide employment in industry for a growing part of the population at a rate of productivity and remuneration which compares favourably with that in the richer communities of the world.

20. Within the task it would seem essential to choose techniques which enable the largest possible utilisation of manpower. Labour-saving devices must not be employed unless the nature of the technical task makes this unavoidable. What must be avoided is a reduction of the capacity to provide employment through using available scarce capital and management inefficiently.

21. This means that the problem of the less favoured areas must be tackled for the moment by efforts to increase rural productivity, rather than by forcing new industries at this junction to migrate and develop in unsuitable places, in unsuitable units. And it should be realised that in most cases even this might imply a fall in the efficiency of the investment which must be offset by measures increasing its total volume. A rather high degree of affluence would have to be reached before social considerations might become sufficiently powerful to take measures deliberately cutting productivity rather than permitting growth and trying to secure equality by taxation and by the extension of public ownership. That time is not yet.

22. Much more attention, however, should be paid to as wide an increase of access to education as possible, both as a powerful means to achieve equality of opportunity and also to accelerate growth through the creation of a background of receptiveness for technical knowledge and skill. The access to education, especially technical and higher education, is still

⁹ Cf. my paper on Linked Public Works, *Oxford Economic Papers*, 1961.

extremely limited and (partly in consequence) the establishment of closed new privileged minorities is threatening¹⁰.

23. Thus the popular distinction between purely economic and social aims of the plan are based on a fatal misconception of the consequences of the failure to maintain a minimum rate of expansion. Any claim to the achievement of a socialist society, or even a modest progress towards the end of establishing a socialistic or socialist community, is inseparably bound up with the size of the plan and the contemplated rate of economic growth. The task is to arrive as quickly as possible at a position where productive employment can be provided not merely for the increase in population, but also a beginning made towards reducing the vast backlog. This is far from being the case. I shall try to spell out the practical implications on the detailed principles of planning of this basic conclusion in a subsequent section.

IV. THE RELATION BETWEEN ECONOMIC AND SOCIAL ENDS

24. If, then, under present Indian conditions the popular distinction between the economic and social ends needs to be scrutinised with great care, because the attainment of wider social aims is almost entirely dependent on a minimum economic progress, there is also the need already at this juncture to envisage clearly the possible cleavage between social and economic ends when a measure of affluence will have been achieved in India.

25. I do not think that a long disquisition is needed on the growing unease in highly developed capitalist countries due to the dependence of continued high employment on continued profitability, which in its turn drives an increasingly saturated economy towards the artificial creation of wants. Only if dissatisfaction is created can production yielding adequate profits become possible. In contrast collective needs such as town planning, health, education, etc. are starved because they depend on taxation, and a powerful publicity machine is mobilised to appeal to immediate self-interest in fighting increases in taxation. Thus the affluent society suffers from increasing social and psychological stresses.

¹⁰ Reference to Professor Lefebvre's forthcoming paper.

26. What is perhaps less realised, because of Professor Galbraith's exclusive concentration on the problem of the United States, is that the problem of affluence, the problem of the creation and satisfaction of wants, in some respects is posed in a more acute form in communities which combine a low average income with grave inequality in its distribution than in rich countries. If the pattern of income distribution and production in a community undergoing a violent industrial transformation is not directed towards the desired end, but is left free to develop, there is grave danger that the emerging industrial structure will be shaped by the current anomalous, because extremely unequal, income distribution. Once the pattern of consumer goods industries has evolved, a strong vested interest among workers is created in the continuance of the anomalous distribution of income for fear that a change in the income distribution would result in unemployment and distress. If a better society is to emerge from the industrial transformation, either a balance between incomes must be created at the outset or licensing of private and the establishment of public sector enterprises must take into account the end aim of the system.

27. The proposed establishment of a so-called 'people's car' factory in the public sector shows the extent of the failure to realise this simple truth. To call a motor car 'people's car' when the production proposed is some 10,000 per year for a population of over 400,000,000 is, to begin with, patently incongruous. By introducing the new model a new want is created, social pressure to obtain a vehicle widened, savings decreased and credit control made more difficult and an additional social conspicuous distinction is created causing disharmony. Thus quite apart from the unfavourable implications on resource allocation and productivity to which reference will be made below, a positively harmful influence is created on the demand side.

28. The control of productive activity through licensing should closely conform to the desire to create a balanced socialistic society if that is really the declared political desire of the country. The creation of new wants is directly hostile to saving and accumulation and thus impairs the growth of the economy. It must be kept under strict control. In particular, care should

be taken now not to introduce into Indian society the social escalation of material desires which has led to such frustration in the highly developed industrial countries of the West. A better balance between work, leisure, material income and satisfaction and between private and collective consumption might be striven for. This will not merely make India a better balanced society than now exists in the West, but will hasten the day (because of a concentration of effort and the avoidance of conspicuous consumption) when a satisfactory minimum standard of life for the great multitude of the Indian people can be achieved.

29. In principle, taxation can be devised—such as the expenditure tax—which progressively limits inequality in consumption as income increases, without interfering with the incentive to effort and investment. In combination with capital and capital gains taxes even a progress towards better distribution of wealth could be achieved. In practice the resistance of the majority of the voters to increased taxes even when they are not personally affected by the tax measures has been sufficient to limit such attempts. Moreover, the efficiency of the measures has been shown to be impaired through various legal ways of avoidance or illegal types of evasion. It is exceedingly difficult to keep track, and prevent the shifting of the burden of personal taxes on to the organisations employing them so long as the organisations are privately owned. New loopholes have always been found, and the attempts to make taxation effective and countering the moves by the private sector call for the employment of increasing numbers of able and skilled persons whose efforts should rather have been concentrated on increasing productivity and production.

30. In these conditions national ownership and public accountability represent one way of securing greater equality and an increasing share of the national income for collective purposes which is an essential condition for the establishment of a balanced and satisfied community. National ownership could perform this task only if it does not result in inefficiency and waste and if it can contribute to national accumulation and investment.

31. In particular, the dynamism of Indian growth of population—and of production—necessarily creates a vast appreciation of land value. In the social and economic framework of India¹¹ a large part of this capital gain has been alighting consumption. Thus the failure to acquire land near cities and development sites represents an important cause of the increase in inequality and of the insufficiency in domestic savings¹². Public ownership of land acquired compulsorily at pre-development-use-value is an essential requirement for the success of the conception of the Plan. Land should then be leased to users on sufficiently long term—40 to 50 years—to enable orderly planning and give material incentives, but not long enough to permit large speculative gains.

32. The conclusion needs to be stressed that the mere fact that a proposed industrial development (e.g. the production of a small car) is to be included in the public rather than in the private sector is not sufficient to establish its desirability. While the increase in the scope of the public sector is an essential condition in the strategy of establishing a “socialistic” society each individual project must be carefully scrutinised from the point of view of its effect not merely on the pattern of income distribution and demand but also on the rate of growth of total national accumulation and production through increased efficiency as the main weapon in the struggle for greater equality.

V. THE RELATIONSHIP BETWEEN PHYSICAL AND FINANCIAL PLANNING

33. A certain lack of clarity characterises a great deal of the discussion on the requirements and implications of planning. In particular a tendency is manifest to regard the problem in

¹¹ The importance of this powerful engine of inequality is shown by the surprising lack of impact on the distribution of wealth of the steeply progressive tax system in highly developed countries. Capital gains in land values were one of the most fruitful ways to preserve and increase wealth.

¹² It is surprising that even in the case of new towns, e.g. Chandigarh, land was sold and the public authority undertook furnished public utility connection without any planned schedule of development. Large capital gains and an undue increase in investment requirement was the inevitable consequence.

global monetary terms and to calculate the resources in terms of various types of finance. The influence of Keynes is manifest in these exercises. On the one hand the outlay is fixed in terms of money and the estimates are made on the basis of various hypotheses regarding the growth of the national income, consumption, imports, etc. to cover this outlay by taxation, savings and the increase in the cash holdings the economy needed as a result of the expansion.

34. This procedure is thought to safeguard the stability of the system, avoid inflation and secure balance. Even the experience of highly integrated and fully developed economies with flexible production structure buttressed by high rates of accumulation and international reserves as well as fairly elastic export possibilities enabling a freeish import policy, has not borne out the hopes implicit in this attitude. In the first place, the impact of taxation on savings and consumption is not easy to forecast. Secondly, modern economies have shown themselves prone to sharp bouts of instability due partly to changes in the demand for durable consumer goods and partly (perhaps even more important) in the demand for stocks of commodities for working capital. The anticipation of price fluctuations of primary products had an extremely destabilising effect, because it brought forth the fluctuations which were anticipated and thus proved self-justifying. The experience of Mr. Gaitskell in Britain in 1951 when he tried to balance the nation's economic account by cutting social services by £ 40m and was then confronted with an increase in commodity stocks of roughly £ 600m, shows the difficulty, in an unplanned economy, of achieving a neat global balance. A similar difficulty was experienced by India in 1958 when the unplanned increase in the capital goods imports by the private sector resulted in a drain on exchange reserves.

35. No doubt the physical controls now in being in India can be used to prevent such strain. Nevertheless, reliance on global balance would seem to be both ineffective and liable to hinder the attainment of the professed objectives of the plan.

36. In the first place, global balance is likely, in present Indian conditions, to be quite insufficient in assuring stability.

The Indian economy is not an integrated system. The subsistence agricultural sector and small handicraft is only tenuously linked with the organised money economy, and remains extremely rigid. The elasticity of the economy is further limited by the lack of foreign reserves and the unfavourable outlook for the bulk of traditional exports¹³.

37. The lack of detailed physical planning for each sector might in these circumstances result in awkward partial unbalance which might put a very severe strain on supplies and prices in that sector, and radiating from that sector start an inflationary general rise in prices and prevent the physical increase in output. The gap cannot be bridged by imports. Failure of careful and detailed physical balance in vital sectors will also result in a failure to attain the hoped-for rate of expansion, for no idle reserves in productive capacity and usable manpower are available. It would be essential, therefore, to move from the simple global calculations to a more detailed

¹³ This relatively unfavourable outlook does not exclude the possibility of increased exports in special lines. Within this rather depressing picture there are some quite bright spots and, on the whole, Indian primary exports prospects seem somewhat better than average for the simple reason that India is interested in a number of products in which demand is likely to increase with income (hides and leather, iron ore) and which are on the whole basic substitutes for higher-value products (vegetable oils, cotton waste) or in which Indian exports do not represent a dangerously large portion and could be increased without affecting the market (coffee). Improvement of production techniques, sorting, standardising, handling and storing seems required in almost every one of the commodities. Generally speaking, the subsidisation of the production of those commodities in which India has less (or no) comparative disadvantage (e.g. vegetable oils) is more likely to yield satisfactory results than those where it is large (sugar). Certainly there will be cases where an increase in production of relatively cheap commodities is impossible or very costly.

The value of marginal increments to the foreign exchange supply is far higher than indicated by the conventional foreign exchange parity of the rupee. This can be made evident by contemplating that the import of additional fertilisers would increase production by at least three times its own value. Thus the export of additional commodities to buy fertilisers would pay marginally up to, say, 150 per cent surcharge over the rupee parity. The import of certain machines might give even more startling marginal increments if they represent bottlenecks.

So long as the present restriction on imports remain, the use of the conventional foreign exchange parity of the rupee for planning purposes is quite unjustified. The fact that India suffers from severe under-employment and that the degree of this under-employment will not be mitigated in the next five years is a further powerful argument to support this view. The case against devaluation or a "floating rupee" is overwhelming. But for planning purposes exports might be valued at a suitable rate to correspond to the value of possible imports for the Indian economy. *Cf.* my paper on Export Prospects.

conception and supervision of the plan made at each stage of the production process.

38. The economic meaningfulness of the global balance is further impaired by the character of foreign finance which tends to increase rather than decrease the rigidity of the investment process. Foreign resources are more easily available for certain specific projects rather than for general balance of payments purposes. In consequence, while the need for complementary imports increases, the capacity to pay does not rise and a further unbalancing factor is introduced into the picture.

39. In these conditions the failure to plan sectorially on a physical basis may result in the loss of valuable opportunities and depress the maximum attainable rate of expansion. Indian national income has been shown in the past 10 years to be still subject to the influence of the vagaries of the weather. Unless detailed preliminary physical plans are prepared well in advance and possibly beyond immediate implementation possibilities, against the chance of increased foreign aid or unforeseeable increases in harvests, such opportunities cannot be fully exploited. Not only will resources thus be wasted but incalculable harm will be done to the psychology of the producers.

40. These seemingly self-evident propositions do not appear to be firmly grasped. Nor is the close relation between sectoral balance and the size of the plan realised. The "Draft outline" for instance foresees an acceleration of agricultural growth of over 6 per cent per annum to attain a cumulative expansion of over 30 per cent in the five years¹⁴. Yet it assumes that national income is to rise by over 5 per cent per annum only¹⁵, although industrial output is expected to increase by well over 60 per cent¹⁶, just around 10 per cent per annum. If agricultural output is in fact to increase by over 6 per cent per

¹⁴ Outline pp. 32, 33. Foodgrains, being by far the most important part of the total, are expected to go up by 33-40 per cent. It is surprising that the growth of oilseeds and sugar, though demand for both is far more likely to rise faster, is expected to expand less. Even within the agricultural sector the view of prospective balance seems uncertain.

¹⁵ p. 31 para 24. *ibid.*

¹⁶ The industrial target belongs to the imaginative school of statistics. It is assumed to be 362 (1950-51=100) by 1965-66. But its level for 1960/1 is stated to be 221 on the same basis (p. 228). As industrial production in 1959/60 is said to have been 151.1 (p. 18) a growth rate for the last year of the Second Plan is roughly 50 per cent. *ibid.*

annum, incomes would have to rise far faster if an agricultural crisis is to be avoided which would put a stop to any ordered expansion. These relationships are either not understood or deliberately neglected.

41. Global planning thus has a second and even more unfavourable consequence. In order to be successful it has, at least subconsciously, to pay attention to possible physical limitations. Thus the global balance must be struck on the basis of the anticipated narrowest bottleneck to be on the safe side and avoid inflationary pressure. Hence the discussion is usually conducted by reference to the need for maintaining sound financial principles, i.e. by restricting the plan to the rate of the least progressive sector of any importance. At this level of policy-making this is, indeed, the criterion of sound financing. Development is restricted to the rate at which bottlenecks are no longer anticipated, i.e. at which no concentrated administrative effort is needed or special responsibility is thrown on to the bureaucracy. The great advantages of this procedure are patent from the point of view of the "planners", even though it means that the economy is held back well below the possibilities which could be achieved by an appropriate mobilisation of resources (especially rural resources) in terms of human labour and skill and productive capacity.

42. Global planning in India thus means, for the reasons already discussed, not merely a loss of potential income—difficult as this would be to bear in India in contrast to more privileged societies, where no positive hardship may arise from stagnation—but also a threat to the character of balanced social development because it results in an insufficient provision of employment at average wages relative to the increase in the population and thus increases inequality between those who are privileged to obtain employment and those whose needs both for work and income necessarily remain unmet. Once this is realised, the meritoriousness of a "conservative" financial policy and "sound" global resource utilisation planning vanishes. It is revealed as a kind of mental laziness and lack of determined courage which tries to shirk exertion at the cost of perpetuating or at least prolonging the agonising transition period in which

Indian planning will not be able to provide a substantial equality of opportunity for the population.

43. The only politically sound and morally responsible strategy involves steady pressure up to the limits of physical resources. It involves hair-sharp sectoral balance and concentration of attention on the widening of supply bottlenecks as they arise. The soundness of a plan from a national point of view can be tested only by the strain it causes. A lessening of strain, the accumulation, for instance, of foreign reserves, means that the system is not being driven to the utmost of its physical capacity. It means not a success but a failure of planning. This does not mean that the strain should be permitted to make itself felt through an uncontrolled inflationary pressure, through an increase in prices. The consequences of such an inflationary process in Indian conditions would be most unfavourable both economically and socially. Savings habits are frail and the distribution of income is very unequal. Inflation would undermine the former and worsen the latter.

44. Pushing the economic system to its limits means that the purchasing power created through investment, inasmuch as it is not offset by the rise in income associated with the investment¹⁷, must be either intercepted by taxation or deflated by direct controls into savings or innocuous expenditure (i.e. expenditure which does not impinge on scarce resources, especially which does not burden the balance of payments but makes use of excess capacity). It means, therefore, a need for constant vigilance and great flexibility. It represents 'sound finance' in a true sense of the word. A community can within wide limits set its target for national expansion and maintain monetary stability. Each acceleration of growth will, other things being equal, only demand greater vigilance and greater effort. To accept the *status quo* as the criterion of the extent of the effort means the acceptance of a deficient standard determined

¹⁷ The fact that an increased productivity of the investment is likely to raise savings (including the increase in money holdings) does not seem to be appreciated. The efficiency of investment thus is an important factor determining the limits of safe deficit financing.

by historical accident and misfortune. It is not good enough.

45. A further point now needs to be made with some force. Global monetary planning is based really on the principles governing budgets only superficially modified to take into account "economic" or "overall national income" changes. It is in essence a disjointed operation which is entirely legitimate so long as the State impinges on the economy only on the margin. Physical planning on the contrary necessarily deals with the continuous stream of the physical requirements of materials, men and power needed to obtain final products. The end of a Five Year Plan does not mean nothingness. It means that the intermediate stages of the final pattern of output due in the next five years has to be prepared and partly put into being. The fact that in each of the past two five year plans a certain vacuum opened in the last year, depressing investment below the level which could physically have been maintained (especially as on both occasions the harvest was excellent), shows how incompletely this self-evident maxim has been acted upon. The present uncertainties about the rate of expansion of the steel capacity shows also that the continuity of the physical expansion process is not altogether comprehended outside the division directly responsible for long-term perspective planning. It is essential that the plan should be elastically rolled forward over a longish, 10-15 year period, for otherwise the rationale of the plan is likely to be lost sight of.

46. This forward planning is also essential because the exclusive concentration on a relatively short fixed period is likely to lead to unbalance and a deterioration in the quality of projects. If, for instance, regional "balance" is striven for in each five year plan, or indeed in each annual budget period, this will inevitably entail pressure for decentralising projects in order to share them out, with attendant loss in productivity, for in each short period, and on the basis of the relatively low volume of annual investment, regional "balance" can hardly otherwise be attained. Thus short-term budgeting, far from ensuring "fiscal responsibility" and "soundness", undermines the effectiveness of planning.

VI. INVESTMENT AND GROWTH

47. The rate of economic progress will partly depend on the rate of investment and partly on its effectiveness. The experience of the two Five Year Plans has demonstrated the difficulty of raising the rate of domestically financed investment. We shall presently discuss ways in which the domestic capacity to undertake investment can be strengthened. Even if greater success can be achieved than can at this juncture be confidently expected, the utmost effort will be needed to secure the highest possible return for such limited investment as will prove practicable. Domestically carried net investment is only about 8 per cent of the national income, in contrast to more than 25 per cent in Japan and 20-22 per cent in Germany. In the next ten years it is to rise to 16 per cent. Unless completely revolutionary financial measures and direct controls on consumption are undertaken this will only be possible if national income rises sharply, i.e. if investment is very effective.

48. Such an increase in the productivity of investment has in fact been assumed for the Third Plan: the rate of increase in income is to be accelerated from $3\frac{1}{2}$ to over 5 (really 6) per cent, or by 40 (70) per cent, while investment is only to increase from 11 to 14 per cent, or just over 25 per cent. There is, of course, no physical impossibility about this task. The fact that a considerable investment both in industry (steel) and agriculture (major irrigation works) has by no means yielded its full fruits during the Second Plan is obviously a great help. But to obtain full yields in future will necessitate energetic and coherently planned action. It will not be an easy task. The price mechanism cannot at present in India automatically ensure optimum allocation of resources or their efficient utilisation. Detailed and careful planning on the physical side is absolutely inescapable if this is to be achieved.

49. This need for concentrating efforts to increase physical productivity of capital investment does not seem to have been realised, or if realised not sufficiently taken into account in planning production. The comprehensible desire to assure an even development of the country, and more especially to

accelerate the economic development of the more backward regions, has in this respect had an exceedingly unfavourable impact.

50. The advantages of the more happily situated industrial centres are manifold: a supply of trained manpower is more easily available¹⁸, the infra-structure social capital investment exists and its expansion, as against a completely new start, is less costly. This applies to both the energy as well as transport and ancillary services. In all these matters backward areas had grave handicaps to make up; housing, roads, transport, public utilities have to be provided, special training schemes arranged. All this represents a grave strain on resources, and more especially on the scarce resource of administrative and management capacity.

51. Expansion in the advanced areas is easier to start and also less costly in capital investment to sustain. By concentrating at first on a few privileged regions, therefore, a greater increase in income can be achieved and thus the point can be hastened at which cumulative growth can be attained on the basis of domestic resources. A more rapidly increasing income automatically results in a faster cumulative expansion of resources at the disposal of the Government. Over a longer period, therefore, a balanced growth of the country could more efficaciously be secured by concentrating effort than if at an earlier moment the more limited amount of resources than are available later would have been spread over wider areas and thus decrease the effectiveness of that investment. But, admittedly, in the short run this would mean an increase in the inequality between the most favoured and the not quite as favourably situated areas. It would not increase the extremes of inequality, because in either case a number of people will for some time be left out in the cold because the total increase in population cannot be placed in employment at around average income levels. Inasmuch as the dispersal of progress postpones the day on which full absorption of the increase in population can be achieved, it also aggravates inequality from a longer-run viewpoint.

¹⁸ And training arrangements can more easily be organised where there is industrial tradition.

52. Statements made by the Government, including the Draft Outline of the Third Five Year Plan, indicate that many do not seem to be aware of the dilemma which exists. The inescapable choice between decentralisation and effectiveness of capital investment is completely ignored. It is taken for granted that if a balance in regional growth is secured, this would *ipso facto* also secure the most advantageous growth. It is evident from the strain thrown on the transport system and the immense increase in the needs for new investment in railways, that the diversification of industrial development has already exacted and continues to exact a tremendous toll from the available scarce capital resources of the country. The rates policy of the railways has, as will be argued below, aggravated this strain.

53. This is not all. Attempts both in the private and public sectors to distribute industries equitably have led to two further unfavourable developments. In the first place, the choice of the size of industrial units to be established was not exclusively determined from the point of view of technical effectiveness, which mainly depends on the scale of production proposed and (especially in heavy industries) on the location of the industries. In a number of important industries (including the chemical industry) a deliberate policy of spreading investment over a number of localities was adopted. Thus the scale of production in each unit was reduced with consequential proportional or more than proportional increases in costs of production, especially overhead costs. In certain cases this has led to the creation of excess capacity which cannot be utilised for a long time to come.

54. Another aspect of the same problem was involved when the start of new industries was not determined from the point of view of preventing the premature establishment of unduly small sized units, the very existence of which will perpetuate in India the wrong type of production at an enormous cost, and postpone if not prevent the eventual emergence of industries sufficiently productive to compete on equal terms in the world markets. Yet from both the point of view of Indian economic independence and from that of securing a satisfactory

level of Indian standard of life, the rise of such fully competitive industries is an absolute requirement. The motor-car industry is only one of the glaring examples which spring into mind. A number of other (especially durable goods) industries could be mentioned in which the handicap is perhaps not as great and which are perhaps not as important in the long run. In all these a premature and wrongly-conceived expansion in fact prejudices an eventually faster progress of the community towards a balanced and prosperous state.

55. Nor was this the only unfavourable effect. Not only have these industries had an effect in shaping a pattern of Indian demand, and especially the demand of the emergent prosperous middle class towards the unhealthy, acquisitive and conspicuous consumption which has developed in the rich western industrially advanced countries, but their relative inefficiency will represent a serious barrier against progress towards a situation in which the increase in productivity and the cheapening of the supplies of simple standard products could be expected to produce a socially balanced prosperity on the basis of greater equality in India.

56. The proposal, for instance, to establish a so-called "popular car" factory in India at this stage of development, when average income per head will still be below 400 rupees, shows an imperfect realisation of what is involved. The fact that this factory is to be established in the public sector does not, as we have already said, in any way detract from its disadvantages. Indeed it might be argued that its establishment in the public sector might increase the disadvantages, inasmuch as it would obviously be more difficult for an enterprise in the public sector to charge prices sufficiently high to make a substantial contribution through increased profits to the general increase in capital investment in the public sector, and pressure to make it a success despite the high cost which is inevitable for such small-scale production as is proposed, and to secure a market for its product, will presumably also discourage attempts to charge adequate excise, the alternative way of deriving some means for the increase in the level of general investment.

57. The establishment in India of factories of a size and scale of production which does not correspond favourably to the world level should only be permitted if the unit can be effectively amortised within a relatively short period, and if in the meantime it has a direct contribution to make to the growth of the Indian economy, either by providing import substitutes of essential capital goods or intermediate products. The establishment of consumers' goods industries should be staggered so as to safeguard productivity and their possible contribution to exports. In particular, the establishment of foreign enterprises in industries in which the market is narrow but inelastic and expanding, in which competitive supplies cannot be made available through imports because the commodity is not an essential, might well result in such an increase in profits as to burden the balance of payments unduly with future transfers without contributing to the capacity of India to earn foreign exchange either directly or indirectly¹⁹. No indiscriminate favours for foreign investment in India are justified if the conditions of the licence do not provide a suitable limitation of the eventual burden on the balance of payments or contribute directly or indirectly to foreign exchange earnings²⁰. It would be far preferable to acquire technical know-how or foreign participation in management on fixed terms based on present rather than future profitability. Thus the large gains which will accrue to the firm through the planned growth of the Indian economy would be secured by the country rather than accrue to foreigners. In particular, arrangements by which amortisation of a productive facility erected by foreigners is paid in terms of Indian products at fixed rates should be favoured, as they create their own transfer possibility and secure an immediate increase in capital available.

58. It would seem essential, therefore, to review the principles on the basis of which the licensing of private factories and

¹⁹ There would be no import savings if the produce is an inessential consumers' good.

²⁰ The licensing authority should ascertain whether the foreign firm will restrict the exports of its Indian subsidiary or license to foreign countries. Such restrictions might prove very inimical to the Indian balance of payments.

the establishment and operation of public ones is handled. Proposals, however otherwise meritorious, which involve either undue burdens on transport because of locational drawbacks, or because they involve the establishment of wrongly sized industry, have the effect of increasing capital requirements for any given increase in national income. In many cases the political or social value of the proposals will be thought to outweigh this objection. So long, however, as the Indian economy has not reached a rate of expansion at which it can absorb at least the increase in population at average level of income and thus decrease inequality, such investments cannot easily be justified. Such proposals should be countenanced if they can be accompanied by measures which increase the investment capacity of the economy for any given level of income. Such balancing measures could consist either of increased taxation or such direct controls as would have the effect of limiting consumption and increasing savings. Only in this way could the depressing effect on the increase in national income of the failure to safeguard the maximum effectiveness of investment be offset by increases in the size of investment. The widespread failure at present to appreciate the grave social consequences of lack of attention to the effectiveness of capital investment, especially in the public sector, and the urgent need to increase its contribution to the level of general investment must menace the very aims of the Third Plan.

59. One of the most important ways in which scarce capital can be utilised more effectively when labour is abundant is the introduction of multiple-shift working and an increase in the manning of the plant²¹. This does not seem to have been encouraged. The reasons for this failure are obscure but they may have something to do with the desire of technicians to avoid a quick physical using up of plant. Provided that the product is adequately priced so as to provide for an economic

²¹ Cf. the extremely interesting and important study by M. J. Solomon, *Patterns for Optimum Plant Utilisation in India*, Indian Statistical Institute, Calcutta. By increasing the manning of factories scarce plant can be more intensively used. Given the relatively low rate of wages this would increase profitability, especially if the cost of capital and foreign supplies is duly taken into account.

replacement of the plant, the fullest possible current contribution of the plant to the increase of the national income would obviously be imperative in conditions of poverty such as exist in India today.

60. A number of ways are available to promote multiple-shift working. Accelerated depreciation allowances for multiple-shift working might be one. This involves a tax-free loan to the industry during the physical life of the asset as it is depreciated. As such a subsidy to capital is unjustified, certain suitable balancing cuts in normal depreciation allowances might be introduced. An administratively workable solution should prove easy to elaborate.

VII. PRICES AND EFFICIENCY

61. Most of the discussion concerning price policy centres on the problem of avoiding inflation and on the related demand to stop profiteering and promote a more even distribution of income. The role of price mechanism in allocating resources and affirming efficiency has only been stressed by those who believe that government intervention is unnecessary, indeed harmful, and who plead for general decontrol (including a devaluation or even the "setting free" of the Rupee).

62. This tendency is deplorable. It is obvious that in present conditions in India the "free" working of the price system could not bring forth efficient production to ensure maximum growth, or in the economist's language it could not function as an optimal allocative mechanism. Relative money prices do not express social real cost and the reliance therefore on current money price would result in a sub-optimal allocation of resources. It is equally obvious that the destabilising effect of speculation would, if "liberalisation" took place, result in a cumulative inflation which could be repressed only at the cost of such deflationary counter-pressure as to cause severe unemployment and threaten growth.

63. The main but by no means the sole reason for this incapacity of the price mechanism to assure optimum production is the prevalence of underemployment and unemployment. The economy is fragmented between a largely subsistence agricultural

economy and an organised sector, the relation between which is only tenuous. Neither in the labour nor in the capital market is there a unified price or even a tendency towards one. In the labour market mobility is impaired, partly because of the dearth of skilled workers. This again is due to the insufficient educational structure. In the field of salaries, too, imperfection and monopolistic income determination is the rule. It is matched by a non-competitive (monopolistic or oligopolistic) determination of prices of manufactures, due in its turn to insufficiency of entrepreneurial ability, the prevalence of mercantile spirit and the scantiness of the market which prevents the rise of vigorously competitive units²². Equally marked are the fissures in the capital market. Conditions in the organised banking system and the security markets have little or no relation to the situation which governs the activities of the non-organised money lenders which according to surveys²³ supply 70 per cent of the agricultural population with what credit they have. But even in the so-called organised market the fewness of units, the close connexions between mercantile, industrial and banking organisations, creates a situation which has no obvious connexion with the impersonal working of a perfect market.

64. Thus the deep-rooted lack of integration between the various constituent sectors of the economic structure, a large part of which is imperfectly linked to the market, money, economy, prevents the enforcement of efficiency through the working of the competitive system, as pictured in the text-books, in both factor and product markets. Moreover the degree of monopolistic power and the capacity to exert political pressure in each of the sectors, and even within each sector, differs sharply. Thus there is no reason to suppose that a "freeing" of market forces would result in an efficient allocation and effective use of available scarce resources. Inasmuch as the failure of short-term money costs to correspond to long-run comparative real social costs is graver in some sectors than in others, and

²² Even in more highly developed areas the tendency to oligopoly or monopoly is marked.

²³ Cf. Rural Credit Survey.

there is no semblance of or tendency towards the establishment of a unified market, reliance on the price mechanism without a discriminating conscious management is liable to perpetuate or even aggravate the existing inappropriate use of available resources.

65. It should be noted that in the case of economies at an early stage of their development, such as India, the failure of current money prices to reflect the immense potentialities of future expansion in terms of cheapening of production is far more detrimental to welfare than in richer countries. The fact that investment must proceed in discontinuous projects, each of which has an appreciable effect on the working of the whole system (the so-called "external economies"), makes itself much more felt at a low than at a high absolute level of capital accumulation. The impact of the establishment of modern large-scale industry in India will in the first instance have an effect on the supplies available to and increase the markets of all other Indian industry. The price mechanism does not take into account this general invigoration of the economy through investment.

66. Thus central planning, co-ordination and control of investment in Indian conditions is entirely justified. Only a coherent overall view will enable the orderly establishment of industry in proper sequence and shape. The danger of speculative waste of capital, combined with habitual neglect of the basic industries, which are risky partly because they are capital intensive, would stifle balanced growth as it has stifled it in all but the most exceptionally well-endowed non-industrial economies.

67. The instinctive distrust with which the working of the price system is regarded in India is objectively well justified. This does not mean, however, that planning need not concern itself with prices. Indeed, if it is to be successful it will have to modify short-run money prices to correspond more closely to the social real costs embodied in them and enforce this modification on the working of the system.

68. A certain number of harmful preconceptions seem to need analysis for action. The first of these concerns the problem

of pricing in the public sector in general. The second concerns the modification needed in respect of certain key prices, such as that of capital and foreign exchange, for an efficient working of the economic system. In both questions the rather naive short-cut solutions offered by the extreme adherents of *laissez-faire*, of doctrinaire opposition to conscious management, have resulted in harmful consequences.

(i) *Prices in the public sector*

69. The first problem, the problem of the pricing of goods and services produced in the public sector, is of increasing urgency as the public sector expands. It has been bedevilled by the problem of inflation and welfare considerations. While the need for the public sector to contribute to capital accumulation is beginning to be acknowledged, the reluctance to increase prices in the sectors under the direct control of the government is obvious and it is often defended on the basis that the national welfare would demand the supply of the products and services at low prices, just covering cost or in certain circumstances even involving losses²⁴. There is no justification for this view. If the economy is a mixed one, as in India, and if the majority of the supply of goods originates in the private sector and is priced at a level which includes profits (part of which is used for accumulation), pricing by the public sector at a level which does not correspond to this profit margin means that the product of the public sector is sold relatively cheaper. Objectively this is equivalent to a subsidy to the price of the goods produced in the public sector. The demand for these goods, therefore, rises beyond the level which would be justifiable by the relative social cost of production. A misallocation of resources may result, the production of goods in the public sector having to be increased beyond the level which is warranted by the relation of demand and the conditions of supply.

70. This misallocation is made more dangerous if, as a result of the pricing policy, the public sector cannot meet the demand for its products freely, because of insufficiency of supply,

²⁴ This feeling dominated the unfortunate legislation on nationalisation in Britain.

which in its turn is due to the relative insufficiency of investment. The crisis in coal mining, and more especially in the metallurgical coke, is an obvious illustration of this point²⁵. The continued shortage of transport due partly to the mistaken price policy of the railways is another instance²⁶.

71. The misapprehension on the implications for welfare of the condition of the supply of the products and services of the public sector is aggravated in its consequences by the complication due to the monetary situation. It is obvious that in India (as in the fully industrialised countries) a grave danger of cost inflationary pressure exists. Though at times an exceptionally good harvest combined with a lapse of physical forward planning might temporarily ease the monetary tension, it is clear that the process of development will (and as we argued, should) involve a renewal of such tension. Under these conditions there are good reasons at any one time to try to avoid all additional cost inflationary pressures. This was a further reason for keeping the prices of the public sector low so as not to invite offsetting wage demands which might set off a spiral and leave the labour market even more fragmented and monopolistic. It should be obvious, however, that the basic relationship between the public and private sectors needs to be readjusted before such an attempt at stabilisation can yield satisfactory results. The balance between the desired stabilisation of the economy, the prevention of profiteering and securing an efficient use of scarce resources is delicate, and has not as yet been successfully struck. The importance of avoiding under-pricing of the products and services furnished by the public sector can hardly be over-emphasised. It should be tackled while monetary tension is at a low ebb and carried through quickly.

²⁵ The increase in the output of the public sector seems to have been hindered by inadequate preparation of the physical programme of providing the men and materials needed.

²⁶ Similar misapprehension prevents the public administration from calculating adequate return for public works such as irrigation installations, electricity supply and land-reclamation. As all these involve heavy capital investment the consequences of the failure in Indian conditions characterised by extreme dearth of capital are especially serious.

(ii) *The problem of monopoly*

72. One of the most difficult problems in a newly developed country results from the impossibility of avoiding monopoly or near-monopoly in the industrial sector. The narrowness of the market and the dearth of enterprise make this inevitable. Thus the automatic achievement of efficiency as a result of competition cannot be hoped for either in the private or public sector even to the limited extent to which such hope is legitimate in highly industrialised countries with a vast industrial sector.

73. The gravest consequence of this, perhaps, is that a mistaken conception about scale of production and choice of production techniques cannot be hoped to be remedied—as the text-books have it—automatically through the elimination of the inefficient or mistakenly planned units. Once a mode of production has been adopted it is very likely to persist for a very long period, and to retard the general progress of the economy throughout its existence by contributing less than its share to output and accumulation. Indeed a consequential maintenance of high prices will have deleterious effects on the achievement of a more balanced and equal society. A large category of goods which would make life easier and healthier will remain beyond the means of the majority of the people.

74. In a poor country such as India this particular type of mistake should not be too difficult to avoid. The tastes of the population are undergoing violent change. Most of the needs which will eventually be satisfied by the growing productive capacity of industries do not as yet exist. By refraining from producing certain things, tastes themselves can be managed. If, for instance, a popular car does not exist, demand for it cannot materialise. No one will be disappointed²⁷. Thus a careful phasing of the introduction of new industries would act not merely as a safeguard of efficiency and accelerate the increase in national income, it would in the long run also minimise

²⁷ The very announcement of a car costing only rupees 5000/- is apt to lead to disappointment rather than satisfaction. It is unlikely that a car can be produced at that price. In any case it should not be sold without a considerable profit or excise contribution to capital accumulation and/or social service.

disappointments and frustrations which are unavoidable if the premature introduction of unsuitable products and production methods results in a production in insufficient quantities of new commodities at high prices, the inaccessibility of which will create a feeling of inequality and discontent. A more certain way of misdirecting scarce resources cannot possibly be imagined. The problem of the concentration of economic power must not be tackled at the cost of forcing the establishment of numbers of inefficient units. They will not compete with one another. All that will happen is that an uneasy position of balance at high prices will become established.

75. A strict discrimination in the licensing policy in favour of goods the production of which can be initiated at an optimal scale (like sewing machines and simple fans) so as to be fairly competitive in world relations seems essential. Far from spreading production over a number of units, the licences should specify clearly a minimum scale of productive capacity for which the licence is given, and also the conditions under which further firms will be licensed when the market expands sufficiently. The problem of the abuse of monopoly can preferably be tackled by control over price and the distribution of profits. While preference for high accumulation is essential it is not clear whether the concentration of economic power to which it is inevitably prone to lead is not conducive to maximum progress. The argument often seen in text-books, that monopoly inevitably leads to inefficiency and lack of innovation, has not been borne out. Some of the concentrated industries have made most technical progress. Nor is the argument altogether valid that concentration of investment capacity (through ploughed-back profits) into hands necessarily leads to a worse allocation of capital than if it were channelled through the capital market. The capital market itself is imperfect and the judgment of the directors of great industrial concerns might well be better, and based on more scientific information, than that of stockbrokers and financiers. Multi-product firms can initiate flexible changes in production so as to maintain returns on capital investment and branch out in new directions. Management is an art in itself and is not

dependent on a narrow technical knowledge. It is an art, moreover, which is very short in contemporary India, and which should therefore be used as widely as possible. If, however, the concentration of power is to be limited for political reasons, a scheme can be devised by which a growing portion of profits in excess of certain predetermined limits²⁸ would have to be deposited with a Development Institute or Board, to be invested by that institution in its own name in new projects under the Plan. The company would retain the right of withdrawing these deposits *pro rata* if its earnings fell below the norm. Thus a profit equalisation account would be established which would decrease the risk on equity capital while strengthening the country's capacity for accumulation without risk of combinations.

76. Still, monopoly might become stagnant and rely on its market power for profits. This aspect should be dealt with directly and not indirectly²⁹. If the control over monopoly and concentration of economic power is not to have unfavourable effects on efficiency, (e.g. by a mistaken attempt to disperse industrial activity over a large number of small units) it is essential to establish some organ technically well-equipped to follow closely the development of output and to supervise pricing policy as costs decrease through increasing sales. This organ ought also to take charge of the licensing of industry and enforce full utilisation of productive capacity. It would have to initiate detailed studies concerning the development of productivity in industry and have power to issue directions on price and production policies subject to the same kind of appeal procedure. In this way a constant pressure could be maintained to obtain steady technical progress and a decrease in costs. Such decrease in costs, of course, need not necessarily be passed on to the consumer. If demand rises beyond the existing capacity, and expansion of existing capacity does not seem to be

²⁸ The deposit of the whole would eliminate incentives for efficiency and might lead to cost-inflation. Cf. the discussion of the 100 per cent Excess Profits Tax in *Studies in War Economics*, Oxford Institute of Statistics.

²⁹ The establishment of a few factories obviously does not constitute free competition. Competition between such firms will be limited and prices might well rise above the price which would have been charged by a large-scale monopolist.

justifiable from a general national point of view, the supervisory organ might propose an increase in excise taxes, to siphon off purchasing power for the purpose of further increasing investment and production (not, of course, necessarily of the same product). Great care must be taken lest this desire to increase the rate of accumulation should lead to a rigidification of the price structures. In particular, the expansion of the demand for goods which do not require heavy imports ought not to be deterred by an unwisely inflexible application of the principle of diverting as much as possible of the increments of the increase in productivity towards investment.

77. Identical principles ought to be applied to the public sector. In particular, a close watch should be kept on the development of the cost structure so that administrative pressure can be maintained to assure continuous attention to efficiency and cost reduction. In particular, it is obvious that much closer attention must be paid than hitherto to the problem of securing adequate return on the capital invested in the public sector. The expectation of low or no return is either the mark of inefficient allocation of scarce resources or, what is more probable and even less excusable, the acceptance of inefficiency in the use of the resources allocated. Both lead to an insufficient increase in national income and must not be tolerated. Steady pressure must be brought on the public enterprises to reduce cost by a certain annual rate. The fact that the supervisory body can rely on the experience of foreign producers should ease the work of supervising and enforcing the increase in physical efficiency.

(iii) *Exchange rates and interest rates*

78. Two important sectors of the economy are, in particular, subject to inevitable distortions: the foreign exchanges and capital. We have already alluded to the fact that so long as unemployment is rampant and imports are severely controlled, the benefits accruing to India by higher exports (and imports) are far higher than indicated by the current rate of exchange. This is evident if we recall, for instance, that the import of additional fertilisers might increase production by some three

times its value. Thus the export of additional commodities to buy fertilisers would pay marginally even if a large subsidy over the conventional rupee parity had to be paid³⁰. The advocacy of devaluation (and even more of "liberating" the rupee to "float") does not take into account the inevitable general inflationary pressure which it would engender, the speculative flight which it would stimulate and which would certainly do more harm than good. This does not mean, however, that for the purpose of allocating scarce resources and/or in deciding what kind of exports to encourage, a more realistic rate of exchange should not be used. Non-discriminating subsidies are as inappropriate as a non-discriminating devaluation. But the principle of discrimination must be based on relative social real cost.

79. The capital market also obviously fails to reflect possible social gains. We shall deal presently with the implications of this fact on agricultural expansion. It is equally obvious that the returns provided for public investment are in no way commensurate to the profits that can be obtained by the private sector³¹. The inference that the profit margins in the private sector are excessive might be justified, but is not, as it is thought to be, necessarily so. The cost of credit obtained from the organised banking system and capital market does not reflect this productivity of capital. Together with the low rates of exchange, this may well lead to an increase of the size of inventories and also to a preference by manufacturers for relatively costly, because more highly automatic, machines which do not give as much employment per unit of output. It will also facilitate the less than full use of machinery.

80. There are weighty objections to a general rise in interest rates. The disappointment of bondholders, the shrinkage in values, has unsettling effects. One possible alternative would

³⁰ The import of certain capital goods might add to output in an even more startling way.

³¹ The distrust of profits has led in a number of cases to such control of prices and profit margins as to cause an insufficiency of investment and increase in consumption. If a limit to profits is desired a deliberate choice should be made between a cut in prices or an increase in excise duties or cess payments. The need to limit consumption so as to increase the contribution to capital accumulation as a deliberate policy does not seem to have penetrated.

be to impose a (variable) tax on borrowing from the banks and on new obligations. This would still not deal with the problem of the relative subsidy to highly mechanised plant implied in the rate of exchange. That, however, could also be suitably dealt with.

81. Discriminating tax concessions such as variable depreciation or positive investment allowances, or outright taxes and subsidies on capital investment, can be utilised to harmonise the social and private cost of capital investment (especially if it has high import content). This would ease the job of the licensing authorities and provide financial incentive to those who conform to the objectives of the plan. Without an organ which from the technical and economic viewpoint is on top of all problems of detailed cost analysis, such a policy could not be carried through. Yet the eventual success of the plan seems to depend on being able to exert pressure for an all-round improvement of efficiency.

82. If the borrower's rate in the organised markets does not correspond to the social (and private) return from capital investment in the private sector, the method of decision on investment in the public sector (including certain economic activities of the Ministries themselves, e.g. the rehabilitation of land) does not seem to envisage the need for an adequate return at all. Indeed any suggestion that the public sector should have a surplus available for further increasing investment seems to be repudiated as "profiteering³²."

83. A decision to approve investment plans which do not contribute to capital accumulation must be regarded as a subsidy which has to be explicitly justified, and not as a self-evident course of action. It should not be necessary to add that the assurance of such surpluses by way of a monopolistic rise in price rather than steady pressure on cost would be largely self-defeating and antisocial. Administrative arrangements are needed whereby the units of the public sector must show cause

³² Investment allowances permit the writing-off of more than 100% of the original cost of a plant against taxable income. They represent therefore a positive repayment of tax. There is no reason why negative investment allowances, i.e. the limitation of depreciation to below 100% of original cost, should not be used to discourage investment in certain lines.

why their costs do not fall parallel to economies achieved abroad. Their management should be penalised or reorganised on prolonged or recurrent failure.

(iv) *Agricultural stagnation*

84. One of the gravest problems in under-developed areas such as India is incomplete integration of agriculture in the market economy, and the consequential insufficient progress, or indeed stagnation and rigidity. The fact that the great multitude of cultivators have no reserves and no access to the organised capital market prevents the price mechanism from working effectively. The peasant cannot freely choose the time of his sales; he is faced with the relatively overwhelming market power of the landlord who is in many cases the money-lender and the merchant as well. Even if he owns his land, he will not in most cases be able to be economically independent, accumulate capital and acquire and utilise new technical knowledge. His capacity and willingness to undertake improvements is thus limited. Most improvements would, if he undertook them, not benefit him at all but his creditors. He has no interest in exerting himself. The rates of interest also represent monopoly power and have nothing to do with the rates that originate on the organised market or with the rates that would correspond to the expected real return on capital investment. At the ruling rates investment in improvement might be suicidal (even if he cannot for other reasons, e.g. social customs, marriage celebrations, etc. avoid getting into debt). Thus the potential possibilities in agricultural investment and innovation might be superior to the rates of return on the basis of which organised industry and the public sector make their investment decisions. They can nevertheless not be undertaken. This represents a grave impediment to general progress. The absence of an integrated capital market militates against the balanced growth of agriculture and thus of the economy as a whole. This disjointedness of agriculture and of the organised market sector is one of the most (perhaps the most) serious obstacles to rapid development.

85. The problem of peasant productivity and production

can hardly be tackled without organised self-help on a co-operative basis, to which reference has been made³³. The minifundia, especially those which are subject to tenancy or share-cropping, represent an inherent obstacle to the introduction of new techniques. The change in the principles and aims of the community development movement from an organ of social welfare and cultural development towards an emphasis on organised large-scale self-help to increase production, and the consideration that is being given to promoting the effective mobilisation of manpower resources and the prevention of individual reluctance from endangering community development schemes, is encouraging. Without an increase in rural production and income, welfare and social development must remain a frail and artificial effort, unlikely to promote a real relief from hardship or even equality. The recognition of this fact is the first necessary step in a quickened increase in rural productivity and income. It is obviously not enough. The slowness of the impact of large-scale investment schemes in agriculture, especially of the large irrigation schemes, shows that the peasant is unwilling or unable to follow up the initiative of the Government. The failure in respect of the first two Plans needs careful study if the essential lesson is to be learned in time and acted upon vigorously.

86. So long as the peasant does not derive immediate benefit from his contribution to increase communal facilities (however much these will benefit him eventually), his acceptance of co-operative ventures will at best be suspicious and lukewarm. It is, therefore, essential that the schemes for the improvement of production enumerated in the Outline of the Third Plan³⁴ should be linked with paid work channelled through co-operatives. In this way his self-interest will lead him into the co-operative and (his self-interest) will (if the schemes are well chosen) keep him there. Provided the planning insists on starting with schemes with high immediate return, these could be managed by relying on anticipated (deficit) finance in addition to any which have been so contemplated; the increase in

³³ See also my paper, "Linked Public Works", *Oxford Economic Papers* 1961, and the FAO Reports on Mediterranean Economic Development.

³⁴ Especially paras 20-30 and Chapter VIII. *ibid.*

production should take care of the purchasing power released. In this respect, too, the imperfect appreciation of the need to pay strict attention to high returns has limited the permissible scope of the Plan.

87. It will be impossible to undertake such schemes if contributions in labour or money cannot be exacted. No country in the world has been able to mobilise its rural manpower at an early stage of its development without some form of organised system of contributions or economic compulsion (as, for example, the second enclosure movement was in Britain). It would be essential to face the problem squarely so that adequate supervision could be created and safeguards organised to prevent abuse.

(v) *Agricultural prices*

88. Beyond the reorganisation of rural production, an atmosphere needs to be created in which any such attempt can be successful. It is regrettable that the ineluctable basic economic problems and principles of economic development such as are faced by India are still only imperfectly understood. The problem, reduced to its bones, is to limit consumption and encourage production as much as possible. Whatever ease transient or accidental factors may produce from time to time, it is essential to remember that the relief of abject poverty depends entirely on the vigour with which investment is pushed and productivity increased. But the relentless increase in investment which is an essential condition of success inevitably means a steady inflationary pressure which only increased production can relieve. Measures, such as a cut in price, which encourage consumption and discourage production and limit investment, are to be deplored. They do not help; they hinder the relief of poverty. If the profits are not to accrue to the producer they should be diverted to public investment by increased taxes³⁵.

89. In no field is any hesitancy about price stability under

³⁵ The stimulus to cotton textile consumption through the recent cut in cloth price is an unwise act in present Indian conditions. If the margin was not to be used to swell cotton textile profits it could have been taxed away.

Indian conditions more disastrous than in agriculture. In a situation, as in India, in which the growth of population and income is likely to lead to a renewed upward pressure on prices because it threatens to surpass the growth of agricultural production, the hesitancy about a scheme of guaranteeing prices seems perverse. Price falls will necessarily increase consumption which ought to be restrained, as it cannot be sustained when the temporary factors of the (relative) glut cease. They will discourage a relentless concentration of the cultivator on the physical problems of increasing production. Thus they might endanger future progress. On the other hand, increasing stocks in the hands of the Government will (together with the knowledge that foreign help will continue) discourage speculation when the natural rhythm of development and population growth coincides with unfavourable seasons. Substantial price stability is one way in which self-help on the part of the cultivators can be made effective. While the techniques and needs of increasing production will necessitate other measures, especially flexibility in relative prices, such measures will not be successful until the general problems of price instability in agriculture has been satisfactorily solved. In all countries in which the risk of price slumps had been eliminated, the increase in physical productivity was spectacular. There is no reason to doubt that it will have much more favourable results in India where there is such room for improvement.

90. It is essential for this purpose that the prices of the agriculturists' main products—foodgrains, oilseeds, sugar, and possibly cotton—should be stabilised within agricultural years (with small changes, mainly in relative prices, between successive seasons).³⁶ Once such continuity and security is given, the practice of buying grain just before harvest at low prices is automatically prevented. Thus the main cause of the peasants' economic weakness would disappear.

³⁶ It would seem essential, for instance, to try to stimulate the production of easily exportable produce, such as oilseeds. Whether this should be done by a variation of relative prices or by production subsidies or by special allocations of fertiliser is a problem which cannot be solved on the basis of principle; what is certain is that a flexible discriminating policy is required.

91. Such stabilisation of prices can only be successfully carried out if a buffer-pool is created which is backed by sufficient storing facilities and widespread marketing agencies. It must be capable of effectively offering a minimum price to the cultivator so that the merchant will be content with a reasonable margin. Whether or not the pool should also have a sales organisation which deals with the public directly (say, on a cash-and-carry principle) will depend on whether pressure is to be exerted on retail margins of the large number of traders. Wholesalers, however, would be effectively limited by the operation of the buffer pool.

92. Once a buffer pool is in operation the problem of supervised credits to larger peasants and landowners solves itself automatically, as they will be able to make use of the organised credit market from which they are now precluded by the uncertainties of the market and the precariousness of their position.

93. The problem of the capital needs of the small peasant tenant or share-cropper cannot be solved in this way. Only the necessarily slow building up of co-operatives (which, as we have seen, have also an essential role in the reorganisation of rural production) will be able to deal with this problem. Supervised credits to small peasants cannot be administered, and without supervision and reorganisation any credit scheme becomes a disguised subsidy. If energetic action is taken, some progress should be made in the next five to seven years when the combination of population pressure and increase in income should especially weigh on the agricultural supplies.

VIII. THE PROBLEM OF TAXATION

94. In principle the problem of obtaining a (growing) share of the increasing increment of the national income should not represent an insoluble or even difficult problem. No one need suffer any hardship. The successful diversion towards investment of even a lesser part of the increment of income, say between a quarter and a third, would achieve a revolutionary change in the prospects. If national income increased by only 25 per cent this would result in an increase in domesti-

cally financed investment from about 8 per cent of the national income to 14–16 per cent. The aim of the Fourth Plan could even be achieved during the Third.

95. We have already discussed the socio-political obstacles in the way of increases in taxation of the well-to-do. In addition, there is the grave problem that a large part of the improvement would go to agriculture, and, given the abject poverty of the greater portion of cultivators, it would be difficult to prevent their benefiting fully.

96. Moreover, in practice it is difficult to devise a tax system which would lop off increases rather than impose actual cuts in consumption. Nor is acceptance justified of the income distribution at the outset of the Plan, implied in a taxation aimed mainly at reducing increments. Moreover, the taxation of increments would have a greater deterrent effect on effort and enterprise than tax measures aimed at the level of total income whose effect is less on increments. Fixed or proportionate taxes (e.g. a proportional wealth tax) tend to increase effort; progressive taxes tend to diminish it.

97. Taxes aimed at the consumption of non-essentials might be³⁷ an effective substitute for more complicated direct taxes³⁸. It would be essential to increase indirect taxes as soon as possible so as to avoid the growth of habits and demands which would have to be disappointed later when income rises further. A rise in prices, once the consumer had settled into his new pattern of needs, is prone to lead to wage demands and cumulative imbalance, while the absence of supplies or their relative unattainability is less unlikely to lead to an increase in saving. By intercepting a large part of the difference between imported and domestic price, and of any cheapening in production cost (leaving some incentive for further improvements), the investment capacity of the country can be strengthened, and thus the grave injustice between those who are in employment,

³⁷ Cf. Mr. Kalecki's paper on the 'Financial Problems of the Third Plan'. *The Economic Weekly*, 9 July 1960.

³⁸ The land tax and tax on agricultural rents suggested by Mr. Kalecki and by the FAO Mediterranean Project might be less easy to evade, though the extraordinary hold on the small peasant and tenant of the village leader might vitiate its working.

and so benefit, and those who remain unemployed and under-employed and largely do not benefit by the increase in national income, can be mitigated. Schemes, such as an enforced fall in price, (e.g. of cloth), which do not strengthen investment capacity are not really conducive to equality, for all their superficial popularity.

98. One possible way of levying taxes on commodities, on the principle that higher incomes can without hardship (and therefore should) contribute progressively more to the public sector, is to exempt a certain fixed amount of the purchase price of a commodity and increase the rate of tax; thus, the lower quality will have a small percentage of tax to bear.

99. An alternative would be to follow the French example of making income tax dependent or mainly dependent not on income returns, which may be defective, but on the apparent consumption, indicative of income. The possession of servants, cars, the size of habitation, etc. would be expressed in terms of presumed income. Certain kinds of expenditure (say, on servants or on handicraft products) might be exempt, as they might represent the giving of employment to people otherwise not easily utilised in the development programme. The returns would be published and would be subject to amendment. In India, where people are exceptionally well-informed about each other's mode of life, this might well prove an effective way of stopping evasion. One argument against this system might be that the Indian way of life involves conspicuous consumption in irregular, large, discontinuous disbursements. These could, in principle, be included and spread over a number of years (as royalties are in the highly developed areas).

100. One of the most important loopholes in the tax system is the provision of untaxed income in kind. One of the two possible ways of dealing with this problem is the taxation of the (private) company on the basis of personal taxes with the exclusion of all expenses benefiting a director or manager, thus eliminating all advantages from the evasive action. Alternatively the company would not be permitted to claim general expenses beyond a certain percentage of total turnover, and pay corporation tax on the basis of the adjusted level of profits, unless it

can prove that those general expenses did not really represent income payments in kind.

101. All these solutions would be subject to intense agitation, resistance and a frantic search for escape. It is difficult not to feel that the best way of dealing with inequality is to prevent its worst features through public ownership, rather than trying *ex post* to remedy its consequences. This, as we have already said, applies especially to land-ownership, where capital gains serve no useful purpose in terms of stimulating effort: the amount of construction work, especially building, is limited by national considerations and not by lack of incentive. Attempts to deal with inequality through indirect control measures, e.g. the dispersal of industry and limitation on the scale of operations, are likely to defeat their ends by causing a slowing down of the increase in national income.

IX. THE RELATIONSHIP BETWEEN SOCIAL FRAMEWORK AND OUTPUT AND PRODUCTIVITY

102. The outline of the Third Plan shows little, if any, awareness of the need to consider measures of economic policy, indeed the whole process of economic planning, in their social and political setting and framework. This lack of awareness is surprising because both the successes and failures experienced during the first two plan periods point clearly to the importance of these factors in the development of a country such as India, a development which will clearly involve a revolutionary change in both.

(i) *Rural areas*

103. The emphasis in the plans for rural mobilisation for agricultural progress seems to be based on the development of co-operatives and the mobilisation of idle manpower for communal progress. The conception of the plan is admirable. Unfortunately, as the U.N. Commission of Evaluation of the Community Development programme has clearly shown, these plans and proposals were in no way matched by actual performance.

104. The change in the philosophy of community development schemes from welfare measures to the organisation of production must, as we have already said, obviously be regarded

as a great step forward in the fight against poverty. It is unclear, however, that this progress in basic concept has in fact been matched by an adequate change in policy planning. The Plan very rightly envisages³⁹ that a much greater contribution is needed by the beneficiaries of various schemes, and also that a regular labour contribution for the building of community assets for increased productivity and production should be organised on a "large enough scale with the maximum consent." In view of the failure in large areas to connect major irrigational works to the feeders, and the failure to introduce improved methods, there is justification for the new and stronger emphasis on public initiative in this matter. It is less clear whether the Central Government realises that the very failure shows that the social framework has not been very clearly considered within which such plans can be successfully launched and carried through.

105. It is possible to launch a scheme based on voluntary participation if the participants are fanatically convinced of the metaphysical importance of their sacrifice (e.g. the Israeli Kibbutzim). It is also possible to launch a scheme on the basis of total indoctrination buttressed by police (or only social) compulsion (China). It is much less easy, but still possible, to cajole participation by appeals to self-interest, if some measure of penalty (social or taxation) is kept in the background. But in a village riven by differences of status and interest it is difficult to envisage success based on exhortation.

106. In Madhya Pradesh, for instance, the lapse of the *Malguzari* system resulted in a failure to maintain the tanks and in a considerable decrease in the irrigated areas, offsetting such (limited) favourable result as was obtained from the immensely costly major irrigation schemes. On this basis the effectiveness of capital investment cannot be safeguarded and the rate of progress accelerated.

107. If the solution is to be mainly based on the small peasant through the formation of co-operatives its success must be ensured partly by tax measures which enforce the sale of tenantal estates, combined with suitable incentives through guarantee of price, linked public works, and other means by

³⁹ Outline, pp. 68-71, especially para 30.

which increments of income are reserved by those who join the co-operative and carry out the works needed to introduce modern production techniques. Exhortation alone will not work.

108. Such increase in agricultural output as was achieved seems to have come by way of an increase in the irrigated and crop areas rather than from improved techniques, though the use of fertilisers has become widespread, with good success. Progress seems to have been faster in areas in which the medium and rich peasants play an important role. They have both the means and the incentives to increase production and, as far as statistics indicate, they have made some use of the opportunity, though much faster progress is needed.

109. If the Third Plan is to succeed in increasing the rate of expansion of agricultural output from the $2\frac{1}{2}$ or 3 per cent per year achieved in the Second Plan to the envisaged $5\frac{1}{2}$ or 6 per cent of the Third, a much more realistic attitude to the problem of rural social organisation will have to be adopted to achieve the object. The Government can either fully back the successful owners of a viable type and hope for a bourgeois-entrepreneurial type of revolution on the land, or it can energetically push the rise of a new co-operative rural organisation through determined leadership. Only in exceptional regions can both methods be attempted simultaneously, leaving out, perhaps, the rich peasants from the communal efforts to organise modern production, counting on their self-interest to make up for the lack of technical knowledge which can be channelled to individuals less easily than to the co-operatives. The oscillation between the two policies, or rather the pious declaration in favour of socialistic co-operative solution while actual reliance is centred on privately initiated improvement, is likely to continue to hamper accelerated growth. In particular, in those areas (especially in the South) where the so-called voluntary resumption of land has been heavy, continued uncertainty caused by suggestions of further reform of land tenure is quite incompatible with substantial improvements in production which have to be achieved. If further land reform is to be carried out it should be carried out without any further delay and be accompanied by energetic steps to increase productivity of the land.

(ii) *Industry*

110. Much the same observations apply to the industrial development. The anodyne statement about peaceful coexistence of public and private sector in a mixed economy, and their continued parallel progress, must not deceive anyone about the existence of a sharp dilemma. Actual policy followed tends to limit accumulation not merely by price fixing but also by tax measures which do not suitably discriminate in favour of maximum capital investment. It also discourages multiple shift working. In addition, policy aimed at a greater equality of income is often conducted through restrictions which interfere with efficient production in the private sector, e.g. through regional dispersal of industries in unsuitable units, pressure to establish factories in less favourable areas.

111. It was argued in the previous section that the establishment of a balanced society presupposes a considerable expansion of the public sector. A more equal distribution of income and consumption, the limitation on the ruthless conditioning of consumers to cut their saving and indulge in conspicuous consumption, can be more easily achieved if the way of life is determined by the publicly-owned sector, not necessarily subject to a compulsion of profit motive, than if it is determined by a private sector dominated by the urge to secure profits. If, however, the public sector is to take a vigorous part in the national expansion much closer attention will have to be given to the supervision of the efficiency of its management, the training of the manpower from the highest to the lowest levels, and care must be taken that it should shoulder its due part in increasing the rate of accumulation. Much more careful thought will have to be given to the need for substituting non-material incentives in the public sector for the material ones which in the private sector have been able to provide not merely incentives but also penalties through the elimination of the ineffective or unlucky. Yet if a greater income equality is one of the aims of the establishment and expansion of the public sector, then the positive incentive will be weakened, but the elimination of the goad or penalty of the loss of capital or income will in these conditions be a serious threat to efficiency.

112. The public sector is still extremely small in India. It will represent less than 10 per cent of total output and less than 5 per cent of total commodity production. But its importance is increasing and its absorption of scarce capital supplies is, of course, very considerable—around two-thirds of the total. Unless, therefore, its contribution to income creation and capital accumulation increases accordingly, an indefensible squandering of the scarcest of all India's resources and an unforgivable postponement of India's relief from poverty seem the unavoidable consequence.

113. Thus the strengthening of the supervisory organs, the elaboration of strict principles of cost accounting in the public sector, eliminating all unconscious subsidy, are an essential basis for the success of the declared policy of the Government. Socialism is not merely about the extension of the public sector. Socialism is about the effective use of public ownership to secure high productivity, high and more balanced distribution of income, and a way of life in which collective, cultural and aesthetic needs, consumption and leisure, are balanced with an increasing supply of material goods produced to supply need rather than achieve status distinction and express capacity for conspicuous waste.

114. An alternative possibility would be to allow greater freedom to the expansion of the private sector. Development must not (as happened in coal) be hampered by the inability of the public sector to expand, combined with a dogmatic unwillingness to let the private sector do the job. The use of private firms for the management for a certain number of years of large-scale complex industries in the public sector, either on contract or on a profit-sharing basis, would be another possibility. I am opposed to it because I believe it is not capable of establishing a good society. But it can establish the solid basis for such an eventual transformation. The one method which is wholly inimical to Indian prosperity is the present seeming hesitancy between the two solutions, which is explained by the lack of clarity of thought about the relationship between the social framework and the economic transformation of the country.

AN OUTLINE OF FINANCIAL POLICY FOR THE THIRD FIVE YEAR PLAN*

By M. KALECKI

1. It will be assumed in what follows : (a) that the development of the economy must not cause any inflationary increases in the prices of necessities ; (b) that no additional taxes will be levied on necessities or on low incomes. In view of the very low standards of living of broad masses of Indian population this seems to me the basic postulate of balanced growth.

2. On these assumptions, to any rate of growth of the national income there should correspond a definite rate of increase in the supply of necessities, in particular of foodgrains. Indeed this is true if existing tax rates are not changed (barring the case of important redistribution of income before tax). But the necessary rate of increase in the supply of necessities will not be affected either by additional taxes on higher income groups and unessential commodities, as such taxation would hardly influence significantly the demand for necessities.

3. Thus a sound financial policy must be based on two very different elements : (a) on the correct proportion between the rate of growth of national income and that of the supply of necessities and (b) on such a policy of taxation which would restrain the consumption of unessentials to the extent that would provide sufficient resources for the financing of investment.

4. Let us consider first the problem of adequate supply of necessities. It can be estimated that a 5 per cent increase in the national income per annum requires an annual 3.7 per cent increase in human consumption of foodgrains, (see Appendix 2). The level of this consumption in 1960-61 may be taken as 77 million tons, out of which 75 million tons are home produced and 2 million tons imported. Thus the total requirements in 1965-66, assuming that seed and fodder bear the same relation

* Prepared during Prof. Kalecki's visit to India in the winter of 1960 at the invitation of the Indian Statistical Institute.

to human consumption as in 1960-61, would be 92 million tons and taking into consideration the need to provide additional fodder—about 94 million tons. If in 1965-66 no imports of foodgrains are assumed to take place, the necessary increase in production in the course of the Third Five Year Plan would be from 75 to 94 million tons or 4.6 per cent per annum. The rate of increase in agricultural production as a whole would be somewhat less (about 4.0 per cent per annum). Even such an expansion of agriculture is a tremendous task which, I think, requires far reaching changes in the social and economic conditions prevailing in agriculture (see my note on 'Measures to Expedite the Increase in Agricultural Production in the Third Five Year Plan'). In view of this a cautious plan should be based on 5 per cent increase in the national income per annum and it is this variant that is considered in this note. However, should the foodgrain production in 1965-66 in fact be larger than 94 million tons a higher rate of growth would be consistent with the stability of prices of necessities. Thus another variant of the Third Five Year Plan based on a 6 per cent annual increase in the national income must also be examined. It should be noticed, however, that such a variant would involve not only more optimistic assumptions of the progress in agriculture but also tackling of additional difficulties in balancing foreign trade.

5. If the conditions in agriculture will be such that foodgrain output will increase at the rate postulated in paragraph 4, it can be also assumed that adequate supplies of oil seeds, sugarcane and cotton to sustain a 5 per cent rise in the national income per annum will be forthcoming. Nor does the expansion of respective manufacturing production raise any difficult problems. Thus adequate supplies of vegetable oil, sugar (mostly in the form of *gur*) and cotton cloth can be made available. All the consumption of necessities would increase by 4 per cent per annum, which seems to be in proper relation to the rate of growth of national income (see Appendix 3).

6. Even though adequate facilities for manufacturing of necessities (as for instance, cotton cloth), are provided by the plan the problem of full utilisation of these facilities may arise. Should a semimonopolistic increase in prices take place

the demand for the product in question will be restrained and the capacities will not be used to the full extent. The consequences will thus not differ from those of physical shortage even though they will stem from monopolistic practices. Thus in addition to making provision for an adequate capacity to produce, control over the prices of necessities will have to be exercised. On the other hand it should be noted that price control without adequate facilities for production does not solve the problem of supply of necessities at stable prices. Indeed, unless comprehensive rationing is introduced such a situation is characterised by shortages, haphazard distribution and black markets.

7. Let us turn now to the problem of restraining consumption of unessentials in order to provide sufficient resources for the financing of investment. In 1960-61 the consumption of necessities constitutes 51.9 per cent of disposable personal income (see Appendix 3). Since the latter increases at a rate of 4.9 per cent per annum while consumption of necessities at a rate of 4.0 per cent, the relative share of the latter in the former falls to 49.8 per cent. In 1960-61 savings are estimated to constitute 7.8 per cent of disposable income. As the relative share of necessities amounts, as said above, to 51.9 per cent, the part of disposable income spent on unessentials appears to be 40.3 per cent. It is reasonable to assume that unessentials and savings would tend to increase in the same proportion. On this assumption the use made of disposable personal income in 1960-61 and 1965-66 would be as follows.

TABLE 1: PERCENTAGE COMPOSITION OF DISPOSABLE PERSONAL INCOME, 1960-61 AND 1965-66

	1960-61	1965-66
necessities	51.9	49.8
unessentials	40.3	42.1
savings	7.8	8.1
disposable personal income	100.0	100.0

In fact, as will be seen, the resources required to finance investment in 1965-66 are much higher and this necessitates levying new taxes on higher income groups and unessentials.

8. The net investment is estimated in 1965-66 at Rs. 2,400 crores out of which imports on credit will be Rs. 440 crores. The home financed investment would amount to Rs. 1,960 crores. To this would have to correspond Rs. 1,920 crores per personal savings, i.e. 12.0 per cent of disposable income, if new taxes were introduced (see Appendix 4). As, however, it was estimated above that only 8.1 per cent of disposable income would be saved there arises the need for restraining the expenditure on unessentials by taxation. The magnitude of the task will be seen from Table 2.

TABLE 2: REQUIRED CURTAILMENT OF CONSUMPTION OF UNESSENTIALS IN 1965-66

	1960-61	1965-66
necessities	51.9	49.8
unessentials	40.3	38.2
savings (as in Table 1)	7.8	8.1
additional curtailment of consumption of unessentials		3.9
		12.0
disposable personal income	100.0	100.0

The task consists in restraining the consumption of unessentials in 1965-66 from 42.1 per cent of the disposable income (see Table 1) to 38.2 per cent. This consumption is thus to be reduced through taxation by an amount equal to 3.9 per cent of disposable income or Rs. 625 crores. (The disposable income in 1965-66 is estimated at about Rs. 16,000 crores).

9. Before discussing the suitable type of taxation for this purpose it is useful to emphasize that consumption of unessentials in 1965-66 is not to be reduced as compared with 1960-61 but as compared with the level which would be "naturally" realised. In fact, this consumption would increase at a rate of 3.8 per cent per annum.

10. The necessary curtailment of expenditure on unessentials could be achieved most equitably by an increase in the progressive income tax. Unfortunately apart from taxation of salary earners the income tax is very ineffective in India because of widespread evasion. However, the existing income tax may be supplemented by direct taxes which could not be easily

evaded and which would also perform in part some functions other than those of restraining the consumption of unessentials. The most important of such taxes is the progressive land tax whose effect on the agrarian conditions in the direction beneficial to the development of agriculture was outlined in my note on "Measures to Expedite the Increase in Agricultural Production in the Third Five Year Plan." Next may be mentioned the tax on agricultural rents. Further, the profits on imported articles should be intercepted by means of raising the duties up to the level of the difference between the actual internal market price and the import prices. Finally, taxes on commercial premises, factory buildings, and high class residential buildings may be considered which would stimulate *inter alia* a more intensive use of the existing space in trade and industry while economising on the new construction and help to restrict the building of luxury apartments.

11. The revenue from such taxes may yield up to Rs. 200 crores per annum. As in part these taxes will affect savings the resulting reduction of unessential consumption would not be higher in 1965-66 than Rs. 125 crores. According to paragraph 8, such consumption would be restrained to the tune of about Rs. 625 crores per annum, and thus a curtailment of about Rs. 500 crores would have to be affected by taxation of selected unessentials.

12. The increase of prices of unessentials by means of excises and duties may reasonably be assumed not to change the proportion between saving and the money expenditure on unessentials in the case considered here. It is true that if such an increase occurs in an abrupt manner and the real incomes of the persons affected actually fall, the savings are likely to decline in relation to this expenditure. But if the taxes of unessentials merely slow down the steady rise in real incomes, this need not occur. (Indeed, in the extreme case when real incomes are kept as a result of taxation at a constant level, no change in the proportion between savings and expenditure on unessentials is likely to occur. And as it was postulated in paragraph 7 that the "natural tendency for this proportion is to remain unchanged the same can be assumed for the

intermediate case when real incomes continue to increase after taxation but at a lower rate).

13. The consumption of necessities is not likely to be affected either by the increase in prices of unessentials resulting from commodity taxation. On the one hand the price increase of unessentials tends to raise somewhat the consumption of necessities through the substitution effect and on the other—to reduce it somewhat as a result of slowing down the rise in real incomes. As both influences working in opposite directions are very small it may be safely assumed that on balance no significant change will be caused. It follows from the above that the allocation of disposable money income between necessities, unessentials and savings remains unaltered, and thus restraining of “real” expenditure on unessentials may be measured by the additional revenue of commodity taxation. Thus if the above estimates are correct, new taxes on unessentials which would provide an additional revenue of Rs. 500 crores would suffice together with other taxes assumed above to solve the problem of the necessary shift of resources from expenditure on unessentials to financing of investment. Collecting of additional excises and duties on unessentials of this order does not seem to raise insuperable difficulties.

14. It should be noted that this result is based on preliminary and inexact figures, and was arrived at by crude methods. It should, therefore, be treated merely as an indication of the order of magnitude of the taxation required.

15. Assuring an adequate supply of necessities and restraining the expenditure on unessentials to the extent necessary for financing of investment are, as said above, the two basic prerequisites of financial stability. It should be noted that the fulfilment of these two conditions does not exclude financing of Government investment by loans. Indeed, it appears that even after introduction of taxes suggested above private saving will exceed considerably planned private investment. This difference is to be absorbed by public projects and to this extent it will be necessary for Government to finance its expenditure on investment by loans.

16. In this connexion it is sometimes asked how can the

government "get hold" of private savings in order to use them for financing of investment. The question is wrongly put: one should rather ask how can the government restrain private investment to the level allocated to it in the Plan. If this condition is fulfilled, private savings over and above private investment may be absorbed by government investment without causing inflationary pressures (of course, on the assumption that the supplies of necessities are adequate and the consumption of unessentials is appropriately restrained). The absorption of private savings by government investment will proceed automatically. Indeed to the extent to which that will not happen by direct purchase of government securities, the savings will manifest themselves as the increase of the indebtedness of the banking system, inclusive of the Reserve Bank, to the private sector (i.e. the increase in the excess of cash and deposits held by the private sector over banking credits granted to that sector). The counterpart to these savings is the increase in indebtedness of the government to the banking system. It is in this way that the government "gets hold" of private savings through this system.

17. As to the problem of checking the excessive buoyancy of private investment a variety of methods may be applied. Taxes such as referred to in paragraph 10, selective restrictions of banking credit, and last but not least, direct measures such as licensing, all come into consideration and may supplement each other.

18. It follows from the above that no inflationary pressures will make their appearance if: (a) the supply of necessities is in proper relation to a given level of national income; (b) the expenditure on unessentials is sufficiently restrained to provide out of this level of national income adequate savings for financing of private and government investment; (c) the private investment is sufficiently restrained to leave an adequate part of these savings for financing of government investment. If these conditions are fulfilled there is no danger in government borrowing from the banking system. The problem of avoiding inflationary pressures in economic development is not "monetary" in character. It is solved by assuring, by a variety of methods, a correct structure of national expenditure.

Appendix 1: Disposable Personal Income

In Table 3 below the disposable personal income in 1959-60, 1960-61 and 1965-66 is derived from the national income. The latter is assumed to increase at 5 per cent per annum during the period 1960-61 to 1965-66.

It will be seen that the disposable income increases only a little more slowly than the national income, namely at 4.9 per cent per annum during 1960-61 to 1965-66.

TABLE 3: DISPOSABLE PERSONAL INCOME, 1959-60, 1960-61 AND 1965-66

	(Rs. crores at 1957-58 prices)		
	1959-60	1960-61	1965-66
1. gross national product at market prices ¹	14,020	14,700	18,830
2. minus depreciation	840	880	1,200
3. net national product at market prices	13,180	13,820	17,630
4. minus indirect taxes	760	815	1,050
5. minus miscellaneous receipts	170	175	190
6. plus subsidies ²	150	170	210
7. net national product at factor cost	12,400	13,000	16,600
8. minus net public enterprise earnings	175	200	385
9. plus transfers and interest payments	260	300	460
10. plus earned income and private donations from abroad	10	0	-60
11. private income	12,495	13,100	16,615
12. minus corporation taxes ³	60	110	140
13. minus retained earnings of corporations	60	70	110
14. personal income	12,375	12,920	16,365
15. minus direct taxes	295	260	310
16. disposable personal income	12,080	12,660	16,055

Notes: ¹ Gross national product at market prices (item 1) has been estimated by adjusting the net national product at factor cost (item 7) for items 2, 4, 5 and 6.

² The government, for the purpose of this table, includes only the Centre and the States. The Local Bodies have been excluded for want of reliable, recent data on their receipts and expenditures; and are thus treated as part of the non-government sector. Hence, subsidies from the government include those to the Local Bodies as well. This explains why the estimates here are higher than those elsewhere. The estimates for Subsidies plus Transfers and Interest Payments are projected on the basis of the Consolidated Statement of the Centre and State Expenditure prepared by the Punjab University Department of Economics for the years 1956-59. The further division between Transfers and Interest payments on the one hand and Subsidies on the other is necessarily rough; the bulk of the former being interest on debt and pensions and the rest being treated as Subsidies.

³ From 1960-61 etc.

Appendix 2 : Increase in Demand for Foodgrains

If the increase in population is 2 per cent per annum the per capita disposable personal income increases according to Appendix 1, by 2.9 per cent. If incomes per head of population were unchanged the demand for goodgrains would rise proportionately. The increase in per capita income also causes a rise in demand for foodgrains but in a lesser proportion. According to the note of Professor P. C. Mahalanobis "Target for Foodgrains in 1965-66", the income elasticity of demand for foodgrains is 0.6, i.e. to the increase in per capita income by 1 per cent there corresponds an increase in demand for foodgrains by 0.6 per cent. It follows that the increase in demand for foodgrains corresponding to the annual increase in disposable income of 4.9 per cent equals $2.0 \text{ plus } 2.9 \times 0.6 = 3.7$ per cent.

Appendix 3 : Expenditure on Necessities

In Table 4 the major items of the expenditure of necessities are given for 1960-61 and 1965-66 both in absolute value and

TABLE 4 : SUMMARY STATEMENT OF EXPENDITURE ON ESSENTIAL COMPONENTS OF MAIN ITEMS AVAILABLE FOR PERSONAL CONSUMPTION, INDIA :
1960-61 and 1965-66

items	absolute figures (in Rs. crores)		as per cent of disposable personal income		(1965-66/ 1960-61) %
	1960-61	1965-66	1960-61	1965-66	
(1)	(2)	(3)	(4)	(5)	(6)
A. foodgrains	3,174	3,790	25.1	23.6	119.4
B. other food-stuffs	1,574	1,960	12.4	12.2	124.5
of which, fluid milk	408	520	3.2	3.2	127.5
fats	531	663	4.2	4.1	124.9
sugar and gur	230	295	1.8	1.8	128.3
C. non-food products	1,108	1,352	8.8	8.4	122.0
of which, coarse cloth	492	600	3.9	3.7	122.0
fuel and light	542	656	4.3	4.1	121.0
D. services	710	898	5.6	5.6	126.5
of which, housing	530	665	4.2	4.1	125.4
passenger transport	148	182	1.2	1.1	123.0
E. total (A+B+C+D)	6,566	8,000	51.9	49.8	121.8
F. personal disposable income	12,660	16,005	100.0	100.0	126.8

in percentages of disposable personal income. The values are calculated at 1957-58 prices. Furthermore, the prices are those for the cheap varieties of the goods in question. For instance, the tonnage of rice is multiplied by the price of the coarse variety, the yardage of cloth is multiplied by the price of coarse cloth, etc. Thus the difference between the values of actual consumption of the goods in question and that taken into consideration in the calculation of the value of necessities enters automatically into the expenditure of unessentials. (A detailed list of "necessities" is given in the Notes on Table 4).

The last column of Table 4 gives the indices of increase of expenditure on the main components of consumption of essentials from 1960-61 to 1965-66. The index of increase in the expenditure on foodgrains is in accordance with Appendix 2. Other indices are higher than the index for foodgrains but lower or only slightly higher than the index for disposable income. The index for expenditure on necessities as a whole shows an increase of about 22 per cent from 1960-61 to 1965-66 which is tantamount to an annual increase of 4 per cent. Since the disposable income increases by 4.9 per cent and population by 2 per cent the income elasticity for necessities is determined by the equation,

$$4.0 = 2.0 + 2.9 e.$$

We thus obtain $e = 0.7$, which seems quite plausible.

Notes on Table 4

The list of items comprising the essentials and the basis of estimating the expenditure in Table 4 is given below :

Items comprising the essentials

- | | |
|---|---|
| <p>A. <i>Foodgrains</i></p> <ol style="list-style-type: none"> 1. rice (coarse)^a 2. wheat 3. jowar 4. bajra 5. other cereals 6. pulses | <p>B. <i>Other food stuffs</i></p> <ol style="list-style-type: none"> 7. potato 8. spices 9. fluid milk and dahi^b 10. sea fish 11. vegetable oil 12. hydrogenated oil^c 13. ghee, khowa etc.^c 14. gur and sugar^d 15. salt |
|---|---|

C. *Non-food product*

16. coarse cloth^e
17. soap
18. soft coke
19. firewood, dung
20. kerosene oil
21. matches

D. *Services*

22. housing^f
23. passenger transport^g
24. communications^h

Basis of estimating the expenditure

^a entire rice evaluated at the average price of its coarse variety;

^b milk used in liquid form and for curd (dahi) only;

^c vegetable oil equivalent only;

^d gur and gur equivalent for sugar and khandsari;

^e entire cloth equivalent at average price of its coarse variety;

^f 80 per cent of gross annual rent (including imputed rent)

^g 67 per cent of total expenditure on passenger transport;

^h 33 per cent of total gross receipts of Posts and Telegraphs Department.

Appendix 4 : Personal Savings

In Table 5, personal savings in 1959-60, 1960-61 and 1965-66 are derived from investment, net foreign inflow, net government savings and retained earnings of corporations.

TABLE 5: PERSONAL SAVINGS, INDIA: 1959-60, 1960-61
AND 1965-66

(Rs. crores at 1957-58 prices)

	1959-60	1960-61	1965-66
(1)	(2)	(3)	(4)
1. total net investment	1,350	1,400	2,400
2. net foreign inflow	400	400	440
3. net government savings	0	-60	-70
(i) net surplus on current account	-175	%260	-455
(ii) net earnings of public enterprises	175	200	385
4. private savings	950	1,060	2,030
5. retained earnings of corporations	600	70	110
6. personal savings	890	990	1,920*
7. disposable personal income	12,080	12,660	16,055
8. personal savings as <i>per cent</i> of disposable personal income	7.5	7.8	12.0*

* These are *required* personal savings in the absence of additional taxes, estimated in paragraph 8 in the main text.

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MEASURES TO EXPEDITE THE INCREASE IN AGRICULTURAL PRODUCTION IN THE THIRD FIVE YEAR PLAN

By M. KALECKI

1. Even if the annual rate of increase in the national income in the Third Five Year Plan is assumed only 5 per cent, the production of grain must rise from 75 million tons in 1960-61 to 94 million tons in 1965-66, i.e. by 4.5 per cent per year. The required rate of growth for agricultural production as a whole is even somewhat higher. This is a tremendous task. I think that in the present outline of the plan adequate provisions have been made for irrigation and fertilisers. On the other hand, I do not believe that in the agrarian conditions prevailing in India now these facilities will be used to the full so as to produce the output required.

2. The agricultural holdings may be roughly sub-divided into three classes: (a) Relatively large or medium holdings, cultivated by peasants who own the land or have security of tenure with or without assistance of hired labourers, (b) small holdings cultivated by peasants who own the land or have security of tenure, (c) relatively large holdings leased by the owner to a number of small tenants without security of tenure either openly (in some States) or by circumventing the existing laws, providing for security, by shifting the tenants around at short intervals, by leasing land *de facto* to "servants" or "share-croppers".

3. Of these categories of holdings only the first is, in general, capable of development although even here stagnant holdings will certainly be found.

4. The second category, i.e. small cultivators even though do not suffer from insecurity of tenure do not enjoy conditions necessary for undertaking improvements such as: availing themselves of irrigation facilities or engaging in minor irrigation projects, utilising more manure and fertilisers; applying appropriate seeds, etc. They are oppressed not merely by their

inherent poverty but also by their dependence on the merchant and money lender (who is frequently the same person). Being involved in a daily struggle for survival, they are not able to plan for the future.

5. The third category, i.e. that of owners leasing their land (who in statistics will be frequently classified as having land under "personal cultivation") is by no means more promising from the point of view of expanding production than that of small cultivators. The owners will be frequently of the rentier-landlord type, (e.g. small zamindars in U.P.) not particularly inclined to introduce improvements. The *de facto* tenants have no security of tenure and in addition they suffer, of course, from all the disabilities characteristic of small cultivators.

6. We shall now try to outline a set of measures which would help to overcome to some extent the deficiencies of the agrarian structure that hamper the development of Indian agriculture. The measures suggested are of rather moderate character. They do not include, for instance, the granting of security of tenure to all actual tenants, which would mean the disappearance of the third category of holdings, because the implementation of such a reform would involve considerable practical difficulties in the present set-up in the country side. Should more radical solutions be feasible the chance of a rapid increase of Indian agriculture would be enhanced and this in turn would enable the Indian economy as a whole to accelerate its rate of growth.

7. Let us first deal with measures which aim at increasing the viability of small holdings. It is clear that small peasants are unable to carry out any investments or even buy fertilisers and implements without the credit assistance of Government. Such credits should be granted in the form which would make sure that they will be actually used for specified purposes. (The Government would have to supply the goods in question directly or to finance purchases from private trade; in the latter case, however, fictitious sales may take place). It is also of great importance that small peasants should be also exempted from irrigation charges which constitute frequently an obstacle to the utilisation of existing irrigation facilities.

8. However, no significant results from application of such measures can be expected unless the problem of the hold that the merchant and money lender has on a small peasant will be radically tackled. The peasant sells a substantial part of his crop after the harvest at a low price *inter alia* to discharge his obligations to the money lender (who is frequently the same person) and buys at a later period grain for consumption or seed at high prices running again into debt. A Government Corporation should buy and sell throughout the year the agricultural produce at fixed prices eliminating thereby seasonal fluctuations. (Present merchants must *not* be used as agents for this operation because in such a case not much would be actually changed in the present set up). The Government should also grant through appropriate channels short or medium term credits to replace the activities of the money lender. It is only in this way that the small peasant will achieve a degree of economic security necessary for undertaking basic improvements in his holdings. The enforcing of ceilings for rents is also important in this connexion.

9. Let us turn to the problem of relatively large holdings which are *de facto* leased to tenants without security of tenure. A contribution towards the solution of this problem may, I think, be made by a properly scaled progressive land tax. The tax would have to be so high per marginal acre of relatively large holdings as to force the owner either to cultivate their land economically by introducing the necessary improvements or to sell a part of it. In the latter event a Land Bank created for this purpose would have the priority to buy the land. It would in turn sell this land to the actual cultivator (tenant without security of tenure, "servant", "sharecropper") on an instalment credit, the respective annual payments not exceeding the rent paid by him presently. As the beneficiary would enjoy also the Government assistance as described in paragraphs 6 and 7 it can be expected that the land would be worked economically also under this alternative.

10. A few points of detail of the progressive land tax and its consequences should be added still. The schedule of the tax must be based on standard acres. (However, the relation

between irrigated and unirrigated land must not be too high in order not to discourage irrigation). The tax must be assessed on the holdings as of a given date and no subdivisions between family members should be taken into consideration. The land tax on small peasants should be reduced rather than increased from the present level. In the years of adverse crops the collection of the tax may be deferred. The progressive land tax will bring in some additional revenue but this is not its main purpose. It is devised primarily to contribute to the increase in productivity of agriculture.

11. It may be suggested that the operation of the progressive land tax will cause excessive fragmentation of the holdings. In most instances, however, the fragmentation will be apparent rather than real because it will affect holdings whose cultivation is based on an open or disguised tenantry system. The owner who actively participates in cultivation is unlikely to sell land under the impact of the tax; he will rather tend to introduce improvements. Nor are small holdings necessarily uneconomical. Mechanisation is a remote prospect in India and there are vast possibilities of intensification. It is true that in order to avail themselves of irrigation facilities and possibly for other purposes small holders will have to cooperate. However, just the implementation of the measures outlined above offers a splendid opportunity for starting a vigorous cooperative movement among the small peasants.

TRANSPORTATION POLICY IN INDIA*

By LOUIS LEFEBER

and

M. DATTA CHAUDHURI

PART I

THE DEMAND FOR AND SUPPLY OF TRANSPORTATION SERVICES DURING THE THIRD PLAN

1. The Third Plan targets provide for an increase in railway capacity to facilitate the movement of 85 billion ton-miles by the end of 1965-66. In addition there are provisions for increasing the production of trucks to a capacity to accommodate 24.5 billion ton-miles. The two estimates add up to about 109 billion ton-miles of commodity movements by rail and road. The above railway target consists entirely of *long distance* traffic.¹ The target for road transportation includes the amount projected for local and feeder traffic along with road transportation's contribution to long distance movement. Assuming that about 30% of the truck capacity will be devoted to long distance motor transport (70% being utilised for local and feeder traffic), the implication is that the total capacity available in 1965-66 for long distance transport will be about 92 billion ton-miles. If this figure is translated into capacity required in terms of traffic tons originating we find that provisions

* The cooperation of and helpful information made available by Mr. Pitambar Pant, Chief of the Perspective Planning Division is gratefully acknowledged. The authors are indebted to Mr. V. V. Sarwate of the same Division for his contribution to the material contained in Appendix C. Grateful reference should also be made to useful information obtained from Mr. L. A. Natesan of the National Council of Applied Economic Research and to the helpful suggestions of Mr. V. K. Ramaswami.

¹ By the term long distance traffic we denote movement which is other than local or feeder traffic.

are made for the movement of *at most* 268 million tons of long distance traffic.² Finally, if we account for about 3.5 million tons of commodities carried by coastal shipping we reach the conclusion that the transportation provisions of the Third Plan for long distance movement on land and sea amount to a grand total of at most 272 million tons of commodities.³

2. Contrary to the above estimates we have found that requirements for total long distance traffic (i.e. services rendered by all three modes of transportation) will be in the neighbourhood of 305 million tons of commodities if the overall production targets of the Third Plan are to be met⁴.

3. Given the estimated total number of trucks available (projected from the current park and production targets of the Plan)

² For a justification of our assumption concerning the share of long distance transport in the total road transport capacity, see Appendix A. In the computation we have assumed that the average lead of railway movement will be 348 miles and of road transport on long distance hauls 300 miles. Larger average lead for the railways would yield, of course a lesser tonnage.

³ The transportation targets of the Third Plan seem to be supported by the Neogy Committee's report on Transportation Policy and Coordination. The projections for required railway services correspond very closely to the provisions of the Plan. The projections for road transport, contained in this report contain one estimate somewhat in excess of the target of the plan; two alternative estimates show magnitudes which are about 30% below the target level. On closer inspection, however, the statistical procedures in the context of the data prove to be inadmissible (see footnote on page 3 on projections based on correlation analysis). Furthermore the estimate for railway traffic based on the "coefficient method" contains a fatal computational error. The 16 commodities shown in Annexure I of Appendix XIII(2) account for 60 per cent of the total railway freight traffic. This is correctly concluded on historical evidence and acknowledged by the explanatory note (Appendix XIII(2), p. 3). The 16 commodities in Annexure I total 169 million tons for 1965-66; hence, the total railway tonnage must be 281 millions in that year as opposed to the plan target of 243 million tons. Table 4 of the same Appendix is computed on the basis of an assumed average lead of 345 miles; hence, railway ton miles for 1965-66 must be about 97.5 billions as opposed to the figure shown in Table.

⁴ Our estimate was obtained by considering the volume of outputs in different industries as they relate to long distance movement (see Tables of Appendix A and explanatory notes). In the estimating procedure we have assumed that the volume of outputs related to the freights carried by the railways from 1950-51 to 1955-56 are indicative of *total* transport requirements as in those years long distance transport by other modes of transportation was insignificant. Thus in 1950-51 the amount of traffic by shipping was about 2% of the total traffic and the share of road transport was nil. In 1955-56 the estimated total volume carried by the two modes was already more than 4% of the total long distance traffic. It is to be kept in mind that this development, if uncorrected for provides a downward bias in the projections.

we have eliminated that part of the road transport capacity which is required for local and feeder traffic to sustain a long distance movement of 305 million tons of commodities. The remaining road transport capacity yields 24 million tons for long distance movement⁵. Historical projections of coastal shipping indicate a capacity of 3.5 million tons by 1965-66⁶.

4. The conclusion reached by considering the transport coefficients is substantiated by correlation analysis. A linear regression line covering the years 1953-54 through 1959-60 fitted to a scatter of gross turnover (i.e. total value of production plus imports) and tons originating on the railways indicates a demand for 276 million tons by 1965-66. A parabolic fit over the years 1950-51 through 1959-60 gives 289 million tons. Both of these are based on railway statistics and exclude the increasing contribution of road transport to long distance traffic over the period of fitting. Adjusting for the latter we obtain a *total* demand for long distance movement which is about or above the previously quoted 305 million tons of total requirement by the end of the Third Plan.⁷

5. There is one further point worth mentioning. The average lead of traffic in railways increased at the rate of about 8 miles over the last 6 years. Preliminary figures indicate that the

⁵ See Appendix A, Table A2. The 24 million ton estimate was derived based on current capacity utilization. However, the latter could be improved by removing administrative hindrances to motor transport. With improved utilization the road transport industry could carry about 30 million tons of long distance traffic with an average lead comparable to that of the railways.

⁶ See Appendix A, Table A2.

⁷ The correlations contained in Appendix XIII(2) of the Neogi report are misleading. First, straight lines fitted to scatters which indicate marked curvilinearity or abrupt changes in slope are of questionable validity. The data show a marked increase in the rate of change in transportation requirements relative to output from 1953-54 onward. The explanation lies in the change in the rate of industrialization in response to the First Plan. Hence, straight lines fitted over the span 1950-51 to 1958-59 are bound to give under-estimates.

Secondly, ton-mile projections contain a significant trend element due to the steady increase in average lead over the last six years. This is ignored by the Report. To demonstrate the consequences: after accounting for the trend in the Report's estimated 82 billion railway ton-miles [Table 6, Appendix XIII(2)] the latter translates itself into only 210 million tons by rail in 1965-66.

Note that our estimates based on ton-mile data project for 1965-66 a requirement for railway traffic in excess of 110 billion ton-miles (See Appendix A). After accounting for the trend in average lead these estimates result in about 290 million tons of railway tonnage for the same year.

lead for 1960-61 further increased from 348 to 355 miles. The projection of the trend would give about 390 miles as average lead by 1965-66. Whereas it is by no means certain that the lead will continue to increase at this rate and this very well may happen. Forces which work to restrain further growth in lead (increasing capacity utilization in steel, the dispersion of certain industries such as cement, etc.) are offset by powerful counter forces. These consist of the gradually increasing national economic integration, including the replacement of steel, paper and other imports by domestic production. Furthermore, the discriminatory rate structure of the railways in favour of low value commodities and the government price policy for steel and other goods encourage excessive movement.

6. In summary, our projections for the last year of the Third Plan consistently indicate a requirement of about 305 million tons demand for long distance transportation. Against this demand the foreseeable capacity based on the provisions of the Plan is about 272 million tons. If our reasoning is correct, a demand for another 33 million tons of long distance traffic is unaccounted for. In considering this shortage it should be kept in mind that our projections were obtained by conservative methods of estimation. Furthermore, it is by no means assured that the trend in average lead will not continue upward.

7. The implication is that the lack of transportation services may prove to be the most significant bottleneck in the economic development of India. In order to remedy the situation, more efficient utilization of existing facilities⁸ and increased allocations in the railway system or in road transport, or in both in some suitable combination are required to attain an additional capacity for handling about 33 million tons originating. Improved utilization of road transport could diminish the gap by about 6 million tons, in which case a requirement for 27 million tons of additional capacity would still remain.⁹

⁸ Concerning the questions of efficiency, See 'A Note on Investment And Operational Efficiency in Indian Railways' by M. Datta Chaudhuri; Appendix E.

⁹ Whereas some part of this required added capacity could be allotted to coastal shipping, it is quite clear that the bulk of it still would have to be accommodated by either rail or road.

PART II**QUESTIONS CONCERNING THE COSTS, REVENUES AND
RATE STRUCTURE OF RAILWAYS**

8. Before we could discuss the allocation of the expected additional traffic to either mode of transportation the current rate policies and financial structure of the railways must be considered.

9. It is a well known fact that at this point the railways' capacity to speedily move bulk commodities and other cargo is insufficient. This is attested by recent complaints about coal deliveries in different parts of the country and also by the increasing amounts of outstanding registration. This capacity shortage developed in spite of the fact that several targets of the Second Plan relying on heavy uses of coal and other bulk commodities were not fully attained¹⁰.

10. Given a mounting pressure on capacity an efficiently working pricing mechanism would respond by increasing the rates for transportation services. This in turn would discourage further demands on the system and the increased profitability would indicate the need for expanding the capacity. Incidentally, it would also provide resources (in the form of increased profits) toward financing the new capacity requirement. With increasing capacity the rates would gradually settle at a level which leaves room only for "normal" returns to capital investment.

11. The lesson we can learn from the working of a competitive price mechanism is that rates should be such as to equate the demand for transportation to the available supply or capacity. Furthermore, the desirable capacity is determined by measuring its yield against alternative possible investments; when yields increase relative to other investments capacity increase is in order and when yields on the margin are equalized, we know that there is a balanced distribution of capital resources. Thus the function of yields and prices is to guide resources into these lines of activities which are the most efficient from the point of view of the economy.

¹⁰ It should be remembered that the railways completed their investment programme scheduled for the Second Plan. The inevitable conclusion is that transportation requirements were underestimated already in the past.

12. Whereas free short run fluctuations in prices and rates are undesirable, the importance of providing long run measuring rods for the efficiency of investment and of creating surpluses for new investment is crucial particularly in the context of a modern socialistic economy¹¹.

13. The need to reply more on the pricing mechanism is illustrated particularly well by the example of the Indian railways. The railways maintain a rate structure which on the one hand induces transportation demands in excess of capacity and on the other hand yields insufficient surpluses for a vigorous renewal and reinvestment policy. Furthermore, the rate structure of the railways induces excessive industrial investment at uneconomical locations.

14. Arguments for the current rate structure claim that it is consistent with the needs of a developing economy and conducive to socialistic economic development. Fact is that the prevailing rate structure of the Indian railways is an anachronistic left over of a free enterprise economy in which uncurbed monopolistic tendencies prevailed. In their rate policy the Indian railways are not different from the privately owned railway companies of the U.S. or other western railways. Nor is their financial position much better along with their ability to stand on their own resources¹².

15. The discriminatory rate structure in favour of low value commodities was rational when the Indian railways operated on excess capacity. However, the inducement of additional flows of commodities is undesirable when transportation is at the point of becoming a bottleneck. Instead of maximising the demand for transportation, only that amount of movement must be encouraged which is necessary to maintain any given level of national income and rate of growth.

16. As long as discrimination takes place in favour of bulk commodities, decisions on the location of industries will not take into account the true costs of investment and production.

¹¹ Note the increasing reliance of all socialist economies on the pricing mechanism.

¹² See Appendix B : Note on the general background of current rate making practices in the railways.

Furthermore, monetary cost comparisons between the uses of substitutable raw materials must become illusory. For instance, if the rate of coal would reflect its true transportation cost, the motivation to increase the use of residual fuel oil in western India would be overwhelming.

17. There are, of course, arguments of great political appeal which are employed in the defence of the existing rate structure. These focus on the question of fairness to people geographically distant from the location of raw materials, on the Indian industry's competitive position in the world markets and the price level in general¹³.

18. As far as the export industries are concerned, it would be preferable to counteract the effects of the overvaluation of the Rupee or the problems of infant industries by direct subsidies where such is necessary.

19. As far as the price level is concerned, the cost of distortions in the use of resources induced by the discriminatory rate structure can be far greater than the price effects of increasing the rates of bulk commodities.

20. In most industries the cost of bulk commodities forms a relatively small part of the value of the final output. In the case of coal, for instance, the cement and ceramics industries are the only ones in which the price of coal plays a noticeable role¹⁴. Even there, say in the case of the cement industry, the cost of cement located at a distance corresponding to the average lead of coal from the pithead would increase only by about 5 per cent. In general the value created per ton of coal used in most industries is so large that higher rates for coal should translate themselves into minimal increases in the cost of final output¹⁵. In the case of electricity, of course, coal can play an important role. However, excepting some electrolytic processes, the value of final output created by a unit of electric power is

¹³ Concerning the question of fairness, see note "Regional Allocation of Resources" by Louis Lefebvre, Appendix D.

¹⁴ See Appendix C: Tables C5 and C6.

¹⁵ The fear that industrial activity would suffer and that coal flows to existing industries would diminish, is unfounded. Plants which are located already have an inelastic demand for coal, and would continue production. They would, however, undertake a gradual shift to more economical fuels or sources of power, if such is economical.

very large; hence, the increase in the cost of delivered coal would have again negligible effects on the prices of final outputs¹⁶. Furthermore, if rational procedures are adopted, in the regions distant from the mining areas there should be a shift from coal based thermo-electric generation to generation based on fuel oil and water.

21. The price effects of a revision in the rates of low value commodities can be more than offset by powerful contrary forces. These result from the application of rational criteria to the selection of industrial locations, substitutable raw materials and sources of supply. Furthermore, the effects of an increase in transportation rates on industrial operations and consumers can be softened by a gradual revision of the rate structure over time.

22. Attempts to improve the financial position of the railways by imposing arbitrary restrictions on highway transportation is against the interest of the nation and the railway. Highway transportation is a form of technological progress. It might be possible to suppress its role for, say, another 5 or 10 years; however, new developments which in some sense provide a competitive threat to the railways cannot and should not be held back in the long run. Instead the railways must increasingly concentrate on developing those forms of their services in which they can have a relative advantage, i.e. the rapid and efficient long distance movement of bulk commodities. In this field, highway transportation will remain non-competitive for a long time to come¹⁷.

23. Efficient resource utilization and improvement in the railways' financial position both require rates which at least cover costs. However, given heavy governmental and political demands on the railways, cost determination for industrial commodity flows is an impossible task. For this reason the railways should charge full operation costs to the government where military

¹⁶ A rise in the price of delivered coal by Rs. 10 per ton might result in price rises of final outputs ranging from about 0.1 per cent in general and electrical engineering and 0.5 per cent in cotton textiles to about 2.5 per cent in paper, glass and steel industries.

¹⁷ The fact that in some areas such as West Bengal, trucks are used for the movement of coal, reflects a shortage in railway capacity and not a competitive advantage of highway transportation.

or other governmental purposes require the maintenance of unprofitable lines. This would induce a more careful evaluation of the demands by the government on the railways; furthermore, it would allow a rational determination of the rates for industrial commodity flows. As far as the latter is concerned, it is not necessary that each commodity on any one particular line should cover its cost; it is desirable, however, that on the whole any one commodity carried by the railways should cover its share; in the total any one commodity carried by the railways should cover its share in the total bill, given that the differential costs in the operation of the broad and meter gauge systems are reflected by the rates.

24. Rate revision has to be considered from the points of view of both current utilization and expansion of the existing plant.

25. To evaluate the desirability of new investment in the railway plant the yield (or opportunity cost) of the project must be carefully considered. This requirement is far from being an anachronistic left over of the spirit of free enterprise. For society, the yield reflects income creating opportunities foregone from investment projects which could be undertaken as alternatives. In other words, the efficiency of new investment can be measured only in terms of its yield; in order to be undertaken it should be at least as profitable as other new investments. If this is not the case the project should be abandoned. Furthermore, if alternative methods exist for the provision of substitutable goods or services, for selection the return on each should be compared with that on the others. If these rules are not observed by private investors, the penalty is bankruptcy. Unfortunately, no such readily identifiable penalty exists for the government investor.

26. The evidence seems to be that private investors in India operate on the basis of at least 20 per cent yield on new investment, before taxes but after depreciation¹⁸. This, of course,

¹⁸ A computation of the marginal rate of return over cost for India gives a rate which fluctuates between 19 and 21 per cent between 1950-51 and 1957-58. This is, of course, before taxes but after depreciation. (The computation was based on the framework and statistical principles presented in the paper, *Capital Formation and Economic Growth: A Theoretical and Empirical Analysis* by R. S. Eckaus and L. Lefebvre, CENIS, MIT, C/61-1, 1961. The statistical work for the Indian economy was

is a social yield since about fifty per cent of the returns goes into income taxes¹⁹. From the point of view of resource allocation, investments are made in the expectation of at least ten per cent yield after deducting income taxes.

27. The implication is that additions to railway plant should not be undertaken if the expected yield on the *incremental* investment cannot approximate 20 per cent net of depreciation. While this rate on additional investment in a "national enterprise" may offend the "post office socialist" it should by no means be considered prohibitive. It has to be remembered that present railway rates for bulk commodities are too low in terms of the costs of operation and the excessive demands put on the current plant. If these rates are adjusted to a realistic level and if incremental investments are undertaken primarily to ease congested routes and to improve the efficiency of railway operations the yield on the incremental investment may easily attain the quoted rate.

28. As far as the current utilization of the existing plant is concerned, the rate structure must be raised in order to discourage wasteful demands on the railways. Ideally, one should raise the rate level to the point where the supply (capacity) of available railway services just equals the demand for it. However, experimentation is impractical. Instead, the "equilibrium" rate structure must be derived from a realistic estimate of the real cost of railway operation. For this reason the meaning of costs should be spelled out unambiguously.

done by Mr. G. V. L. Narasimham of the Perspective Planning Division). This rate signifies the expectations for the *last* investment item in all lines of activities undertaken by entrepreneurs; hence, it is to be interpreted as the *minimum* expectations of the new investors. It follows that many new projects may have larger returns on the investment. In effect, our private investigations and discussions with Indian industrial consultant engineers have convinced us that the expected return in no branch of manufacturing industries is less than 13 per cent *after depreciation and taxes*. The profitability of new projects is, of course, obscured by complex accounting procedures, hence it is not readily evident to the uninitiated. The profit rates given by the Reserve Bank of India are irrelevant as they refer to average rather than marginal returns. Furthermore, they are based on arbitrary and unreliable balance sheet information.

¹⁹ The direct yield in the road transport industry seems to be above this figure. The yield from indirect taxes, etc. would further augment it. However, the latter can be considered as the yield on the construction and maintenance of highways.

29. Apart from operating expenditures (including the cost of administration, etc.) there are two major cost components which at this point are insufficiently accounted for by the railways: depreciation and capital charges.

30. Current railway accounting does not reflect the value of the plant based on which depreciation and capital charges could be assessed. Valuation is, of course, an impossible task if scholarly standards are applied to it. However, a pragmatic estimate can be obtained which can then provide a basis for assessments.

31. As far as depreciation charges are concerned, a flat 4%, i.e. 25 year depreciation of assets, seems to be realistic. Whereas a large part of the railway plant consists of assets older than 25 years, it is also true that had the railways undertaken a more vigorous depreciation and renewal policy in the past, their plant would be more adequate to cope with current demands. Furthermore, with increasing technological progress in railway transportation obsolescence should be given greater weight in the depreciation policy.

32. As far as capital charges are concerned ten per cent on the existing stock of capital tied up in the railway plant does not seem excessive. Its justification is the following. When capacity is lagging demand, rates should be high enough to encourage only the most efficient utilization of the plant. To put it differently, when marginal costs are above average costs, profits are indicated. And the size of outstanding registrations indicates that considerable profits could be borne. Furthermore, returns on investments in the transport plants undertaken during the previous plan periods should have reflected their opportunity cost. A twenty per cent return (which corresponds to the real rate of interest in India) on the *incremental* investment undertaken over the last ten years would imply at least a ten per cent yield on the utilization of the entire plant²⁰.

²⁰ Had there been an efficient rate policy over the past planning periods the net overall yield on capital might be today somewhat in excess of this rate. It should be also remembered that the effective rate of interest (i.e., measured after taxes) in India today is in the neighbourhood of ten per cent and the government should obtain on its capital holdings at least a corresponding rate. The artificially maintained rates on loans offered by government agencies are not

33. The adoption of a 14 per cent gross yield on capital would bring a rapid relief from the railways' financial and physical problems. First of all, it would discourage unnecessary increases in commodity flows. For this purpose, however, the burden of revenue increases must be borne primarily by bulk commodities. Second, the financial viability of the railways would be re-established. As things are, without a suitable revision of the rates the railways will be threatened by bankruptcy. This is so because the proportion of low rated commodities which do not cover the full cost of their movement is increasing relative to more profitable traffic. At the same time, increasing pressure on the plant implies larger than proportionate increases in operating costs.

34. According to budget estimates the total revenues in 1960-61 consist of Rs. 464 crores from the different types of services rendered. If we apply the suggested revision in cost accounting the total cost of providing those services will come to about Rs. 596 crores implying for the past year a deficit of 132 crores (see Table C3, Appendix C)²¹. Assuming that retroactively we could readjust rates to cover full costs, i.e. to the point where depreciation provisions and capital charges are fully covered in addition to operating costs, an increase of gross revenues of the order of 28 per cent would be required. A part of this increase undoubtedly can be met by increased charges for unprofitable services rendered to the government (military etc.) and another part must be obtained by raising passenger fares for all classes but particularly the fares for higher class coaching and sleeper services²². However, the bulk of the required increase in revenues, say 70%, would have to fall on

pertinent as they do not reflect conditions prevailing in Indian capital markets. For instance, hirepurchase agencies operate with effective rates between 18 and 22 per cent. Rural interest rates are even in excess of these figures.

²¹ For the purposes of our calculations we have taken Rs. 1900 crores as the capital value in 1960-61 given that the currently scheduled investments take place in the railway plant.

²² It is a peculiar phenomenon inconsistent with the socialist ideals of the State that while revenues from third class passenger transport seem to cover more than the cost of services, higher class passenger services are provided at a loss. To put it bluntly, the third class passengers subsidize the travel of the well-to-do.

the movement of commodities and particularly on the movement of low rated commodities. The corresponding overall average earning per ton of commodity transported over the distance of the average lead comes to Rs. 25.5 (See Appendix C, Table C3).

35. Note that the deficit that corresponds to the Planning Commission's estimate of 243 million tons traffic for 1965-66 amounts to Rs. 235 crores, if our suggested cost accounting is applied²³. The added revenues needed to cover the deficit would amount to a 38% increase in gross earnings.

36. What should be particularly noticed is that if the rate structure remains unadjusted the deficit as a proportion of gross earnings will increase from 28% in 1960-61 to 38% in 1965-66. The explanation lies in two facts. First, the proportion of low rated commodities, i.e. goods which do not cover their transportation cost, will increase in the total bill of railway traffic. This is particularly so since the railways will not be able to accommodate the incremental demand for high value traffic if only the currently foreseen expansion to move 243 million tons takes place. Secondly, the scheduled new investment contains large elements of unproductive items such as outlays on unprofitable new lines, staff facilities and so forth which add to capital and operation costs but not to revenues.

37. These unproductive items are in response to accepting regional political demands on the one hand and to misguided application of socialist principles on the other hand²⁴. If economic efficiency is to be the criterion for the reorganisation of transportation, items which do not yield appropriate returns must be eliminated from railway investment.

²³ Capital value for 1965-66 is taken to be Rs. 2900 crores. The scheduled outlays for railway investment during the Plan include several expenditures on 'new lines', housing, etc. in addition to improvements on the current plant. See Appendix C, Table C3.

²⁴ From the nation's point of view economic efficiency as a way to increasing savings and income growth is crucial. Regional demands must be satisfied by methods which do not interfere with efficiency of resource allocation. Furthermore, the provision of housing and other facilities for staff, paradoxically, increases rather than decreases income inequality. For, in a society with vast unemployment the foremost method of increasing equality is to increase savings and productive investment in the interest of the jobless. Hence those who are employed should not appropriate further gains from industrialization while unemployment increases. See paper on *Regional Allocation of Resources*, Appendix D.

38. As a last exercise we have considered railway finances in 1965-66 under the assumption that the estimated shortage for 27 million tons added, demand will be met by appropriate railway expansion²⁵. In that case the total tonnage moved by the railways will be 270 million tons. We have further assumed that only these investments will be undertaken by the railways which are profitable; i.e. projects aimed to relieve congested routes by double tracking, dieselization, bridge work, increasing rolling stock, etc.

39. Our preliminary estimate indicates that a total Rs. 850 crores investment is appropriate to attain the traffic target (allowing also for increase in passenger traffic); hence, total capital invested in the railways would be Rs. 2750 crores by the end of the Plan²⁶.

40. We further assume that the rate structure will be adjusted according to our above computation for 1960-61 such that the average rate is Rs. 25.5 per ton carried over the distance of the lead²⁷. At this average rate, gross revenues originating from goods traffic will amount to Rs. 689 crores. With a suitable revision of the railways' estimate of other earnings for 1965-66 we obtain total gross earnings of Rs. 917 crores²⁸. After subtracting 4% on capital for depreciation and also operating expenditures Rs. 343 crores remain as residual net earnings. Given that the hypothetical net earnings amounted to Rs. 190 crores in 1960-61 according to our earlier computation the Rs. 850 crores of net investment provides a yield of 18 per cent²⁹. Introduction of cost saving devices and greater attention to the details of efficiency requirements could bring this rate to even higher levels.

²⁵ Our estimate of total shortage is 33 million tons. However, we pointed out in Part I that better utilization of road transport facilities for long distance movement could accommodate 6 million tons of the added demand.

²⁶ Our estimate for 1960-61 was Rs. 1900 crores.

²⁷ For the purpose of this computation we have assumed that the average lead will remain the same. An increasing lead would strengthen rather than invalidate our following results, as costs do not increase proportionately with lead.

²⁸ See Appendix C, Table C3.

²⁹ Rs. 343 crores minus 190 crores give 153 crores as incremental earnings due to investment. This divided by Rs. 850 crores gives 18 per cent as the yield on investment.

41. Whereas the computation is based on preliminary estimates the rough order of magnitudes seems to be correct. The indication is that the incremental yield in response to new investment in the railways can approximate the social yield on other industrial investment if standards of efficiency in rate and investment policy are introduced.

PART III

SUMMARY AND CONCLUSIONS

42. We have established that in 1965-66 the total demand for long distance transportation will be about 305 million tons if the targets of the Third Plan are to be attained. Since provisions for total capacity add up to at most 272 million tons, demand for 33 million tons is unaccounted for. Of this, about 6 million tons could be carried by road transport if its capacity would be utilised more efficiently. To attain better capacity utilization, nuisance legislation designed to hinder long distance transport by road must be repealed.

43. The rate structure of the railways induces excessive flows of bulk commodities against an overutilized plant. It also motivates inefficient locational and technological choices by industry since monetary costs do not reflect the real costs of transportation. The remedy is an increase in overall rates; however, the major burden of the increases must fall on low rated commodities. For rational rate determination and also to restrain excessive demands for unprofitable services by the government, the railways must charge the full costs of these services to government.

44. Rational rate revision is the only way to save the railways from bankruptcy. Efforts to save railway finances by suppressing the development of road transportation are vain and not in the nation's interest. In the long run railways must specialise on the rapid movement of bulk cargo. Hence, they must have rates which make such traffic profitable.

45. The average rate level must be high enough to equate the supply of and the demand for railway transportation, without discrimination in favour of any commodity. The equilibrium

level of rates should account not only for operating expenditures but realistic depreciation and capital charges. The latter should reflect the scarcity of capital in India. The recommendation is to adopt 4 per cent for depreciation and 10 per cent as capital charges levied on the value of the plant.

46. New investment in the plant should not be undertaken unless the incremental yield of the project can approximate 20 per cent, i.e. the social marginal rate of return currently prevailing in India. Given that unprofitable new lines and other unproductive investments are avoided by the railways, this marginal yield can be attained.

47. If alternative methods exist for the provision of substitutable services the present discounted value of each should be compared to its cost. In this process, the foreign exchange content of the investment and operation must be accounted for by applying a realistic (shadow) rate of exchange. Then the most advantageous programme in terms of cost-present value comparisons must be chosen.

48. This part of the analysis we have not undertaken in this paper. Simple minded comparisons of costs and benefits are meaningless and realistic ones will take longer effort. Such comparisons must be made in terms of a rational evaluation of feasible alternatives and should not take conditions currently prevailing in India as constant. For instance, fuel requirements for sustaining either diesel traction on the railways or diesel trucks on the highways, must be viewed in the context of the development of the petrochemical industry. Or direct taxes aimed to compensate for foreign exchange undervaluation or for covering the costs of highways should not be considered constant but adjustable according to requirements. Furthermore, cost comparisons for different modes of transportation must account for all costs attributable to the use of the modes; for instance, the cost of feeder and local transport by trucks needed to sustain railway traffic is part of the cost of railway transportation. The effects of speed and risk of damage on inventory requirements must be also evaluated if proper comparisons are to be made.

49. Since at this point we do not have complete information on the above mentioned (and some other) questions which relate

to the comparisons of services by road and rail, this paper does not contain specific recommendations as to the optimal balance between the two modes. However, we can conclude that the railways should not undertake any further unproductive investments and that regulations that hamper long distance road transportation must be repealed. Since the demand for traffic is going to be much larger than foreseen by current plans and since the resources for the country's development are scarce, these two requirements must be met if the additional demand for transportation is to be accommodated.

Appendix A

Third Plan Estimate of Long-Distance Goods Traffic and Railways' Share in it

Methods employed in forecasting the volume of goods traffic in 1965-66 are :

- (a) method of coefficients; and
- (b) regression analysis.

Table A1 gives a breakdown by commodity groups of tons originating in railways from 1950-51 to 1959-60. The relationships between volumes of output and freight tons are expressed as percentages of total production of these commodities. Assuming that similar or somewhat increasing percentages of the volume of production of various commodities will require long-distance movement by all modes of transportation in subsequent years, an estimate of total freight traffic (in tons-originating) is worked out, based on the production plans of the various sectors of the economy. Most of the coefficients merely reflect the historical trend; in the case of coefficients where the trend was rejected, the alternative assumptions are explained below.

(a) Foodgrains movement is taken to increase at the rate of 4% per annum, corresponding to the expected minimum rate of urbanisation.

(b) Pig iron for sale and finished steel are taken to require two stages of transportation after production—once to secondary industry and then to consuming centres. In the past, rail movement of iron and steel was as high as 180% of production *plus* imports. But then the bulk of imported steel was usually in finished form and was consumed largely in port towns. By the end of Third Plan the bulk of domestic demand will be met by home production at steel plants situated away from the big cities. Hence the coefficient 200 per cent.

(c) More or less the same argument applies for paper and paper board. With the Central Indian Newsprint and other domestic industries replacing imports—particularly in the consumption of the port cities, the coefficient of movement is likely to go up.

(d) "Others" (other than the 17 listed commodities) are taken to provide 38% of the *total* long-distance traffic in 1965-66. During the last decade, this group accounted for 37 to 40% of total rail movement. Moreover, motor transport at the same time was taking an increasing share of long-distance traffic. The latter was to a large extent confined to this group of commodities. If this is taken into consideration then one should establish a rising trend of the ratio of this group to the *total* long-distance traffic. Though we have retained 38% as our coefficient, it is to be remembered that our estimate is certainly on the conservative side.

On the basis of the coefficients it is found that about 305 million tons of goods will require long-distance movement in 1965-66.

Motor transport is expected to take an increasing share of total long-distance traffic in future. From the production programme of the automobile industry and on the assumption of 15 years life for a truck, we find that the maximum number of trucks available in 1965-66 will be about 303,000 roughly 2/3 of which will be diesel-run. Taking C.T.P.C's estimate of vehicle utilization (100,000 ton-miles and 40,000 ton-miles per annum for diesel and gasoline trucks respectively) the total capacity of motor transport in ton-miles was estimated. Table A2 shows our estimate of the requirements of local and feeder traffic assuming that the relative share of animal-drawn carts will diminish. The capacity on road available for long-distance traffic was obtained by residual. In 1950-51 under "Code of Principle and Practice", motor transport could not for all practical purposes participate in long-distance traffic. We have assumed that the entire capacity on road in that year was devoted to local and feeder traffic. The ratio of total capacity on road to the volume of long-distance traffic in 1950-51 was 70 ton-miles per ton-originating in long-distance. Based on this ratio, we obtained the requirements of local and feeder traffic. The residual capacity goes to long-distance traffic. Taking an average lead of 300 miles, we get the tons-originating to long-distance traffic on road. If 305 million tons of goods need to be moved over long distance in 1965-66 by all modes of transport-

ation, about 24.3 million tons of these goods can be carried by road given the planned expansion programme in the automobile industry. Historical evidence suggests that about 3.5 million tons will be carried by coastal shipping in that year. The residual is 276.8 million tons, of which the Railways have planned for 243.5 million tons only.

Total freight traffic on railways during the last decade has been functionally related to various indicators of economic activity. Projections on the basis of these equations give estimates of goods traffic on railways, under the assumption that the growth of the other modes of transportation is independent of railway traffic.

Let us denote the variables as follows :

- T = freight traffic on railways in billion ton-miles.
- Y = net domestic products at fixed prices (in Rs. billion).
- X_1 = income originating in goods producing sector, excluding non-marketed agricultural products at fixed prices (in Rs. billion).
- X_2 = value of gross outputs of the goods producing sector plus imports at fixed prices (in Rs. billion).

The time series of the variables are given in Table A3. We fit the following equations by the method of least squares:

- (i) $\log T = -3.2191 + 2.3714 \log Y$ ($r_1 = 0.94$)
- (ii) $\log T = -1.3273 + 1.770 \log X_1$ ($r_2 = 0.94$)
- (iii) $\log T = -2.8229 + 2.0909 \log X_2$ ($r_3 = 0.95$)

It is observed that if the first three years (i.e. 1950-51, 1951-52 and 1952-53) are excluded, a straight line fit is meaningful. That is given by

- (iv) $T = -69.94 + 0.841 X_2$ ($r_4 = 0.98$)

Correlation coefficients (r 's) are given along with the equations as measures of the closeness of fit.

Projections to 1965-66 on the basis of the above equations are

- (i) 113.1 billion ton-miles
- (ii) 112.3 billion ton-miles
- (iii) 113.6 billion ton-miles
- (iv) 111.1 billion ton-miles.

Implicit in the series of ton-miles is a rising trend of average lead. If we divide these ton-miles estimates by the approximate trend value of average lead in 1965-66 (i.e. 390 miles) the estimates of goods traffic in tons-originating are obtained as

- (i) 290 million tons
- (ii) 288 million tons
- (iii) 291 million tons
- (iv) 285 million tons.

Next, tons-originating (in millions) of goods traffic in railways (denoted by T_1) have been related to X_2 . The fitted equations are

$$(i) T_1 = -116.069 + 1.821 X_2 \quad (r_s = 0.98)$$

(from 1953-54 to 1959-60)

$$(ii) T_1 = 21.142 + 0.59 X_2 + 0.0055 X_2^2$$

Projections to 1965-66 on the basis of these equations give

- (i) 276 million tons
- (ii) 289 million tons.

These estimates more or less correspond to the estimates obtained by the method of coefficients. The lowest of these estimates indicates a gap of about 33 million tons between demand and supply of transportation facilities in 1965-66.

TABLE AI: LONG-DISTANCE GOODS TRAFFIC

sl. no.	(1)	(in thousand tons—originating)					
		1950-51 railways (actual)	1951-52 railways (actual)	1952-53 railways (actual)	1953-54 railways (actual)	1954-55 railways (actual)	1955-56 railways (actual)
	(2)	(3)	(4)	(5)	(6)	(7)	
1.	coal	32307	34432	36303	35980	36880	38226
	production	30423	32782	35411	32544	35119	38158
	transport	94.2	95.2	92.0	90.5	95.2	96.8
2.	cement	2613	3195	3537	3780	3927	4487
	production	2432	2794	3023	3382	3345	3956
	transport	93.1	87.5	85.5	89.5	85.2	88.2
3.	iron and steel	1422	1476	1487	1507	1864	1858
	production and import	2707	2636	2497	2555	2763	3655
	transport	157.0	161.1	148.0	147.9	128.9	137.5
4.	iron and other ores	3655	4376	4601	4459	5054	5404
	production	3007	3816	3338	4040	4330	4374
	transport	82.3	87.4	72.5	90.6	86.7	80.0
5.	foodgrains	50235	51175	58266	70178	67770	66494
	production	10000	—	—	—	—	12000
	urban consumption	7682	8755	8345	8311	8122	9044
	transport	76.8	—	—	—	—	75.4
6.	oilseeds	5076	4949	4659	5285	6208	5643
	production	1570	1389	1509	1359	1766	1521
	transport	30.9	28.1	32.4	25.7	24.2	31.3
7.	sugar	1037	1152	1418	1297	1086	1615
	production	983	1117	1133	1385	1478	1336
	transport	94.8	97.0	79.9	106.8	137.0	82.7
8.	vegetable oil	358	—	—	—	—	505
	production	179	—	—	—	—	264
	transport	50.0	—	—	—	—	52.3
9.	raw cotton	714	761	697	806	867	818
	production and import	517	560	560	650	716	739
	transport	72.4	73.6	94.7	80.7	82.5	90.3

TABLE A1—Contd.: LONG-DISTANCE GOODS TRAFFIC

sl. no.	commodities	(in thousand tons—originating)						
		(8)	(9)	(10)	(11)	(12)	(13)	(14)
		1956-57 railways (actual)	1957-58 railways (actual)	1958-59 railways (actual)	1959-60 railways (actual)	1960-61 (all modes)	1965-65 (all modes)	1970-71 (all modes)
1.	coal	39434	43500	45336	47028	52000	97000	170000
	production	38158	40517	43001	44616	49847	92000	161500
	transport	96.8	93.1	94.9	94.8	95.8	95.0	95.0
2.	cement	4969	5602	6072	6828	7750	13000	20000
	production	4291	5077	5012	6058	7208	12090	18600
	transport	87.1	90.6	82.6	88.7	93.0	93.0	93.0
3.	iron and steel	1897	1747	3093	3704	7308	8000	13000
	production and import	4237	4861	5592	6602	7308	16000	26000
	transport	117.0	142.0	180.7	178.2	200.0	200.0	200.0
4.	iron and other ores	5744	5973	6644	8677	12500	34000	50000
	production	4630	5351	5807	8558	10489	30600	45000
	transport	80.7	89.6	87.4	98.6	83.9	90.0	90.0
5.	foodgrains	70168	66091	78680	75557	76000	100000	120000
	production	—	—	—	—	15000	18000	23000
	urban consumption	9685	11076	11933	12287	11580	13860	17710
	transport	—	—	—	—	77.0	77.0	77.0
6.	oilseeds	6176	6051	6907	6353	7080	9800	13000
	production	1642	1641	1497	1467	2478	3430	4500
	transport	26.6	27.1	21.7	23.1	35.0	35.0	35.0
7.	sugar	2003	1957	1918	2410	2450	3500	4500
	production	1516	1516	1383	1354	2328	3320	4275
	transport	76.5	77.5	72.1	56.4	95.0	95.0	95.0
8.	vegetable oil	505	548	559	—	740	1260	2200
	production	264	261	224	—	370	630	1100
	transport	52.3	47.6	40.0	—	50.0	50.0	50.0
9.	raw cotton	966	914	887	782	946	1230	1578
	production and import	703	680	641	533	946	1230	1578
	transport	72.8	74.3	61.0	67.9	100.0	100.0	100.0

TABLE A1—Contd. : LONG-DISTANCE GOODS TRAFFIC (in thousand tons—originating)

sl. no.	commodities	1950-51 to 1955-56						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
			1950-51 railways (actual)	1951-52 railways (actual)	1952-53 railways (actual)	1953-54 railways (actual)	1954-55 railways (actual)	1955-56 railways (actual)
10.	cotton manu- facture	production transport per cent	498 465 93.4	543 469 86.4	616 495 80.0	647 466 72.0	635 499 78.6	715 548 76.0
11.	raw jute	production transport per cent	510 476 93.4	835 562 67.3	820 497 60.6	552 466 84.4	523 485 92.7	712 512 71.9
12.	jute manufacture	production transport per cent	839 267 31.9	875 247 28.2	852 256 30.1	869 232 26.7	928 241 26.0	1027 290 28.2
13.	salt	production transport per cent	2620 1551 59.2	2732 1558 58.1	2824 1521 53.9	3171 1682 53.1	2715 1716 63.2	2979 1858 62.4
14.	tea	production transport per cent	271 261 96.3	286 272 95.1	301 239 79.4	263 293 111.4	288 256 88.9	284 274 92.0
15.	paper and paper board	production and import transport per cent	215 184 88.1	219 190 86.8	240 185 76.5	266 206 77.6	286 235 82.4	324 256 79.0
16.	sugarcane	production transport per cent	56150 2774 4.9	— — —	— — —	— — —	— — —	59587 3408 5.7
17.	manganese ore	production transport per cent	883 867 98.2	1292 997 77.2	1462 1468 100.4	1902 1987 104.5	1414 1291 85.6	1584 1378 87.0
	others	transport	35055	—	—	—	—	44954
	total	per cent of total	38.4	—	—	—	—	37.4
			91400	—	—	—	—	114000

TABLE A1—Contd.: LONG-DISTANCE GOODS TRAFFIC

sl. no.	commodities	(in thousand tons-originating)											
		(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)		
		1956-57 railways (actual)	1957-58 railways (actual)	1958-59 railways (actual)	1959-60 railways (actual)	1960-61 (all modes)	1965-65 (all modes)	1970-71 (all modes)					
10.	cotton manu- facture	736	770	727	738	940	923	1140	production transport	316	324	379	446
	per cent	482	484	430	394	688	858	1060	per cent	260	309	360	424
		65.5	62.9	59.1	53.4	93.0	93.0	93.0		95.0	95.0	95.0	95.0
11.	raw jute	766	724	925	812	676	1140	1340	production	344	369	820	1500
	transport	720	688	728	799	805	1140	1340	transport	364	369	820	1500
	per cent	94.0	95.0	78.7	98.4	105.0	100.0	100.0	per cent	112.2	100.0	100.0	100.0
12.	jute manufacture	1093	1030	1062	1051	1100	1100	1250	production	253	352	352	400
	transport	269	259	261	253	32.0	32.0	400	transport	24.1	32.0	32.0	32.0
	per cent	24.6	25.2	24.6	24.1	32.0	32.0	32.0	per cent	62.4	60.0	60.0	60.0
13.	salt	3265	3626	4135	3128	4400	5000	6000	production	1880	2640	3000	3600
	transport	1715	1880	1781	1952	2640	3000	3600	transport	43.1	60.0	60.0	60.0
	per cent	52.5	51.9	43.1	62.4	60.0	60.0	60.0	per cent	303	320	379	446
14.	tea	298	303	320	316	324	379	446	production	274	309	360	424
	transport	274	285	285	260	309	360	424	transport	92.0	95.0	95.0	95.0
	per cent	92.0	89.1	89.1	82.3	95.0	95.0	95.0	per cent	89.1	82.3	82.3	82.3
15.	paper and paper board	330	311	344	366	369	820	1500	production and import	311	369	820	1500
	transport	267	306	364	411	369	820	1500	transport	306	369	820	1500
	per cent	82.5	92.0	105.8	112.2	100.0	100.0	100.0	per cent	92.0	100.0	100.0	100.0
16.	sugarcane	66998	68019	70456	75038	79610	105000	140000	production	3324	4777	6300	8400
	transport	3712	3324	2627	3141	4777	6300	8400	transport	5.5	6.0	6.0	6.0
	per cent	5.5	4.9	3.7	4.1	6.0	6.0	6.0	per cent	4.9	6.0	6.0	6.0
17.	manganese ore	1687	1650	1266	1168	1800	3000	5000	production	1620	1680	2850	4750
	transport	1647	1620	974	1173	1680	2850	4750	transport	98.2	93.3	95.0	95.0
	per cent	97.6	98.2	77.5	100.4	93.3	95.0	95.0	per cent	98.2	93.3	95.0	95.0
	others	4988	52582	52760	54000	63600	115730	185000	transport	40.2	38.0	38.0	38.0
	per cent of total	124100	132400	135200	144200	167400	301550	487000	per cent of total	39.7	38.0	38.0	38.0
	total	124100	132400	135200	144200	167400	301550	487000					

TABLE A2: AVAILABILITY OF LONG-DISTANCE TRANSPORT FACILITIES BY RAIL, ROAD AND COASTAL SHIPPING

	unit	1950-51	1955-56	1960-61	1965-66
1. railway	million tons	91.4	114.0	155.0	243.5
2. coastal shipping	„	2.0 ³	(2.5)	(3.0)	(3.5)
3. sub-total (1)+(2)	„	93.4	116.5	158.0	247.0
4. motor transport capacity	billion ton miles	3.3	5.5	10.0	24.5
5. animal drawn carts capacity	„	3.2	3.5 ⁴	(3.8)	(4.1)
6. sub-total (4)+(5)	„	6.5	9.0	13.8	28.6
7. feeder and local traffic ¹	„	6.5	8.3	11.6	21.3
8. long-distance motor traffic	„	—	0.7	2.2	7.3
9. long-distance motor traffic ²	million tons	—	2.3	7.3	24.3
10. unaccounted traffic	„	—	—	—	33.3
11. total long-distance traffic (3)+(9)+(10)	„	93.4	118.8	165.3	(304.6)

Figures in brackets are estimated.

¹ requirement of local and feeder traffic per ton-originating of long-distance traffic is 70 ton-miles per ton-originating, assuming that entire motor transport (and of course, bullock-carts) in 1950-51 was engaged in local and feeder traffic. This ratio is taken to remain constant over the whole period.

² assuming an average lead of 300 miles

³ "Report of Chief Engineer on Road Development Plan for India 1961-81", New Delhi, 1958.

⁴ "Goods Traffic Survey" Delhi, 1957, Table 2.40.

TABLE A3: BASIC DATA

year	net domestic product at 1948-49 prices (Rs. billion)	income originating in goods producing sector (excluding non-marketed agricultural product) at 1948-49 prices (Rs. billion)	value of gross output of goods producing sector plus imports at 1960-61 prices (Rs. billion)	railway freight traffic (in billion ton-miles)	tons-originating of railway traffic (in million tons)	average lead of railway goods traffic (in miles)	number of trucks on road
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950-51	88.7	36.5	104.7	27.0	91	295	81,888
1951-52	91.6	38.4	110.3	29.0	97	299	84,013
1952-53	94.7	40.3	112.5	28.9	97	298	91,425
1953-54	99.5	42.6	118.6	29.5	98	301	92,513
1954-55	102.8	45.2	123.7	32.1	106	302	—
1955-56	104.8	45.2	125.9	36.4	114	320	119,097
1956-57	109.9	47.8	134.2	40.2	124	324	124,628
1957-58	109.0	47.2	130.2	44.6	132	338	—
1958-59	117.0	51.1	140.5	46.7	135	346	145,048
1959-60	—	—	141.5	50.1	144	348	—
1960-61	—	—	—	—	—	—	160,000
1965-66 (anticipated)	167.3	84.7	215.3	—	—	—	303,000

Appendix B

Note on the General Background of Current Rate Making Practice in the Railways

In general, railways in most countries in their early development adopted rates determined by the principle of "what the traffic can bear." This principle involves charging below cost-rates for bulk commodities of low market value (i.e. commodities whose delivered price contains a significant proportion of transportation cost), while overhead costs are charged to the traffic in high value commodities. This rate structure was aimed to achieve several purposes. On the one hand, it induced the flow of bulk commodities over long distances in greater amounts than could have been expected at full cost rating. Since in the early periods considerable excess capacity existed along with falling unit costs of operation, the application of this principle led to profit maximisation for the railways. On the other hand, a monopolistic purpose was also achieved. Discrimination in favour of low rated commodities (frequently reinforced by special rates to points accessible to shipping) was responsible for appropriating a large part of the traffic efficiently carried by competitive modes of transportation. Since the shipping industry without a share in the flow of high rated commodities could not practise discrimination, its further development was truncated for lack of profitability and funds for expansion.

The principle of "what the traffic can bear" got deeply embedded in the thinking of the industry and was supported by pressure groups whose interests coincided with those of the railways. Below cost rates for low value commodities obtained political support and rational adjustment became difficult for non-economic reasons.

With the development of road transportation the railways' financial position weakened all over the world. Since road transportation was ideally suited for the movement of high value commodities (due to its superior speed, house to house delivery, etc.) it appropriated increasingly larger shares of

this traffic. As a consequence, the railways found it increasingly difficult to cover the costs of their operations. The below cost rates of low value commodities could not be readily revised upward due to political pressures; and with some help from the great Depression most railways went into bankruptcy and could not recover since. The lack of profitability made it difficult to raise new capital for modernising out-dated, run-down plants. As a desperate attempt to rescue finances the western (particularly U.S.) railways initiated political campaigns in favour of increasing the taxes on or curbing highway transportation to recapture at least part of the high value commodity flows. For instance, in the U.S. one of the claims was, (and still is) that highway transportation was unfairly subsidised by the government because the industry can use the highway system without a fair charge in return. Actually impartial investigations in the U.S. have established beyond a shadow of doubt that highway transportation contributes just about its share, or a bit more, to the construction and the maintenance of the nation's highways. It is, of course, true that the railways as one-time monopolists were and are subjected to many regulations which hamper their rational reorganisation. These should have been abandoned when the railways ceased to enjoy a monopoly position. Nevertheless, the only measure adequate to re-establish their financial stability is increasing specialization on the movement of bulk commodities. This involves raising the rates of bulk commodities to cover the total cost of their transportation and physical alterations in the railway plant to shorten the time in transit, minimise the handling requirements and thus lower the costs of bulk transportation. The above general outline of the railways' plight includes also the case of India.

Appendix C

Operational Costs and Earnings of Railways

Estimates of operational costs have been worked out on the following assumptions :

(a) Cost per train-mile in 1965-66 will remain the same as in 1959-60.

(b) The ratios of freight tonnage and passengers to goods train-miles and passenger train-miles respectively will remain the same in 1965-66 as in 1959-60.

Total train-miles run on Indian Railways was 235.2 millions in 1959-60 ("Indian Railways, 1959-60" Table VIII). Total cost of operation (excluding provision for depreciation and interest payments) was Rs. 302.8 crores. Cost per train-mile is taken as the ratio of the two, i.e. Rs. 12.90.

In 1960-61, the estimated volume of passenger traffic (estimated on the basis of first 8 months' data given in "Review of Performance, etc." Feb., 1961, page 14) was 1632 millions. Taking the railways' estimate of 15 per cent increase it will be 1877 millions in 1965-66. Required train-miles on a pro rata basis come to 155.1 millions.

On an analogous computation the required goods train-mileage for 243.5 million tons of cargo comes to 185.8 millions, and that for 270 million tons to 206.0 millions.

Total requirement of train mileage on the basis of Railways' estimate of traffic in 1965-66 is 340.9 millions and on the basis of our estimate (the same passenger traffic and 270 million tons of goods) is 361.1 millions. Operational costs (excluding depreciation and interest) for the two estimates are Rs. 440 crores and Rs. 466 crores respectively.

Table C2 gives the breakdown by commodities of the revenue-earning part of the 276 million tons of goods traffic in 1965-66. Non-revenue traffic is kept at 41 million tons in spite of the fact that with increasing traffic, non-revenue movement of coal and materials for the railways should also increase. However, the increase on margin cannot be substantial and a corresponding adjustment would not alter the conclusions. The

gross earnings on the basis of 1959-60 rate structure come to Rs. 503.5 crores on the remaining 229 million tons. If the 5% surcharge on freight imposed since 1959-60 is added to this, gross earnings come to Rs. 528.7 crores. By adding passenger, other coaching and sundry earnings to this, we get a total of Rs. 708 crores as gross earnings. In Table C3, the estimates of total gross earnings corresponding to the Railways' targets are given (adopted from the Report of the Railway Convention Committee, page 19) along with those based on our estimates. It is to be noted that in these calculations the average lead for each commodity is taken to remain at 1959-60 level.

The value of capital assets of the railways at historical costs in 1960-61 is estimated to be about Rs. 1900 crores. If the proposed Third Plan investment programme is fulfilled it will come to about Rs. 2900 crores in 1965-66. The whole of net investments envisaged in the Third Plan for railways cannot be considered strictly necessitated by only *the demand for additional traffic*. If such items of investment as staff quarters, certain new lines, etc. are separated, about Rs. 708 crores of investments remain as those due to additional traffic. Table C4 gives a rough and tentative breakdown of this estimate. This, of course, is based on somewhat crude calculations and hence gives only a rough idea of the order of magnitude. On this basis it is estimated that about Rs. 850 crores of investments may be strictly necessary during the Third Plan for achieving the target of 270 million tons of goods traffic and 1877 million passenger traffic.

Table C3 gives the gross earnings and total costs (working expenses *plus* 4% depreciation *plus* 10% yield on capital) for the two cases.

In Tables C5 and C6, consumption norms of coal in various industries are given for the entire economy and separately for Bombay.

TABLE C1 : COST OF OPERATION ON RAILWAYS, 1959-60

(in Rupees crores)

	gross expendi- tures (excluding sus- penses and credit)	net expendi- tures (allowing for suspense and credit)
1. administration	37.8	36.3
2. repairs and maintenance	110.2	94.1
3. operating staff	65.9	57.9
4. fuel	66.6	58.0
5. other operating expenses	32.0	28.5
6. labour welfare	30.0	28.0
7. total 1 to 6	342.5	302.8
8. suspense	6.5	—
9. credits and recoveries	302.8	302.8

TABLE C2: ESTIMATES OF GROSS EARNINGS OF RAILWAYS
IN 1965-66
(At current Rates)

	1959-1960 (actuals)			1965-66 (estimated)	
	tonnage	earnings	earnings	270 m. tons	
	(m. tons)	(m. Rs.)	per ton (Rs.)	traffic	basis
(1)	(2)	(3)	(4)	(5)	(6)
<i>A. Revenue-earning traffic</i>					
1. coal for public	27.34	401.4	14.67	71.0	1041.6
2. foodgrains	12.28	277.8	22.62	13.5	305.4
3. iron and other ores	8.56	101.1	11.81	30.6	361.4
4. manganese ore	1.17	28.2	24.07	2.9	69.8
5. cement	6.06	102.3	16.88	11.0	185.7
6. salt	1.95	51.4	26.36	2.8	73.8
7. sugarcane	3.14	10.5	3.35	4.3	14.4
8. oilseeds	1.46	45.7	31.30	2.6	81.4
9. iron and steel	6.61	263.3	33.83	14.4	487.2
10. sugar	1.35	57.0	42.22	1.4	59.1
11. cotton-raw	0.53	37.7	71.13	0.6	42.7
12. cotton manufactures	0.39	44.7	114.62	0.5	57.3
13. jute-raw	0.80	26.6	19.50	1.0	19.5
14. jute manufactures	0.25	15.6	61.52	0.3	18.5
15. tea	0.26	17.8	68.46	0.4	27.4
16. paper	0.41	22.1	53.90	0.7	37.7
17. vegetable oils	0.23	12.1	52.48	0.4	20.6
18. other commodities	36.11	1090.1	30.19	70.6	2131.4
19. total	108.90	2605.0	23.92	229.0	5034.9
					+251.7*
					5286.6
<i>B. Non-revenue earning traffic</i>					
1. railway coal	17.28			21.0	
2. other railway materials	18.01			20.0	
3. total	35.29			41.0	
GRAND TOTAL	144.19			270.0	

* Allowance for 5% surcharge on freight imposed subsequent to 1959-60.

TABLE C3: COSTS AND EARNINGS OF RAILWAYS ON THE BASES OF CURRENT COSTS AND CURRENT AND RECOMMENDED RATES

	(in Rs. crores)						
	1960-61 (estimated)		1965-66 on railways, estimates of traffic and investments		1965-66 on our estimates of traffic and investments ²		(7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
I. capital assets	1900	1900	2900	2900	2750	2750	2750
II. costs:							
1. working expenses	330	330	440	440	466	466	466
2. depreciation (4% on capital)	76	76	116	116	110	110	110
3. yield (10% on capital)	190	190	290	290	275	275	275
total costs	596	596	846	846	851	851	851
III. gross earnings:							
1. good earnings	304	396	429	621	526	689	689
2. other earnings	160	200	182	230	182	230	230
total earnings	464	596	611	851	708	919	919
IV. deficit (-) surplus (+)	-132	—	-235	+5	-143	+68	+68
V. deficit or surplus as percentage of gross earnings	-28	—	-38	—	-20	+7	+7

¹If 70 per cent of the Rs. 132 crores deficit in 1960-61, i.e. Rs. 92 crores are covered by increased rates on goods then the required earnings on 155 million tons are Rs. 386 crores. This means an average earning of Rs. 25.5 per ton of goods over the average lead (i.e. 348 miles) on an average rate of 7.3 nP. per ton-mile.

²On the assumptions that (a) the required transportation capacity is allocated to railways and (b) only Rs. 850 crores of direct investments are necessitated by the additional traffic demand alone.

TABLE C4: BREAKDOWN OF RAILWAY INVESTMENT IN
THIRD PLAN

(in Rs. crores)

sl. no.	plan head	gross investment	net investment	direct investment for traffic	
(0)	(1)	(2)	(3)	(4)	
1.	rolling stock	505	384	384	
2.	track renewal	170	—	—	
3.	traffic facilities	183	183	183	
4.	signalling and safety	25	21	21	
5.	electrification	70	70	70	
6.	workshop machinery and plants	62	53	—	
7.	bridge work	25	11	50	
8.	other electric works, e.g. traction renewal	8			
9.	staff quarters	80	50		
10.	staff welfare				
11.	user's amenities	15	15		
12.	new lines	125	125		
13.	other structural works	15	15		
14.	road services	10	10		
15.	stores suspense	35	35		
16.	total	1298	978		708

TABLE C5: TOTAL VALUE OF OUTPUT PER TON OF COAL CONSUMPTION¹ (ALL-INDIA)

	(in Rupees)									
	1950	1951	1952	1953	1954	1955	1956			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)			
1. wheat flour	6,238.2	5,736.7	5,049.6	6,684.9	6,001.9	5,560.1	7,457.7			
2. rice milling	5,654.8	6,190.1	7,120.2	7,257.4	8,032.9	8,418.0	9,709.0			
3. biscuit making	4,225.4	5,361.7	7,037.0	9,592.8	9,452.2	7,755.6	9,999.8			
4. fruits and vegetable processing	7,496.6	11,487.7	5,742.5	7,480.8	5,727.5	7,988.2	10,655.6			
5. sugar	11,600.5	11,252.1	9,857.2	8,475.1	7,962.0	9,465.9	11,477.7			
6. distilleries and breweries	453.0	491.1	491.5	447.3	472.8	512.6	553.9			
7. starch	3,201.7	3,314.0	2,128.8	1,949.9	1,564.4	1,345.7	1,306.6			
8. vegetable oils	5,965.4	7,044.9	5,338.0	5,452.0	5,711.8	5,259.9	5,973.7			
9. (a) edible hydrogenated oils	—	5,910.4	4,945.2	4,828.7	3,945.3	3,516.7	5,579.9			
(b) paints and varnishes	13,410.2	17,840.3	16,050.4	13,748.3	12,487.8	12,881.8	14,205.9			
10. soap	12,856.3	14,852.9	13,195.5	11,090.4	10,435.0	10,767.7	11,744.6			
11. tanning	14,017.3	19,883.3	16,899.5	16,064.0	16,939.0	18,507.2	19,644.1			
12. cement	214.9	204.7	221.7	198.8	204.8	209.5	196.9			
13. glass and glassware	331.7	396.2	337.5	330.1	357.4	400.7	433.1			
14. ceramics	171.5	194.5	176.9	223.0	278.4	253.1	379.8			

¹ includes coal equivalent of electricity bought from public utilities.

TABLE C5—Contd.: TOTAL VALUE OF OUTPUT PER TON OF COAL CONSUMPTION¹ (ALL INDIA)

	(in Rupees)						
	1950	1951	1952	1953	1954	1955	1956
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
15. plywood and tea-chests	2,778.8	2,994.1	3,311.8	2,036.5	2,548.6	3,060.5	3,344.3
16. paper and paper board	359.3	368.5	384.6	382.6	452.5	438.3	395.2
17. matches	6,299.0	7,126.3	7,056.9	5,354.8	5,862.1	5,186.8	5,008.9
18. cotton textiles	1,963.1	2,503.5	2,171.9	2,012.2	2,058.3	2,057.8	2,071.9
19. woollen textiles	3,227.4	5,666.9	3,451.4	3,707.3	3,648.2	2,921.8	3,441.5
20. jute textiles	2,383.9	3,481.3	2,738.2	1,583.6	2,042.1	2,136.4	2,215.7
21. chemicals	1,248.8	1,531.7	988.7	901.1	889.9	1,190.1	1,359.0
22. aluminium copper and brass	1,829.0	1,909.8	1,776.1	1,935.7	1,507.7	1,687.1	2,112.7
23. iron and steel	159.8	169.8	195.5	223.3	306.9	341.1	449.2
24. bicycles	12,442.6	13,711.3	18,133.7	18,021.7	17,288.6	19,328.9	15,218.5
25. sewing machines	1,126.4	7,509.3	6,430.2	7,515.7	5,721.0	6,726.9	5,440.3
26. producer gas							
27. electric lamps	4,244.3	4,695.7	5,088.9	10,834.7	6,013.7	9,200.8	10,554.2
28. electric fans	15,646.7	17,947.4	17,799.3	16,079.0	13,801.7	14,067.1	15,569.4
29. general engineering and electrical engineering	5,123.7	5,995.6	6,306.4	6,081.0	6,945.0	7,867.9	8,453.1
30. total	1,232.4	1,458.7	1,271.3	1,183.6	1,328.2	1,450.1	1,586.6

¹ includes coal equivalent of electricity bought from public utilities.

TABLE C6: CONSUMPTION NORMS OF COAL, COKE, FUEL OIL AND OTHER FUELS AND ELECTRICITY IN BOMBAY STATE, 1957

industry	consumption norms of coal, coke, fuel oil and other fuels and electricity			
	in value in Rs. per million Rs. of output			
	coal	coke	char-coal	fire-wood
(1)	(2)	(3)	(4)	(5)
wheat flour	170	—	—	—
rice million	—	—	—	—
biscuit making	—	2300	110	1600
fruits and vegetable preservation	—	210	90	40
sugar	2400	40	—	5000
distilleries and breweries	63000	20	—	32000
starch	23000	40	—	—
vegetable oil	2200	90	20	320
edible hydrogenated oil	3100	860	10	—
paints and varnishes	50	880	30	220
soap	—	—	—	—
tanning	2100	—	—	70
cement	217000	310	10	30
glass and glassware	20000	10	390	3000
ceramics	108000	150	—	350
paper and paper board	34000	40	10	670
matches	—	—	—	1300
cotton textiles	14000	100	—	20
woollen textiles	3300	20	90	10
chemicals	14000	3100	30	230
aluminium, copper and brass	20	1600	360	1200
iron and steel	1400	770	—	80
bicycles	40	240	110	20
electric fans	—	1800	140	—
general engineering and electrical engineering	240	3200	90	290
total	11800	700	30	350

Source: Census of Manufacturing Industries, 1957.

TABLE C6-(Contd.): CONSUMPTION NORMS OF COAL, COKE,
FUEL OIL AND OTHER FUELS AND ELECTRICITY IN
BOMBAY STATE, 1957

industry	consumption norms of coal, coke, fuel oil and other fuels and electricity				
	in value in Rs. per million Rs. of output				
	fuel- oil	coal gas	others	elec- tricity	total
(1)	(6)	(7)	(8)	(9)	(10)
wheat flour	90	—	—	6400	6600
rice milling	29600	—	—	720	30300
biscuit making	4600	2300	—	7800	18700
fruits & vegetable preservation	5000	440	—	5300	11100
sugar	11300	—	210	100	19000
distilleries and breweries	5700	—	37000	73000	211000
starch	8100	—	—	23000	54000
vegetable oil	3500	—	370	2800	9300
edible hydrogenated oil	6400	—	90	5400	15900
paints and varnishes	1700	680	10	3700	7300
soap	10600	10	—	2600	13200
tanning	1400	—	—	2900	6400
cement	2400	—	4100	54000	278000
glass and glassware	125000	190	1800	20000	171000
ceramics	79000	—	1200	33000	221000
paper and paper board	2200	—	110	45000	82000
matches	10200	—	20	34000	46000
cotton textiles	8200	40	40	20000	42000
woollen textiles	3900	—	300	9800	17400
chemicals	11000	110	340	7100	36000
aluminium, copper and brass	11400	—	120	7000	21700
iron and steel	17000	—	—	21000	40000
bicycles	8600	—	—	7200	16200
electric fans	—	—	—	11000	13000
general engineering and electrical engineering	3300	480	100	5000	12700
total	8200	90	180	13800	35000

Source : Census of Manufacturing Industries, 1957.

TABLE C6-(Contd.): CONSUMPTION NORMS OF COAL, COKE,
FUEL OIL AND OTHER FUELS AND ELECTRICITY IN
BOMBAY STATE, 1957

industry	consumption norms of coal, coke, fuel oil and other fuels and electricity			
	in quantity per Rs. million of output			
	coal (tons)	coke (tons)	char- coal (tons)	fire- wood (tons)
(1)	(11)	(12)	(13)	(14)
wheat flour	3.5	—	—	—
rice milling	—	—	—	—
biscuit making	—	30.3	0.8	29.9
fruits and vegetable preservation	—	2.5	0.5	0.6
sugar	53.5	0.7	—	115.3
distilleries and breweries	1780	0.6	—	8.4
starch	545	0.6	—	—
vegetable oil	56.2	1.3	0.2	10.2
edible hydrogenated oil	94.1	12.0	0.1	—
paints and varnishes	1.1	12.9	0.2	3.7
soap	—	—	—	—
tanning	58.0	—	—	0.9
cement	4812	4.4	0.1	0.3
glass and glassware	518	0.2	2.6	76.3
ceramics	2517	2.4	—	11.7
paper and paper board	1006	0.5	0.1	25.5
matches	—	—	—	75.4
cotton textiles	324	1.3	—	0.5
woollen textiles	66	0.3	0.5	0.1
chemicals	300	42.1	0.2	5.3
aluminium, copper and brass	0.4	19.5	3.8	27.3
iron and steel	33.2	11.2	—	1.6
bicycles	1.0	3.0	0.8	0.3
electric fans	—	21.0	0.8	—
general engineering and electrical engineering	5.3	45.9	0.6	5.8
total	274	9.7	0.2	8.7

Source : Census of Manufacturing Industries, 1957

TABLE C6-(Contd.): CONSUMPTION NORMS OF COAL, COKE,
FUEL OIL AND OTHER FUELS AND ELECTRICITY IN
BOMBAY STATE, 1957

industry	consumption norms of coal, coke, fuel oil and other fuels and electricity		
	in quantity per Rs. million of output		
	fuel oil (000 gals)	coal gas (000 cft)	elec- tricity (000 kwh)
(1)	(15)	(16)	(17)
wheat flour	0.2	—	122
rice milling	22.8	—	10
biscuit making	6.9	532	93
fruits and vegetable preservation	7.4	110	55
sugar	13.7	—	0.8
distilleries and brweries	8.4	—	402
starch	8.0	—	358
vegetable oil	4.6	—	40.6
edible hydrogenated oil	9.5	—	103
paints and varnishes	3.2	165	35
soap	18.0	1.6	67
tanning	1.1	—	32
cement	3.4	—	640
glass and glassware	187	48	212
ceramics	108	—	251
paper and paper board	1.4	—	750
matches	16.3	—	900
cotton textiles	13.3	9.0	378
woollen textiles	6.0	—	160
chemicals	20.9	26	108
aluminium, copper and brass	17.5	—	102
iron and steel	25.8	—	425
bicycles	11.0	—	120
electric fans	—	—	126
general engineering and electrical engineering	3.6	116	62
total	12.7	22	249

Source : Census of Manufacturing Industries, 1957.

Appendix D

Regional Allocation of Resources in India

By LOUIS LEFEBER

SUMMARY

(a) Efficiency of regional resources allocation is crucial for increasing the capacity for investment and economic growth.

(b) It is a paradoxical but inevitable fact that in order to accelerate the future development of retarded regions the growth of industrially more advanced areas must be encouraged. If the latter is stifled by insufficient investment the overall capacity to save will be diminished and the advancement of retarded areas will be delayed even longer.

(c) At the same time, retarded areas need not be neglected. On the one hand, a somewhat greater national effort than the current one would provide resources for regional advancement over and above the requirements for maintaining a five per cent rate of national growth. On the other hand, rational pricing and transportation policies and certain other methods, would efficiently allocate industrial investments in agriculture producing regions.

(d) State and local governments must be persuaded that greater concentration of industrial resources in certain limited areas works out to their long-run advantage. However, this can be done only if rational and explicit long-run planning is introduced.

(e) In the meantime improvement of pricing policies and consideration of the viability of individual projects in particular areas would result in rapid improvement in the efficiency of allocation.

I. INTRODUCTION

The purpose of economic development is to increase the standard of living of the masses of people in low income groups. To attain this goal national income must grow at a faster rate than the increase in population and the benefits of income growth must be distributed equitably.

Increase in living standards and redistribution can be attained by alternative patterns. Which one to select depends on many not always clearly specified and frequently contradictory social goals.

To specify all social goals in India and to attach relative weights to each might be exceedingly difficult. However, there seems to be clear and overwhelming national consensus about the desirability of ending unemployment "as soon as possible." Also, national consensus would support the notion that all unemployed without regard of racial, religious or regional affiliation have equal rights to the feasible opportunities for future employment. If these two very general principles are accepted then it follows that *those new employment patterns are desirable which minimize the time needed to achieve meaningful employment for the nation as a whole.* Furthermore, equitable distribution of income in the context of India requires first and foremost the creation of regular employment opportunities at a faster rate than the increase in the potential labour force. In other words, *when unemployment exists on a broad scale, income redistribution in favour of the unemployed must take precedence over redistribution between those who enjoy a regular income at or above a level which is just sufficient to maintain a minimum socially acceptable standard of living.*

In order to provide a sufficient increase in employment opportunities to keep abreast of unemployment in the future, capital formation would have to take place at a rate faster than it did during the Second Plan or foreseen in the Third Plan. Increased capital formation must be matched, however, with corresponding increases in saving.

There are at least two major weapons to be used for achieving suitable increases in savings : fiscal policy and rigorous observation of the rules of efficient resources use. For effectiveness both have to be supported with moral suasion by the highest political authority.

Fiscal policy is needed to ensure that those who enjoy regular incomes, *including earners at the minimum acceptable level,* should not appropriate further benefits from development as long as large scale unemployment exists. Hence, in addition to the

upper classes, the increasing numbers of employed urban and rural labour must also be reached by taxation.

Efficiency in resources use as a method for increasing savings is not traditionally discussed in economic analysis since it is assumed to be assured by the working of competitive markets.¹ This is at best a questionable assumption in developed market economies and certainly untenable in under-developed countries where regular competitive market checks may not exist at all.

Inefficiency in resources use implies that one or several outputs could be produced in greater amounts with the *same* amount of inputs. For any level of effort efficient resource use will

- a) increase investment potential in the short run because more projects can be realized with the same amount of resources,
- b) increase savings in the intermediate run because returns on investments will be larger,
- c) accelerate the rate of growth and employment in the long run because of the above beneficial effects.

In the context of a planned economy conscious policies to maintain efficient resources allocation are crucial. They must be based on pricing policies that properly reflect changes in the demand and supply conditions prevailing in diverse markets and investment policies must be responsive to the signalling of the price system.²

II. REGIONAL ALLOCATION OF RESOURCES

Regional distribution of resources is an important aspect of overall efficiency in allocation. It determines the rate of growth of each particular region; hence, the growth of the entire nation is also determined. The question is what are the principles based on which regional allocation should take place?

It is quite clear that regional distribution of resources cannot

¹ Efficiency in this context implies that the production of no output can be increased without sacrificing some other output. Under such conditions scarce productive inputs are fully employed and in the light of technological feasibilities optimally used; i.e. the economy operates on its production possibility surface.

² In this respect current price policy in India is entirely deficient; the term is used to denote a type of anti-inflationary policy which is not only inefficient but may itself be inflationary in the long run.

be entirely considered as a non-political decision. Here national and regional social goals are in conflict: on the one hand, there is the understandable desire of each state to develop its own population as fast as possible; on the other hand, rapid national growth may require the concentration of larger resources in particular areas.

This unfortunate conflict arises from the very nature of the growth process. Some areas are better endowed with natural resources than others. The exploitation of certain resources has greater urgency than of others for phasing development. Investment is lumpy: many projects must be undertaken in large chunks in order to attain a minimum efficient scale in production. Furthermore, there is a powerful motivation to agglomerate in industrial investment at selected areas because of external economies consisting of sharing the same social overhead facilities, service industries, skilled labour pools and expert management. Then again, markets are also unevenly distributed requiring uneven development in transportation and market oriented activities. And, in addition to all these influences there is a natural tendency for agglomeration because the proportion of resources used in diverse branches of production can be more economically adjusted if larger pools of the different resources are pulled together.

Regions which have existing advantages can grow at a faster rate than others. In the process employment opportunities increase and a flow of labour from other regions is attracted. This should have beneficial effects both on the industrialising and on the more stagnant regions. Furthermore, the rapidly growing areas can yield surpluses for future investment. These arise from the profits of the expanding private and state enterprises and from increasing private incomes which in turn yield larger savings and taxes. Initially a good part of these savings must be used to maintain growth in these vigorous centres. But as savings continue to increase and new investment outlets are needed, more and more resources can be channelled to the development of other areas which in turn will raise the living standard of the local population, create new surpluses and resources for continued development. The latter will manifest

itself in the creation of new "growing points" in other previously stagnant or slowly moving areas. And in good time the number of growing areas should increase to a density which is adequate to provide a satisfactory regional balance. *It is a paradoxical conclusion that for developing the retarded areas the growth of the more advanced regions must be encouraged.* If the latter is stifled because of insufficient investment on an uneconomical scale, surpluses will be insufficient and stagnant regions which are unable to raise their own savings must be doomed to an even longer period of waiting and poverty.

The implication is *not* that some areas should receive all the attention and others none. It is a matter of social decision to what degree the benefits from realised progress should be used to bring immediate relief to those who are not only under-privileged but also tied by immobility to their retarded regions. The question is how to realise such an object in a way which is compatible with the goal of maintaining a high rate of national economic growth and rapid elimination of unemployment.

Barring some special and obvious cases, most industrial investments, if located in retarded areas, would have very low current yields if at all, and only questionable higher returns in the distant future. Similarly, many government sponsored rural programme would be of the low yield type. It might be argued that either approach to increase "regional balance," i.e. low yield type rural programmes or arbitrary location of industrial investment, is more in the nature of a transfer payment to improve income distribution than a contribution to economic development. In effect, it uses resources which otherwise would be available to increase national economic growth. It follows that *expenditures budgeted for retarded areas must be such as to minimise per rupee spent their adverse effects on savings and growth.*

Resources needed for the creation of "economic" investments, i.e. industrial and agricultural capacity that directly or indirectly can yield immediate high returns, should be allocated with the strictest regard for economic efficiency. The surpluses from these projects are essential to maintain future investment and growth. Investments undertaken with the purpose of

bringing relief to retarded areas should be based on low cost rural labour and locally available materials. They should be oriented to prepare the ground for national integration and future development. Apart from local irrigation, land reclamation, reforestation and other projects some of which can have high immediate returns, public works which increase communication and mobility should be emphasised. Among these road building and rural school construction programmes are of primary importance.

Since low yield investment in retarded regions competes for resources with investment needed to maintain the rate of economic growth, the amount of effort which can be devoted to regional balance is determined by (a) the minimum level of politically acceptable national growth rate and (b) the overall savings effort the nation is willing to undertake over and above the one needed to maintain the desired national growth.

According to the Third Plan five per cent compound growth is the goal. However, given the existing level of effort, resources available to attain and maintain this rate even with most efficient utilization are seen to be barely sufficient. The implication is that extensive efforts to increase "regional balance" would interfere with the desired rate of development.

Nevertheless, approaches could be explored for large scale rural labour mobilization for labour intensive projects of the type discussed above. Even if five million people would benefit on a rupee a day basis, the total annual cost, over two hundred days a year, including organizational and capital expenditures, should not exceed, say, 1.5 billion rupees. Whereas this is still a considerable monetary commitment, the *real* resource equivalent is very low. This is so because a very large part of the total expenditure would have to be matched by foodgrains provisions which in turn could be covered by P. L. 480 supplies.

While it is true that only large scale rural labour mobilization of the type mentioned above could bring immediate relief to retarded areas it is also clear that it is necessarily a short-run measure. Long-run relief can come only from the gradual accumulation of viable economically efficient industrial and agricultural investments. For this reason it is important to note

that many projects which if allocated with strict economic rationality would benefit industrially retarded areas if efficiency in price policy and allocation would be given greater consideration. For instance, railway rates for carrying grain discourage milling in the producing areas where it logically should take place as the commodity loses weight and bulk in processing. Furthermore, there are many small scale industrial projects in either local consumer oriented industries or in agricultural processing which logically belong to the agricultural producing areas. To promote these types of industries the Plan should put greater attention to their requirements along with improvements in transportation and pricing policy.

Agricultural development encouraged by suitable regional price stabilization based on crop storage and crop insurance schemes both in grain and in cash crop farming are also crucial for growth. Farmers must be protected against the short-run vagaries of free markets and the vagaries of nature if they are to adopt costlier but more efficient production methods. Such protection would have immediate beneficial employment effects. The example of the U.S. farming policies shows that industrial investment is not the only way to increase regional betterment of living standards. Encouragement given to agricultural export and import substituting output would also be efficient in the Indian context and conducive to wider regional distribution of resources.

Another neglected project is the broadening of the social and regional base of middle and higher education. This too is an area where national and regional interests coincide. In addition to increasing future skill requirements for national development it would have a most desirable effect on income distribution and on improving equality of opportunity. Furthermore, the lack of elementary technical skills in the countryside is an obstacle to a meaningful rural labour mobilization.

Unfortunately state governments frequently compete for certain types of industrial investments not on economic grounds but out of political necessity or misguided eagerness. In effect, regional self-sufficiency in fertilizer production or in petroleum

refining is almost a status symbol and the sign of an active state government. Rational economic evaluation of regional production patterns and real cost-benefit calculations would demonstrate that many of these projects are wasteful both from the point of view of the nation and the states. The national interest is to make use of the economies of large scale production, standardization and other advantages in order to achieve efficient resources utilization for any desired level of output. The states' interest is to obtain the largest return on whatever funds for investment is available to them. Frequently less resources than needed for "conspicuous investments" if skillfully employed can accomplish more for the welfare of the local population than *badly* located larger investments. The latter are usually capital intensive, hence, do not provide great employment opportunities; and since they cannot be competitive, instead of providing surpluses they must be subsidized.

A nationally integrated economy implies, of course, anything but regional self-sufficiency in major industrial activities and the less industrialized states must be persuaded that faster industrial growth in some other areas will in turn enhance their own economic development. However, this can be done only if a comprehensive long-run plan is provided for the entire country which develops goals, phasing and resources development by their geographical and time patterns. Without such a master plan the logic of which is open to inspection and can be continuously reworked and improved over time, democratic planning cannot take place. Without it regional governments cannot be expected to sacrifice, or to patiently wait for the advancement of their own areas which, as far as they know, may never come.

At present a long-term plan does not exist. However, even before such a plan is brought into existence there are a number of measures which could immediately improve the efficiency of resource allocation, regionally and otherwise. These consist of the reworking of the price mechanism for planning purposes and the application of basic criteria to project evaluation.

III. CRITERIA FOR EFFICIENT RESOURCE ALLOCATION

Correct allocation of industrial investment involves the applications of competitive principles *particularly* when government ownership is prevalent. Efficient allocation can take place only if there is a suitable norm to channel resources into activities that will maximise the real value of national income for given supply and demand relationships. Such a norm is provided by an efficiently working pricing mechanism.

Since free market determination of prices may not be desired by India because of the distortions that might be caused by the prevailing income distribution and certain shortcomings of free markets, the price system must be adjusted suitably to reflect desirable conditions of production and marketing either in a real or in a "shadow" price mechanism. Actually with markets of diverse characters and income distributional problems a combination of the two might be desirable.

In the context of regional allocation of resources the following pricing rules should be followed¹.

(a) Prices of commodities and rates for services should reflect real costs (including real interest and foreign exchange rates) at the place of production and at the place of consumption.

(b) Prices of homogeneous goods should be the same at a given location without regard of origin and should differ from location to location by the cost of transportation *if* the commodity is transported and at most by the latter if not transported between two separate locations.

(c) The choice of location for investment allocation should be such that the present discounted value of the project is at a maximum (basing the computation on real costs and interest).

The violation of these principles results in wasting resources and in diminishing future savings and growth potential. A few examples will illustrate this.

Example 1: Railway rates of certain commodities are below cost of hauling and total revenues barely cover total

¹ A detailed analysis is contained in my monograph *Allocation in Space*, The North Holland Publishing Company, Amsterdam, 1958.

railway expenditures. The rate for coal is a good example. The result is that (a) railways are unable to make adequate profits; hence, cannot finance badly needed improvements and new railway investment to keep up with demand, (b) new locational decisions by investors (private or public) are made in terms of the money cost of transportation rather than the real costs; hence, they have no motivation to seek out the most economical location and production costs must increase, (c) other modes of transportation (particularly coastal shipping) cannot move coal at same *monetary* rates even though on long distance movement their real costs are less than those of the railway; hence, there cannot be rational distribution of cargo between alternative modes. Furthermore, discriminatory rates in favour of low value bulk commodities result in larger flows of goods than needed to sustain a given level of national income at a time of a transportation bottleneck. The remedy is to undertake a, say, five-year programme to "rationalise" the rate system.

Example 2 : Pithead prices of approximately equal quality coal from mines in Madhya Pradesh and Bihar-West Bengal are fixed at levels close to each other. Monetary transportation costs from the pitheads to Bombay differ by, say, six rupees (which is less than the *real* cost difference). The consequence is that either Bombay buyers pay differential prices for comparable fuel, the most "influential" ones taking the benefit or an intermediary such as a dealer or a mining or transportation official reaps the transport difference for his private gain. With rational pricing policies the pithead price of M.P. coal should be higher than the Bihar-West Bengal price by the *real* transport cost and this differential should be maintained as long as both areas are needed to supply the Western Seaboard. Thus the price of coal in Bombay should be FOS West Bengal plus transport cost without regard to origin.¹ The increased revenues of M.P. mines should be used for intensified exploitation of M.P. mines or alternatively, for other investments of possibly higher priority. As a result funds from illegitimate private gains

¹ Actually, one should determine prices by simultaneous consideration of the demands for and supplies of coal in all areas. This can be readily done by programming techniques.

would be channelled to saving and investment; furthermore, the burden on the railways would decrease. Also, in the long run coal prices would be favourably affected.¹

Example 3: Here the need to consider the present discounted value of investments in locational decisions will be shown. The present discounted value of a project is the sum total of the yearly net revenues over its lifetime discounted by the market rate of interest in a free enterprise, or by a shadow rate of interest in a controlled economy. In general, for industrial investments with marketable outputs the present discounted value must exceed or be at least equal to its cost if it is to be undertaken. If this condition cannot be met the indication is that the investment is not worth undertaking as its output would have to be subsidized.

The discounting must be done with a rate that adequately reflects the market forces that determine investment; in the case of India eight per cent can be considered as a minimum.² The larger the rate, the greater weight will be given by the discounting process to returns accruing in the near future and distant ones will barely be registered. This has, of course, important implications for phasing of projects which bring their fruits only in the distant future, are wasteful, hence, are not to be undertaken. Also, projects which are desirable may have a net discounted surplus value in some locations and may be unprofitable in other locations.

¹Many other examples of detrimental pricing policies can be provided. The "equalization funds" in steel and fertilizer industries must head for the overutilization of the inefficient and the underutilization of the efficient producers. The decision to sell steel at equal prices at any geographical point without regard to transportation cost is reminiscent of the very detrimental "basing point" system of the American steel industry which caused irreversible distortions not only in the development of the latter but also in the locational choices of steel using industries. The harmful effects in all these policies can be demonstrated by simple reasoning.

²The relationships which lead to the estimation of the real rate of interest cannot be readily discussed in the context of this paper. It is sufficient to point out that the smaller the initial saving effort, the larger the interest rate must be to accumulate a desired feasible level of capital stock. Conversely, given any level of initial savings the larger capital stock we want to accumulate the larger the interest rate must be. Either proposition would imply that in a country like India the interest rate should be on the high side. In effect, there is much empirical evidence to support this contention. In addition, my own statistical measurements indicated that the real rate of interest computed after taxes for the economy as a whole is about ten per cent.

A good example is, for instance, the Assam refinery project. First, it is well recognized that refineries are best located in the proximity of markets as the transport of diverse outputs is more expensive than of crude. At this point there is no market which warrants an efficient scale refinery in Assam. Second, the capacity of the refinery is below optimal whereas the economies of scale in refining are very large. The implication is that the bulk of the output will have to be transported away at excessive transport cost which will further augment the already excessive unit cost of production. The output in the market areas will not be competitive with the output of the Bihar refinery or product imported by way of Calcutta. Hence, production will have to be subsidised. The counter argument says that while it is true that for the time being there is insufficient market in Assam this capacity will be needed at a later date when development begins. This argument, of course, completely neglects the question of economies of scale. But even more important is the fact that prospects distant in time cannot justify the tying up of capital when alternative investments or choices of location would provide positive immediate returns. Had the present discounted value of the Assam refinery investment been considered relative to its cost, the decision could not have been in favour of realizing it.¹

IV. CONCLUSION

The process of economic development in its geographical setting requires growth at different rates in different areas. Attempts to industrialise retarded regions ahead of time and at the cost of slowing down the growth of more vigorous areas must necessarily put off the date of bringing relief to the former.

¹Assam provides particularly good opportunities in rational and bold planning. Apart from its under-populated fertile soil, it has vast unutilized natural resources. For instance, a large scale project of land clearing would provide agricultural opportunities for great number of landless families. Large scale paper pulp production and its transportation to other states for processing could be offset by opposite flows of commodities needed in Assam. Such plans would result in efficient production patterns according to comparative advantage and in optimal utilization of transportation facilities. Assam, as other states, must be encouraged to gradually integrate with the national economy rather than to strive toward regional self-sufficiency.

Inefficient regional allocation of investments results in wasting of scarce resources and in unnecessary burdening of the transport system. Losses in the saving and investment potential go hand in hand with higher costs of production. Inefficient plants operating in unsuitable locations require subsidies which are frequently hidden in complex administered pricing formulas. These pricing policies lead to further wastes along with increases in the price level.

The short-run solution is to apply more rigorous criteria to regional investment choices in accordance with a rationally adjusted pricing mechanism. In the long run, however, the states cannot be expected to cooperate unless the distant benefits of current patience and sacrifice are spelled out in the form of explicit long-term plans. Without such plans the democratic approach to development will have to be replaced by fiat.

Appendix E

A Note On Investment and Operational Efficiency in Indian Railways

By M. DUTTA CHAUDHURI

I

This note is mainly a study of the changes in the efficiency of railway operations with special emphasis on goods traffic.

Table E1 gives a few indices of the working of Indian Government Railways during the period of planning.

It will be seen that the average lead of goods has been slowly increasing over time. So is the density of traffic. The volume of goods traffic per engine-hour, after elimination of the variation in the average tractive effort of locomotives in different years does not show much change. This means that though the improvements in the tractive efforts of engines kept pace with the increase in the volume of traffic the average speed kept on declining. The increase in the wagon turn-round time (i.e. the time taken by a wagon between two successive loadings) can, of course, be explained by the increase in lead and decline in speed. But considering the nature of the additional goods traffic, which consists mostly of coal, iron ores, etc. usually involving shorter lead and faster average speed, this upward trend of the turn-round time suggests a marked decline in efficiency in respect of other traffic. A comparison with the data relating to other countries given in Table E2 shows that with respect to both density of traffic as well as efficiency, Indian figures are lower than in most other countries.

II

Efficiency in railway operations can be measured in various ways. Since the subject of this article is railway investments, efficiency here will connote utilization of capital stock. In case of goods traffic, this will be measured by the average wagon turn-round time, which is derived by dividing the total wagon-days in the service of railways by the total number of loadings

done in the year. If some wagons are lying idle most of the time, that will go to inflate the actual turn-round time of the active wagons. Due to repairs and seasonal fluctuations in freight traffic some amount of idle capacity is, of course, operationally necessary. Time spent in repair shops can easily be isolated, but seasonal fluctuations and time-preference are difficult to be isolated with the help of aggregate data. The method employed here is to isolate the time taken in various operations like loaded journey, empty journey, shunting and repairs and to see if the residual can be accounted for by loading, unloading and the operationally necessary idle capacity.

On certain simplifying assumptions the wagon turn-round time has been approximately broken down into the time taken in various operations, such as (a) loaded journey, (b) empty journey, (c) shunting, (d) repairs and (e) the residual. It is assumed that the average wagon-haul (loaded plus empty journey) reflects the economic requirements of handling movement of goods in a large country like India. There may be some scope for reducing the wagon-haulage, particularly the empty journey, but this will not be discussed here. The average speed of an all goods train by steam traction is taken as the overall average for all goods trains. Since the speed of a train run by diesel or electric engine is somewhat higher, this simplifying assumption would tend to over-estimate the running time and by understating the residual time (see Table E3) overestimate the efficiency. From the statistics relating to the average shunting miles per 100 goods train miles and the average number of wagons in a train (both given in the *Report by the Railway Board, Vol. II*) approximate shunting time can be calculated. It has further been assumed that the speed of a wagon on loaded journey is the same as on empty journey. The percentage average number of wagons in repair shops is taken as the percentage average time taken in repairs etc. Table E3 gives the breakdown.

While these measurements are somewhat crude, they suggest a number of observations.

(1) The wagon turn-round time increased somewhat, but this was not so much due to running, shunting or repairs, as due to time spent in loading, unloading and in waiting idly before

and after these operations, i.e. the residual component. This is particularly true for M.G. and in the later years for B.G. also. Eight days or two-thirds of the total wagon turn-round time for loading, unloading, etc. indeed appear to be a very long time.¹

(2) Running time is a relatively small fraction of the total turn-round time. So, the introduction of faster (and costlier) locomotives will not significantly increase wagon-usage in Indian railways. Diesellisation and electrification programme will by itself not solve the problem of idle capacity; greater attention to reducing turn-round time could give quicker results in the short run without large expenditures.

(3) The programme of large-scale replacement of over-aged rolling stock during the first two plans, while bringing down the average time spent in repair shops by 50 per cent, (from one to half-a-day on B.G.) had only a negligible effect in reducing the total turn-round time.

III

Assuming that idle capacity exists, as the analysis in the previous section suggests, there are two possible explanations: (a) the investment pattern in railways is somewhat defective, so that the rolling stock capacity cannot be fully utilised, and (b) there are shortcomings in administration which come in the way of fullest utilization of the existing facilities. From aggregate data it is, rather, impossible to say which of the two factors is responsible to what extent.

In view of the rather inefficient utilization of the rolling stock it may be argued that greater attention to adding to such facilities as would reduce the wagon turn-round (e.g. by larger investments on signalling, marshalling yards, warehouses, etc.) might give greater returns than additional investment on rolling stock. Other things being equal, simply adding to the rolling stock to meet every increase in traffic would otherwise give a diminishing return.

¹ In U.S.S.R. loading, unloading and marshalling yard operations take 4.7 days in one turn-round [Source: T. Kachaturv, *Voprosy Ekonomiki* No. 3, 1956]. The corresponding figure on Indian B.G. is more than 10 days.

Appropriate changes in administrative procedures may also make for considerable improvement. Two policy measures are suggested :

(i) Demurrage charge is very low in India. It is, no doubt, a great help to the traders, who can to a certain extent use the railway godowns for normal ware-housing facilities. This practice, in its turn, compels the railways to keep wagons unloaded. In a period of capital shortage this way of using wagon-time is uneconomic. Demurrage charge should be enhanced to increase the goods turn-over in railway godowns, even if it causes the traders some inconvenience.

(ii) For loading and unloading the usual practice in most places is that a free time of 6 hours is allowed in the morning on the following day after the arrival of a wagon. Introduction of multipleshifts in loading and unloading operations should not be too difficult in a country with a large number of unemployed persons.

TABLE E1: SELECTED OPERATIONAL STATISTICS RELATING TO INDIAN GOVERNMENT RAILWAYS, 1951-1960.

year	average lead (in miles)		average speed of an all goods train (steam traction) (in.p.h.)		wagon turn round time ¹		traffic density per mile of route		net ton-miles per goods engine hour ² (all traction) at 1950-51 tractive effort	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	goods	passengers	B.G.	M.G.	B.G.	M.G.	goods (million ton miles)	passengers (million pass. miles)	B.G.	M.G.
1951-52	299	32	10.7	9.2	12.9	6.8	0.9	1.2	2,029	780
1952-53	298	32	10.4	9.1	12.7	7.5	0.9	1.1	1,933	831
1953-54	301	31	10.4	8.9	13.0	8.3	0.9	1.1	1,855	838
1954-55	302	31	10.4	8.7	12.5	8.2	1.0	1.1	1,967	843
1955-56	320	31	9.8	9.4	12.0	8.0	1.1	1.1	1,989	875
1956-57	324	31	9.6	8.3	12.3	8.8	1.2	1.2	2,005	915
1957-58	338	3	9.3	8.2	13.0	8.9	1.3	1.3	2,066	951
1958-59	346	30	9.2	8.0	13.5	8.4	1.3	1.2	2,042	893
1959-60	348	30	9.8	8.5	12.9	8.9	1.4	1.3	2,148	920

Source: Reports by the Railway Board, and A Review of the Performance of Indian Government Railways etc., Ministry, New Delhi, 1960.

total wagon park \times number of days in a year

¹ Wagon turn-round time =

number of wagons loaded in the year

² These are equated figures worked out with average tractive effort of locomotives for the year 1950-51 as base.

TABLE E2: OPERATIONAL EFFICIENCY OF RAILWAYS IN SELECTED COUNTRIES

countries ¹	goods lead (kilometer)	wagon turn- round time (days)	density of traffic per kilometer of railway route	
			freight. (million ton k.m.)	passengers (million pass. k.m.)
(1)	(2)	(3)	(4)	(5)
West Germany	189	5.5	1.4	1.2
Sweden	230	5.8	0.5	0.5
U.K.	117	12.0	1.2	1.1
Yugoslavia	225	4.3	0.8	0.6
U.S.S.R.	757	6.7	7.1	1.1
China	485	3.0	4.2	1.0
India	580	12.9 ²	2.6	1.8

Source: *Economic Survey of Europe*, 1956, United Nations; S. J. Patel, *Investment and Efficiency in Indian Railways during the Second Five Year Plan*, *Indian Economic Review*, February 1958.

¹ European countries for 1954, China: 1956 and India: 1959-60.

² On Broad Gauge only.

TABLE E3: BREAKDOWN OF WAGON TURN-ROUND TIME¹

unit	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58	1958-59	1959-60
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
B. G.	12.9	12.7	13.0	12.5	12.0	12.3	13.0	13.5	12.9
wagon turn-round time	1.5	1.4	1.5	1.5	1.6	1.7	1.8	1.8	1.7
loaded journey	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.9
empty journey	1.7	1.8	1.8	1.9	1.8	1.9	1.9	1.9	1.9
shunting etc.	1.0	1.0	1.0	0.8	0.6	0.5	0.5	0.5	0.5
repairs etc.	8.2	7.9	8.0	7.7	7.4	7.5	8.1	8.6	7.9
residual									
M. G.	63.6	62.2	61.5	61.6	61.7	61.0	62.3	63.7	61.2
residual as per cent of total	6.8	7.5	8.3	8.2	8.0	8.0	8.9	8.4	8.9
wagon turn-round time	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.0
loaded journey									
empty journey	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
shunting etc.	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2
repairs etc.	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.4
residual	4.2	4.7	5.4	5.3	5.1	6.0	6.1	5.5	5.9
residual as per cent of total	61.7	62.7	65.1	64.7	63.8	68.2	68.5	64.3	66.3

¹ A similar attempt at breaking down the total locomotive-hours in the service of the railways can be made. But without any clear idea of the technologically and operationally necessary 'idle' time (e.g. in heating up and cooling the boilers etc.) for various kinds of locomotives, it is extremely difficult to get any measure of locomotive utilization. Moreover, it is also difficult to get any estimate of the average speed of passenger and mixed trains. Some very crude calculations suggest that the residual component (total *minus* running, shunting, etc. and repair time) of an engine-day is not less than 10-11 hours a day.

