

REGIONAL ALLOCATION OF RESOURCES
IN INDIA*

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* This essay is essentially identical to the Occasional Paper of similar title written by the author for the consideration of the Indian Planning Commission in February 1961. The ideas expressed here benefited from discussions with Professor Thomas Balogh of Oxford and Professor P. N. Rosenstein-Rodan of M.I.T. However, the responsibility for the ideas and errors contained here lies entirely with the author.

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Cambridge, Massachusetts

December, 1961

1. Efficiency of regional resource allocation is crucial for increasing the capacity for investment and economic growth.

2. 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 over-all capacity to save will be diminished and the advancement of retarded areas will be delayed even longer.

3. 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 agricultural producing regions.

4. 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.

5. 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 full 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 among 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 resource 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 resource 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.* This is at best a questionable assumption in developed market economies and certainly untenable in underdeveloped countries where regular competitive market checks may not exist at all.

Inefficiency in resource 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 increase investment potential in the short run because more projects can be realized with

*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.

the same amount of resources; increase savings in the intermediate run because returns on investments will be larger; 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 resource 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 signaling of the price system.*

II

Regional Allocation of Resources

Regional distribution of resources is an important aspect of over-all 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 on which regional allocation should be based?

It is quite clear that regional distribution of resources cannot be considered entirely 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 resources and increase the standard of living of its own population as fast as possible; on the other hand rapid national growth may require the concentration of

*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 also may itself be inflationary in the long run.

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 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 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 of growth, employment opportunities increase and a flow of labour from other regions is attracted, which should have beneficial effects both on the industrialising areas and on the more stagnant regions. Furthermore, the rapidly growing areas can yield surpluses for future investment. Such surpluses 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 the vigorous centers. 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 and 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. 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 underprivileged 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 any at all, and only questionable higher returns in the distant future. Similarly, many government sponsored rural programs would be of the low-yield type. It might be argued that either approach to increase "regional balance," i.e., low-yield type rural programs 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. In addition to 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, first, the minimum level of politically acceptable national growth rate and, second, the over-all 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 utilisation seem 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 mobilisation 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 organisational 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 because a very large part of the total expenditure would have to be matched by food grain provisions which in turn could be covered by P.L. 480 supplies.

While it is true that only large-scale rural labour mobilisation 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, if allocated with strict economic rationality, would benefit industrially retarded areas if efficiency in price policy and allocation were given greater consideration. For instance, railway rates for carrying grain discourage milling in the producing areas where it logically should take place since 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 give greater attention both to their requirements and to improvements in transportation and pricing policy.

Agricultural development encouraged by suitable regional price stabilization based on crop shortage 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 to 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, another area where national and regional interests coincide. In addition to increasing future skill requirements for national development, a broadened educational base 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 from the point of view of both the nation and the state. The national interest is to make use of the economies of large-scale production, standardization, and other advantages in order to achieve efficient resource 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 fewer 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 and hence do not provide great employment opportunities; 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, they can be persuaded only if a comprehensive long-run plan is provided for the entire country which develops goals, phasing, and resource 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

wait patiently 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 application 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-distribution problems, a combination of the two might be desirable.

In the context of regional allocation of resources the following pricing rules should be followed:¹

1. 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.

2. 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 marginal cost of transportation if the commodity is transported and at most by that cost if not transported between two separate locations.

3. The choice 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 railway expenditures.² The rate for coal is illustrative. Since the railways are unable to make adequate profits from the existing rate, they cannot finance badly needed improvements and new railway investment to keep up with demand. New locational decisions by investors (private or public) are made in terms of

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

2. For an analysis of Indian railway policy see Louis Lefebvre and Dutta Chaudhuri, Transportation Policy in India, in a forthcoming volume of essays published by the Indian Statistical Institute, Calcutta, 1961.

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. Other modes of transportation (particularly coastal shipping) cannot move coal at the 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, say, a five-year program to "rationalise" the rate system.³

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 the 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 FOB West Bengal plus transport cost without regard of origin.* The increased revenues of M.P. mines should

3. Arguments which claim that such rates are needed to encourage economic growth and/or to avoid inflation are of doubtful validity. See L. Lefebvre and Dutta Chaudhuri, op. cit.

*See following page for footnote.

be used for intensified exploitation of M.P. mines or, alternatively, for other investments of possibly higher priority. Thus funds from illegitimate private gains would be channelled to saving and investment, and the burden on the railways would decrease. Also, in the long run coal prices would be favourably affected.**

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 the project 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 subsidised.

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.¹ The larger the rate, the greater weight

*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.

**Many other examples of detrimental pricing policies can be provided. The "equalization funds" in steel and fertilizer industries must lead to 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 simply reasoning.

1. The 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

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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 and choice of industrial location. It suggests that industrial projects which bring their fruits only in the distant future are wasteful and hence 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.

A good example is the Assam refinery project. First, it is well recognized that refineries are best located in the proximity of markets since the transport of diverse outputs is more expensive than that 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 the 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.

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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 is about ten per cent for the economy as a whole.

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 constructing 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. 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. Such pricing policies lead to further wastes along with increases in the price level.

1. Assam provides particularly good opportunities in rational and bold planning. In addition to its under-populated fertile soil it has vast unutilised natural resources. For instance, a large-scale project of land clearing would provide agricultural opportunities for great numbers 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 utilisation of transportation facilities. Assam, as other states, must be encouraged to integrate gradually with the national economy rather than to strive toward regional self-sufficiency.

The short-run solution is to apply more vigorous 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.