

Transport in Second Plan: I —Railways

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Assuming that there will be only a limited increase in the transport of foodgrains, an increase of roughly sixty per cent in total freight turnover may be expected during the Second Plan. The amount of investment required for the purpose may be found by applying a certain ratio to the amount of investment envisaged in industry. This ratio is likely to be intermediate between that found applicable in the U S A and in the USSR.

Improvement in operational efficiency is, however, essential if the amount of investment calculated in this way is to prove sufficient. The author attempts some statistical comparisons which suggest the presence of large idle capacity and considerable scope for augmenting transport without substantial capital investment.

NOTHING in the Second Five

Year Plan has aroused as much interest as the question of transport and the allocation for it in the Plan. This is natural because transport is the lynch-pin in any scheme of economic development, and unless transport is adequate, investment in other directions would not bear fruit. Two important questions arise:

- (1) Volume of transport needed to implement the production targets of the Plan, and
- (2) Capital investment necessary for this purpose.

While (2) depends on (1), the capital cost required for the additional transport may be brought down to the extent that there is scope for more intensive utilisation of existing transport facilities. This is not an unimportant consideration.

The transport need of a country for a particular scale of development depends on so many factors that there is no standard formula for estimating it. That is to say, one cannot straightaway work out the transport component for planned development. Perhaps the extensive input-output studies that are being carried on of different economies in different states of development and of the same economy at different stages of its development may give us some idea later on of the magnitudes involved. The experience of other countries in their early stages of industrialization corresponding to the stage of development of India at the present moment, however, may throw some light on the problems at hand and provide basis for checking the estimates of transport requirements derived by projection of past experience combined with firmer estimates which are possible for specific projects in the Plan. For this purpose USA and USSR have been chosen for comparison, because of geographical and other similarities between India and other countries.

There has been a large number of estimates and counter estimates of the transport requirements of the Second Plan. Further confusion has been created by the different estimates of agricultural production given by Ministers and members of the Planning Commission. Thus according to Shri V T Krishnarnachari, Vice-Chairman of the Planning Commission, agricultural production will increase by 40 per cent during the period of the Plan, while in the Draft Plan-frame only a provision of 18 per cent increase had been made. Needless to say, the size of transport required will be quite different if agricultural production increases by 40 per cent instead of only 18 per cent. Unless adequate transport is provided for the higher target, its achievement may cause a heavy stump in agricultural commodities which will remain blocked in rural areas. This will be self-defeating in its purpose. We shall confine ourselves to railway transport alone because it provides the bulk of transport needed for a continental country like India. This is not to underestimate the possibilities of the development of river transport and coastal shipping to meet the increased requirements of transport in the Second and subsequent plans. These will be treated separately.

The increase in originating tonnage due to the establishment of new productive enterprises has been estimated by the Railway Board as 60 million tons, which is about 51 per cent over the existing tonnage. This does not, of course, represent the entire transport requirement of the Second Plan because it does not take into account the average haulage of goods, which may change during this period. Again the estimate has been obtained by a more or less direct computation of the output of various industrial plants to be installed, with some provision for miscellaneous articles. However, the process of industrialisation im-

plies specialisation in fabrication processes, so that an additional output of 3.5 million tons of steel may mean very much more of originating tonnage in manufactured articles. The changing pattern of distribution and trade are also likely to increase the originating tonnage which a mixed economy cannot altogether avoid, without instituting complicated controls.

Any direct estimate of this type is, therefore, likely to result in an underestimate and we should look for indirect methods of estimation also. The volume of industrial production provides a fairly satisfactory method of estimating the ton-miles of transportation. The relationship between the two for different countries is shown in Table I.

The wide difference in the trends for the USA and the USSR are due to various reasons, one of which is a possible overestimation of the value of gross industrial production in the USSR in 1927-28 values (official index) when some products like

TABLE I
(Indices of Unweighted Freight Turnover in Ton-Miles per Unit Value of Gross Industrial Production)

India (1948 = 100)		
1948		100.0
1952		106.7
1953		104.8
USA (1890 = 100)		
1890		100
1900		130
1910		143
1920		143
USSR		
* (Base 1928 = 100)* (1928 = 100) †		
1928	100.0	100
1937	78.6	107
1937	66.0	98

* Official Index.

† Hodgeman's Revised Index, "Soviet Economic Growth"

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machinery were in short supply and had high values. If correction is made for this over-valuation, the index for USSR will show a similar proportionality of freight turnover in ton-miles to gross industrial production as that of USA. Economic development in the USA in the period 1890-1910 was not only rapid, it went hand in hand with a westward movement of population and economic activities, especially in agriculture, the product of which was largely exported, while in the USSR special efforts were made to conserve transport by localising industries in certain zones. The eastward expansion in USSR began only during and after the second world war. In India we have a situation intermediate between that of the USA and USSR. This suggests that the ratio of increase in freight turnover to the increase in volume of industrial production during the Plan may be little more than one.

According to the Draft Plan-frame, domestic product of India from industries and mines during the Second Plan would be as in Table II.

TABLE II
Net National Product by Industrial Origin

	1955-56 1960-61	
	(crores of rupees in 1952-53 prices)	
Mining	95	150
Factory Establishment	840	1380
Small Enterprises	840	1085

Thus the output of mining and factory establishments is to increase by 64.0 per cent. If small enterprises are included the increase is 49 per cent. However, a large portion of the output of small industries is locally consumed and does not need to be transported by rail, so the output of mining and factory establishments will be more important and the increase in freight transport may be about 60 per cent or more.

Coal Transport

This estimate is corroborated by certain features of coal transport. Transport of coal has formed about 40 per cent of net ton-miles of total transport in India, about 35 per cent in the USA, about 50 per cent in the UK and about 20 per cent in the USSR over very long periods (see Table III). This is a very curious phenomenon, but shows that in spite of various technological changes, coal still remains the

most important raw material of industry and the pattern of haulage of coal reflects the pattern of Industrial activities in the country and the transport needs of other commodities also.

The relative stability of the proportion of coal movements to total ton-miles of transportation in these countries, despite the very large changes that have taken place in their economies during this period is indeed remarkable. Whatever may be the factors giving rise to such a phenomenon, there is no reason to believe that they will cease to operate during the Second Five Year Plan in India. The increase in the production of coal by 62 per cent from 37 million tons to 60 million tons should therefore suggest an increase in the total transport ton-miles of a similar proportion. We should expect, therefore, an increase of about 60 per cent in total ton-miles. The experience of the USSR in this respect is interesting (see Table IV).

TABLE IV
Output of Coal and Total Freight Turnover in the USSR

Year	% increase in the output of coal	% increase in total freight turnover (all carriers)
1928-32	84	84
1932-37	98	93

Thus an increase of roughly 60 per cent in total freight turned may be expected during the Second Five Year Plan, assuming that there is only a limited increase in the transport of food grains etc. A large increase in agricultural production will mean greater increase in freight turn-over. In the Draft Plan provision has been made for a 36 per cent increase. This might lead to serious dislocation of the productive machinery and failure in realising the targets of the Plan.

Investment in Transport

In any development programme, investment in means of transport bears a certain relation to investment in productive industry. Of course, it depends also upon the dispersion of the centres of production and the patterns of industrial development. It may be possible, therefore, to reduce the transport needs and consequently the investment in transport industries by proper planning of the location of industries and regulation of supplies of raw materials etc. However, as argued above, the transport needed for a given volume of industrial production in India, is likely to be intermediate between those for the USA and the USSR. It is reasonable to assume, therefore, that the ratio of investment in transport to investment in industry should also bear the same relation. (See Table V)

TABLE III
(Ratio of Net Ton-Miles of Coal Transported to Total Ton-Miles)
(per cent)

India		USA*		UK		USSR	
1933-34	40.5	1925	34.0	1938	49.0	1928	17.3
1934-35	40.0	1930	35.3	1951	47.0	1932	19.4
1935-36	39.0	1935	40.6	1952	49.0	1937	21.6
1940-41	44.0	1940	36.9	1953	49.0		
1941-42	42.0	1945	34.0	1954	49.0		
1942-43	38.0	1946	34.9				
1949-50	41.0	1947	35.3				
1950-51	40.0	1948	34.9				
1951-52	40.0						

* Tonnage of coal transported to total tonnage.

TABLE V
(Investment in Transport and in Industry)

	Percentage of Total Investment*		Ratio
	Industry	Transport	
USA (1880-1912)	19.1	18.1	.95
USSR (1928-1932)	41.0	17.3	.45
(1933-1937)	37.1	15.6	.42
China (1952-57)	58.2	19.2	.32
India (1956-61)	28	27	.96

In the USA, transport development during the period 1880-1912 was of an extensive character, following the westward migration of the population. Thus railway mileage increased from 268,000 kilometers in 1890 to 413,000 kilometers in 1912, and the large volume of export of food grains to Europe accounted for a great increase in freight. In India the Second Five Year Plan does not envisage a development of the extensive type, and new mileage to be opened up is small. Similarly it does not envisage a large increase of export of agricultural products to be carried by rail to the ports from the hinterland. Thus we should expect a smaller ratio for India than for the USA. It should be noted that the war-time damage to the Indian Railways has been substantially repaired by the replacement of a large number of engines and locomotives and about Rs 400 crores were spent during the First Five Year Plan for the rehabilitation and expansion of the Railways. There is therefore, no special reason why, the proportion of investment in transport, should be higher in India than in the other countries, specially when China can manage with a much lower ratio of investment in transport in spite of the poor condition of its railways after decades of civil war. To some extent, the USSR was able to manage with a much lower ratio of investment in transport because of an increase in operational efficiency in the railways during this period and it may be presumed that this is also the case in China.

Operational Efficiency

There are various measures of operational efficiency in the usage of wagons, locomotives etc. I have defined two such composite indices of wagon and locomotive usage, which take into account the effectiveness of maintenance and repair services, turn-round of wagons, average loading of wagons, percentage of empties, average haulage of wagons and locomotives etc, which together determine the degree of usage of the stock of wagons and locomotives. (Calcutta Review, October 1955) These are:

$$I_1 = \frac{\text{Net ton-miles of freight turnover}}{\text{Total capacity of wagons in tons}}$$

$$I_2 = \frac{\text{Total freight ton-miles} \times 2240}{\text{Estimated total tractive power of goods locomotives.}}$$

Table VI below shows these indices for India, USA and USSR:

It shows that the USSR was able to double the index I_1 for wagon usage. In the USA shortage of capital has never been a problem and thus no special effort has been made there to increase the degree of usage of the capital stock of the railways. The conventional indices of efficiency, e.g., average haulage of goods engines and wagons also indicate the same thing (Table VII).

The indices of efficiency of wagon and locomotive usage improved remarkably during the First and Second Five Year Plans in the USSR. On the other hand, Indian Railways have not yet been able to reach the peak wartime standards in operational efficiency, in spite of the fact that the equipment now is better than during the 1941-42 period.

One of the main reasons for the inefficient use of wagons is the inordinate delay in loading and unloading, which keeps wagons from moving. Roughly about 17 hours of wagon time out of 24 hours is spent in the yards. The Railway Enquiry Committee suggested measures for eliminating this major cause of delay but radical measures may have to be devised to improve the situation if necessary. Shri K B Mathur, the then Chief Operating Superintendent of the KIR, stated in 1948 "The main problem, however, is the limited capacity of the goods sheds, accentuated by slower

removals by merchants—the latter is due to marketing conditions, go-down accommodation etc and we cannot really do very much". However, these are not insurmountable difficulties and the Railway Board should be able to devise measures to solve them. Some new methods of handling "smalls" traffic in the South Eastern Railways demonstrate how much increase in efficiency is possible in many aspects of operation. Thus wagon loading in October 1955, averaged 239 mds instead of only 154 mds in October 1954, after the introduction of new methods.

If only the wartime levels of efficiency of the Indian Railways could be attained during the Second Five Year Plan, so much less of investment in wagons and locomotives would be needed and there is no reason why with suitable organisation the wartime records could not be improved upon. In a country like India with limited prospects for expansion of foreign trade, growth of indigenous manufacturing industry and specially of heavy industry is essential for rapid economic development and thus any diversion of investment from industries to transport, more than what is barely necessary will retard the growth of the economy. Besides rapid economic development, with increasing investment necessitates an intensive utilisation of the existing means of production and transportation. In India, we can hardly afford the luxury of surplus capacity and insuffi-

TABLE VI
Composite Indices of Operational Efficiency

	India		USSR			USA		
	I_1	I_2	Year	I_1	I_2	Year	I_1	I_2
1938-39	6,345	873,500	1928	7,364	*	1925	3,954	634,360
1940-41	7,197	801,500	1929	8,032	*	1930	3,633	623,800
1941-42	8,088	844,800	1932	10,643	*	1935	3,199	502,800
1942-43	8,277	782,000	1935	13,000	*	1940	4,535	665,500
1950-51	8,189	762,000	1936	14,640	*	1942	7,268	1,027,000
1951-52	8,002	828,500	1937	14,011	*	1947	7,577	1,147,300

TABLE VII

Average Haulage of Engines and Wagons

Year	India		USSR		USA			
	(a)	(b)	Year	(a)	(b)	Year	(a)	(b)
1938-39	99	40.2	1928	85.3	52.5	1924	78.0	29.1
1940-41	105	42.9	1929	82.3	56.3	1933	89.8	24.7
1941-42	105	47.0	1932	102.1	60.3	1935	93.5	30.0
1942-43	109	42.5	1935	117.4	79.6	1936	105.2	35.3
1950-51	93	38.7	1936	144.7	87.2	1944	122.8	51.9
1951-52	95	40.9	1937	140.8	86.7	1946	115.9	45.2
1952-53	94	41.1						

(a) average haulage of goods engines
(b) average haulage of wagons

cient use of capital without negating our avowed aim of rapid economic development.

It is necessary from the point of view discussed above to minimise capital investment in transport and this may mean postponement of some of the schemes of dispersal of economic activity in backward regions by development of railways in these regions. Extension of railway mileage should therefore be limited to what is essential for serving the new industries to be developed or would help in the operation of the railways. This may not be consistent with the social aims of the Plan but where such social aims run counter to the prospects of rapid economic growth, the latter should have precedence at least till an independent foundation of manufacturing industries (including heavy industries) is firmly established in the country.

Co-ordination of Transport

Although the Railway system in India is fairly well developed, the same is not true of other modes of transport like inland waterways, road transport, coastal shipping etc which have come to occupy an important place in the economies of other advanced countries. The emphasis on Railway development was mainly motivated by the military and strategic interests of the Indian empire and this explains the preoccupation of Indian Railways with passenger traffic. The Railway administration in India has always tried to put restrictions on competitive modes of transport, often with a sectarian motive and this mentality has not yet been overcome.

The Railway Enquiry Committee (1947-48) had expressed its apprehension about competition from road transport, and had suggested more strict control by the Union Government. The Railway Board also still appears to be worried about such competition. It has examined the costs of transport by road and has established the uneconomic character of road transport. It is difficult to see, however, why the railways should be at all worried over competition from road transport or coastal shipping if these are relatively costlier, in fact, there is some traffic like the movement of coal, cement etc, which must be transported by railways since the cost of road transport would be prohibitive. But there is

another kind of traffic (specially for short hauls) where the trucks would be more economical. This applies specially to short distance passenger traffic which is served much better by the buses than by the railways. This has been the experience in the USA, where competition between railroads and bus and truck services has resulted in a division of the field of operation for these various modes of transport with consequent benefit to all. Elimination of short hauls by rail will

also improve the utilisation of wagons and in fact road transport should be encouraged by the railways specially for this purpose. It is highly desirable to constitute a Transport Board as the supreme authority for co-ordination of various modes of transport, as suggested in a recent issue of the Economic Weekly (May 26, 1956). Only such a body will be able to draw up efficient and realistic plans for transport for the Second and subsequent Five Year plans.

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