

III - Changes in the economy likely to affect transport over the next twenty years

Any forecast of the probable state of the national economy twenty years hence is bound to be subject to considerable uncertainty, even if the forecast is of a global nature. Moreover, as has already been mentioned, to be useful as a basis for assessing the future transport requirements of the country, the forecast needs to be made in some detail. It must, for example, take account of probable changes in the commodity pattern of industrial production and of changes in the geographical distribution of industry and population, in addition to the assessment of total growth.

This need for resolution of detail within the global picture necessarily adds somewhat to the uncertainty of the conclusions drawn. Moreover, a new Government has taken office during the preparation of the report, whose policies in relation to national and regional planning could affect certain of our assumptions. Nevertheless, because many factors contribute inertia to the economy and limit the rate at which major changes do take place, especially major relocations of industry and population, an attempt to foresee the transport requirements of the nation in twenty years' time is not unrealistic.

Much attention has already been given by economists and others to the next twenty years. Amongst publications which have appeared, some of which deal with developments in specific industries, areas, or aspects of planning, the following are of particular interest:—

'The South East Study 1961-1981', which deals with the growth and distribution of population and industry in the South Eastern Region, was issued last year by the Ministry of Housing and Local Government. One significant feature of this report, and of the White Paper (Cmnd.2308) which accompanied it, is the evidence which it provides of the strong urge of the Government to damp down the main migrational movement which is apparent at the present time, namely the migration to the South East.

A report by a group under the Chairmanship of Sir Robert Hall, Economic Adviser to the Ministry of Transport, on 'The Transport Needs of Great Britain in the Next Twenty Years' (H.M.S.O.), was published in 1963. This report deals directly with the problem with which we are concerned, but it is limited to global assessment of the future demand for the main forms of inland transport. It recognizes the importance of, but does not attempt, the more detailed examination of traffic flows which is essential for the planning of a transport system. Nevertheless, the global assessments in this report served as a valuable check on our own conclusions.

Our consideration of the future state of the economy, in the course of which we drew freely upon the work of others, led to a number of assumptions and conclusions which influenced our subsequent consideration of the changes in the present pattern of traffic flows which are likely over the next twenty years. These are outlined below.

It was assumed that the population will continue to grow and the Registrar General's forecasts have been used. These suggest that the total population of the United Kingdom will rise from 54.2 million in 1964 to 62.5 million in 1984 (15%).

An assumption about the rate at which the economy can be expected to grow over the next twenty years presented some difficulty. The growth rate over the last two decades has been only 2-4%, and on this basis the assumption of a 3% rate of growth over the next twenty years would appear rather optimistic. On the other hand, the National Economic Development Council has explored the practicability of a 4% growth rate, but it is, as yet, by no means clear that the national will is strong enough to produce the conditions which must be satisfied if such a growth rate is to be sustained. Therefore, as in the Hall report, the effects of growth rates of 3 and 4% were considered. This was done to determine to what extent the alternative assumptions influenced our conclusions, but, because it would clearly be wrong to set a long term development target for the railways which discounted the work of N.E.D.C., with an associated risk of underestimating the capacity required, weight was given to the more optimistic figure.

Tables 5 and 6, on the following pages, show the estimates which resulted from these assumptions.

Two important assumptions were made about the distribution of population and industry. In relation to population it was assumed that the rate of growth would be comparatively even throughout the country and that no major redistribution would take place. In relation to industry, although some change was foreseen in the commodity pattern of production, the assumption was made that the geographical spread of general industrial activity would remain the same, and that growth would be uniform throughout the country.

These assumptions are clearly of key importance in relation to the planning of a transport system. It cannot be proved that they are sound, but they appear to be justified by the strong and growing tendency towards regional development, and by accompanying governmental efforts to stabilise the population pattern by damping industrial development where population shows a tendency to grow disproportionately fast, and by inducing it in areas which show a tendency to decline.

The assumptions that the distributions of population and of general industrial activity will remain stable were applied in forecasting the future flows of passenger and of general

merchandise traffic. In addition, special studies were made of the future size and location of industries which are large individual users of transport, such as coal, iron and steel, oil, and power generation.

TABLE 5

Assumed Changes in the U.K. Economy Associated with Growth Rates of 3% and 4%

	1964 (Estimated]	1984 (Forecast]	
		3%	4%
Population (millions)	54.2	62-5	
Gross Domestic Product (in 1964 £m.)	28,250	51,000	62,000
Industrial Output (in 1964 £m.) (Manufacturing, Quarrying and Construction)	12,250	25,000	31,000
Energy Consumption (m. Tons Coal Equivalent)	290	435	505
Electricity Generation (Thou. m. kWh) (Public Supply)	145	390	450
Steel Production (m. Tons)	26	38	41
Car Ownership (m. vehicles)	8	19	23

TABLE 6

Assumed Energy Balances in the U.K. Economy Associated with Growth Rates of 3% and 4%

Sources of Energy	(Million tons coal equivalent)		
	1964 (Estimated)	1984 (Forecast)	
		3%	4%
<i>Primary Sources</i>			
Coal	192	140-180	160-190
Oil and natural gas	93	190-230	240-270
Nuclear and hydro	5	50-80	70 - 100
	290	435	5«5
<i>Intermediate Sources</i>			
<i>Electricity</i>			
Primary Sources:			
Coal.	69	70-110	70-110
Oil	11	40- 70	65- 95
Nuclear and hydro	5	50- 80	70- 100
	85	230	265
<i>Gas</i>			
Primary Sources:			
Coal..	21	10	10
Oil or natural gas.	7	20	30
	28	30	40

Table 6 continued

Consumption	(Million tons coal equivalent)		
	1964 (Estimated)	1984 (Forecast)	
		3%	4%
<i>Total Energy Consumption</i>	290	435	505
<i>Intermediate Energy</i>			
Electricity	85	230	265
Gas (including gas coke)	28	30	40
<i>Final Consumers</i>			
Steel (including industry coke ovens)	35	40	50
General industry	85	145	170
Transport	37	55	65
Domestic	82	120	130
All other	51	75	90
Total Final Consumers	290	435	505

Direct Users of Mineral Fuels	(Million tons coal equivalent)		
	1964 (Estimated)	1984 (Forecast)	
		3%	4%
<i>Users of Coal</i>			
Electricity	69	70-110	70-110
Gas	21	10	10
Steel (including industry coke ovens)	21	20	20
General industry	26	10	10
Domestic and other	55	30- 40	40- 50
	192	140- 180	160- 190
<i>Users of Oil and Natural Gas</i>			
Electricity	11	40- 70	65- 95
Gas	7	20	30
Steel	7	10- 15	10- 20
General Industry	23	35- 40	40- 50
Transport	31	50- 60	60- 70
Domestic and other	14	30	35
	93	190 - 230	240 - 270

It cannot immediately be assumed, even if the location of general industrial activity remains unchanged, that the resulting transport demand will grow in direct proportion to the growth of industrial output. A growth of 4% in the gross national product will demand an annual increase of almost 5% in industrial production, because a higher than average growth must be achieved by manufacturing industry to offset the smaller increases likely to be achieved in other sectors of the economy. On the other hand there will be a trend towards the production of goods which are lighter in relation to their value. These two factors tend to influence transport demand in opposite directions and it has been assumed that, overall, the increased movement of manufactured goods will rise at a 4% rate.

It is, however, less clear that the ton mileage of transport demand will grow in the same way, because changes in the relative size of production units, in the need to move intermediate products, and in the distribution of end products to the market areas, may change the average distances over which commodities have to move.

In the case of some industries, the trend towards the integration of production into larger units, which is already apparent, will continue. In so far as this aggregation is for the purpose of vertical integration, it will result in some reduction in the inter-unit transport of intermediate products. At the same time, aggregation into large units with a more extended geographical coverage of the market will increase the average radius of distribution of the finished products. It must be recognised, however, that the policy of taking industry to the population will, to a degree, restrict growth of large units.

On the other hand, growth of the economy, with a corresponding increase in local markets, will enable many manufacturers to subdivide their capacity with advantage, in order to supply markets by local production, because more local markets will become large enough to support a plant of economic size. This will reduce the average radius of distribution of end products and probably increase the transport of raw materials and inter-mediate products. This trend will be encouraged to some extent by the policy of taking industry to the population.

Changes which may take place in the relationship of transport costs to other costs will affect decisions about the location of plant, particularly where transport is a large element in the final delivery price of the product. While in a short period of years this influence would be small, over a period as long as twenty years it might well have a considerable impact. Indeed, the steps to be taken in improving the railway trunk system will themselves affect the location of population and industry which the system is designed to serve.

The combined effect of these trends is difficult to judge with confidence, but their probable result will be to affect the average distance of movement of intermediate and end products very little.

It was for these reasons that, the main bulk raw materials having been considered separately, it was assumed that the average length of haul of the broad 'general merchandise' category will not materially change. In other words, it was assumed that the proportions of the total tonnage moving over given distances will remain much the same as at present.

Some may consider that the assumption of a 4% growth rate is unduly optimistic. Also, there may be a tendency for concentration of population and industry in the Midlands and South East contrary to our assumption of a uniform growth throughout the country. Both these factors would tend to reduce transport demand on the trunk routes and thus cause our assessment of demand to indicate the need for more capacity than, in the event, maybe needed.

More detailed assumptions

In addition to the foregoing general conclusions and assumptions, there was more detailed examination of particular forms of traffic. The more detailed considerations are referred to in the next section of the report, where the main elements in the future transport demand are considered separately.