

Strategic Change in the UK Railway Network through Reorganization and Major Projects



by

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ABSTRACT

Immense effort is expended by the likes of the Office for Rail Regulation, Transport Statistics Great Britain and the Office of National Statistics in generating extensive time series data for the various measures of passenger numbers, freight activity, performance and much more. Unfortunately, the sheer volume and complexity of the data are such as to confound ready analysis but a combination of normalization with the use of Simplex diagrams has the potential to reveal some key correlations and trends in a highly visual manner. This will be used to assess the impact of the key strategic initiatives of recent times – Nationalization (1947), the Beeching Axe (1963), Privatization (1993) – and also the effects of various major projects – e.g. High Speed Trains (1970s), the Channel Tunnel (1994) and the Total Route Modernization (1990s).

Is the evidence consistent with genuine strategic management or was there just rudderless “drift” as the roads and car ownership expanded following the Transport Act of 1947, 1953, 1962, 1985 and 2000? What resulted from Southall (1997), Ladbroke Grove (1999) and Hatfield (2000)? In its thankfully short existence was the Strategic Rail Authority (2001-2006) ever strategic let alone authoritative? What is happening now and what might happen in the future?

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Chapter 1

1.1 The Early Years

The Britain's railways have been considered to be the country's largest industry (Ch.Wolmar 2005). Its most profitable time was between 1850 and 1914 when it was owned privately. Thereafter, the railways came under various degrees of governmental influences including the period when they were nationalised but also during privatization. During this time the railway industry experienced periods of decline and investments.

After the First World War, the Government began taking more control and by 1921 120 private companies were involved. The Railways Act of 1921 was passed to address the fragmentation of the industry. Its main aim of the Act was to increase railway efficiency and it resulted in the grouping of the 120 companies into four regional ones known as the Big Four. At the same time the Government subsidised railway's projects. Also the Government imposed charges for freight transport did not satisfy the freight private companies.

In 1939, WWII started and the rail transport was primary used for military reasons. Between 1938 and 1944 freight traffic (tonne x miles) increased by 50% so that similarly passenger traffic increased by 68% and in 1944, 64% of all freight was carried by rail. WWII was the flourishing time for railway companies in terms of trains, which were used as the main way of transportation, (Thalman 2004).

WWII indicated catastrophic results for the railways' condition. Both trains and lines were devastated. The railway condition strongly affected the safety aspect. The situation was so bad that train accidents happened every week. That situation did not encourage people to use trains as the common transport. In addition, petrol was getting cheaper and more accessible so that the rail- car competition became even stronger.

The time between the two wars is known as the “Golden Time” for the British railways (Wolmar 2005). This time is related to excellent quality of services provided. Trains were advertised as the way of transport which provided comfort, luxury and general happiness. It was equipped with such luxuries as hairdresser saloons or access to radio headsets. Nevertheless, only select few people could afford that pleasure. There was a giant gap in train standards between luxury class and middle classes.

Apart from external factors (i.e. accidents) which had a big impact on the BR conditions, the other primary issue which bothered railway was the management aspect. The British railways’ companies did not have any strategy for either freight and passengers transport or infrastructure. In fact, railway companies did not even know what was the exact aim of running trains. They were not able to define whether the purpose of railway was to be just a way of transport or their priority should be to achieve the high service standard. Generally, there was lack of strategic decisions.. At the time of The Great Depression the Government helped them to cope with the difficulties of economic situation. Even though companies were aware that Government intervention would reduce their independency, they did not have any other choices when facing the problem of lack of money.

The election of 1945 was won by Labour. They aimed at nationalizing Britain’s railways as well as almost every other form of public transport. The upside of that step was also seen by various entrepreneurs who found nationalized railway as a cheaper transport than profit- making ones owned by private companies. The idea of nationalization of the BR had already been mentioned before in 1919 but was not implemented that time.

In the late 1940s Britain’s railways were in a dramatic situation. The financial situation was really bad and people were becoming more interested in car transport. During all those “dark years” for the BR, freight also found roads as a new and cheaper way of transport. In addition, national economy was widely developing at that time. Coal, which was the main cargo transported by trains, was pushed aside by gas which used light transport.

Finally, in 1948, the British railways were nationalized (by the Transport Act of 1947) and all inland transport was under British Transport Commission's (BTC) control. That time, The Railway Executive was also established which was responsible for reporting day - to - day problems to BTC. However, that way of running the BR did not work as well as previously hoped. The decision regarding nationalization was made in a rush and without any strategy. BTC preferred to gain as much as possible from profits than to fix the BR's disaster. The BTC – Railway Executive structure did not work efficiently at all. The Railway Board did not want to cooperate with established organizations and stakeholders and focused more on arguing between each other than solving problems.(Wolmar 2005)

The British Transport Commission was also responsible for road transport and the Commission budget was one for all modes of transport. That caused even more problems British Railways as in this time of increasing interest in car transport, instead of focusing, at least equally on investments in different modes of transport, most money was invested in road transportation.

Additionally, in 1950, the Government announced the end to petrol rationing as two American companies had agreed to supply oil in return for buying British goods and suddenly queues of people appeared waiting for the petrol.

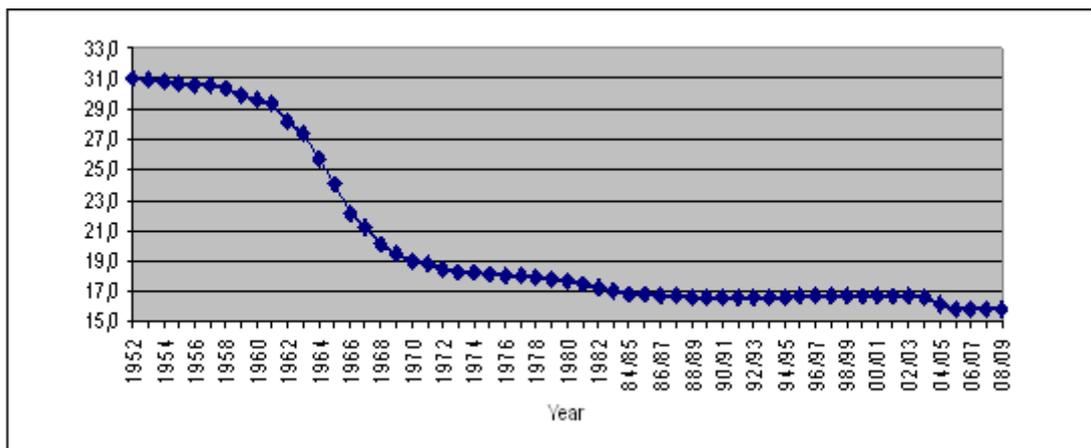
Since the 1950s Britain's railways were given many chances to recover. However, its problems were never a priority issues for the Government. The Labour party was afraid of the next election so they did not want to deal with difficult problems like for example increasing fares for train transport. Railway managers were narrow- minded and focused only on the short term solutions instead of the long ones. Additionally, the Government in order to do "ANYTHING" to make the British railways' situation better, were continuously making thoughtless decisions to keep people quiet, for example a purchase of old wagons which in the short time were utilized..(Wolmar 2005)

However, in 1951 the election was won by Conservatives and the new Prime Minister, Winston Churchill's plan consisted of the reorganization of the BR. That gave the railways new hope.

1.2 The Modern Era

In the years since 1952 there were certainly to be huge changes in the numbers of passengers, freight moved and routes kilometres but not all for the better. Figure 1 displays the diagram of the National Rail route kilometres. There may be highlighted the impact of Beeching Axe (massive cuts in rail route km). After Dr Beeching's actions, quantity of rail route kilometres carried on decreasing and never came back to the pre- Beeching's position .(Fig.1)

Fig.1 Length of national rail network (km/10³) (DfT 2008)



The number of passengers km and freight moved is presented in the graphical examination of data series (Fig2). Passenger km had been increasing and decreasing repeatedly up to the middle of 1990s just after the Privatization of British railways. It is indicated that the high peak in the end of 1980s in number of passengers happened to be the reaction for buoyant economy. It lasted a short time as passenger numbers fell again in the recession of the early 1990s. After that, the number of passengers km have been continuously increasing up to the present which was again stimulated by Privatization, but this has been at extra cost to the taxpayer and passengers who have seen steady price increases.(Shaoul 2006)

Whereas freight moved had achieved a noticeable decline (faster than number of passenger km) up to middle of 1980s when the miner's strikes happened. After that, there was a sudden peak towards the end of 1980s and in the same time as passenger km, freight moved started constantly increasing although slower. This increase in passenger and freight is debated whether it was due to privatization or simply due to an improved economy which usually results in more travel. The main trend in changes in freight moved and passengers km may mostly result from the expansion of the car transport which started after WWII and was developing through all further years.(Thalman 2004) However, the political decisions made about transport during these years, accidents happening and economical factors have also had a big impact on the Britain's railways situation.

Fig 1 and Fig 2 show the changes in National Rail route km, freight moved and passengers km against the time. If there was only freight moved per route km and passenger km per route km considered their relation would look like in Fig 3 (against time). However, this standard and ubiquitous presentation is useful in terms of comparing them with for example road transport. This raises the question of how the freight moved and passenger km change depend on each other. Hence, Fig 4 displays the relationship between the two factors. The diagram does not show any general trends between points although it can be said that points from the mid 1980s shaped a linear relationship. It might be indirectly combined with the fact that route km in that time stayed fairly constant. However this project focuses on efficiency of Britain's railways and it is assumed that the fact of Beeching Axe could change the efficiency of the railways. Hence all these points suggest to normalize data by using route km which is presented Fig. 5 reveals some obvious trends in the data.

The first indication is that there is not one trend in the passenger km per route km ($\text{passenger}/10^6$) / Freight moved per route km ($\text{tonne}/10^6$) diagram through the whole period of time. However, there may be displayed four point trends which have a linear relationship. Analyzing the plot it can be noticed that points are composed in logical groups of years. Nevertheless, inside each group points mix in an incoherent way. There may be four eras distinguished. However, the inspection is very broad and imprecise. In addition, this method allows choosing only general groups of points and it is impossible to indicate exact change points. It may be expected that there is not only one change point but a few and they belong to two different eras. In order to

investigate further there are correlation and regression analysis and boundary line method used.

Fig. 2 Passengers and freight moved diagram (DfT 2008)

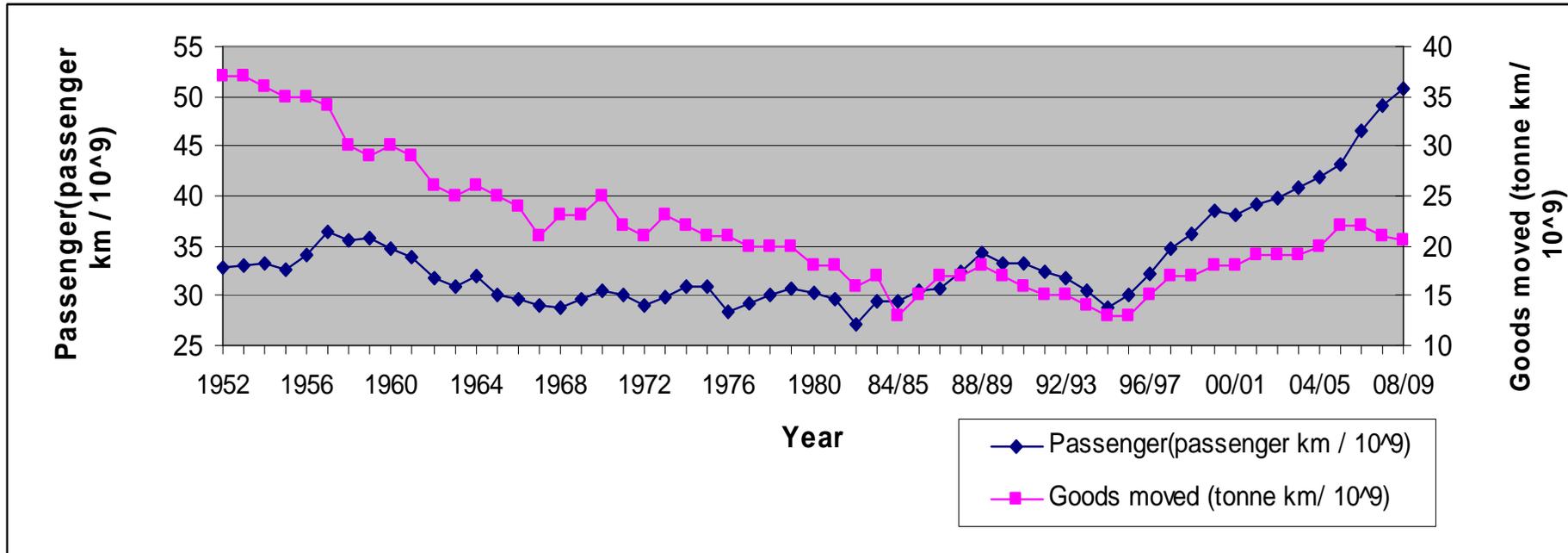


Fig. 3 Passengers km/Route km and Freight moved/ Route km against time diagram (DfT 2008)

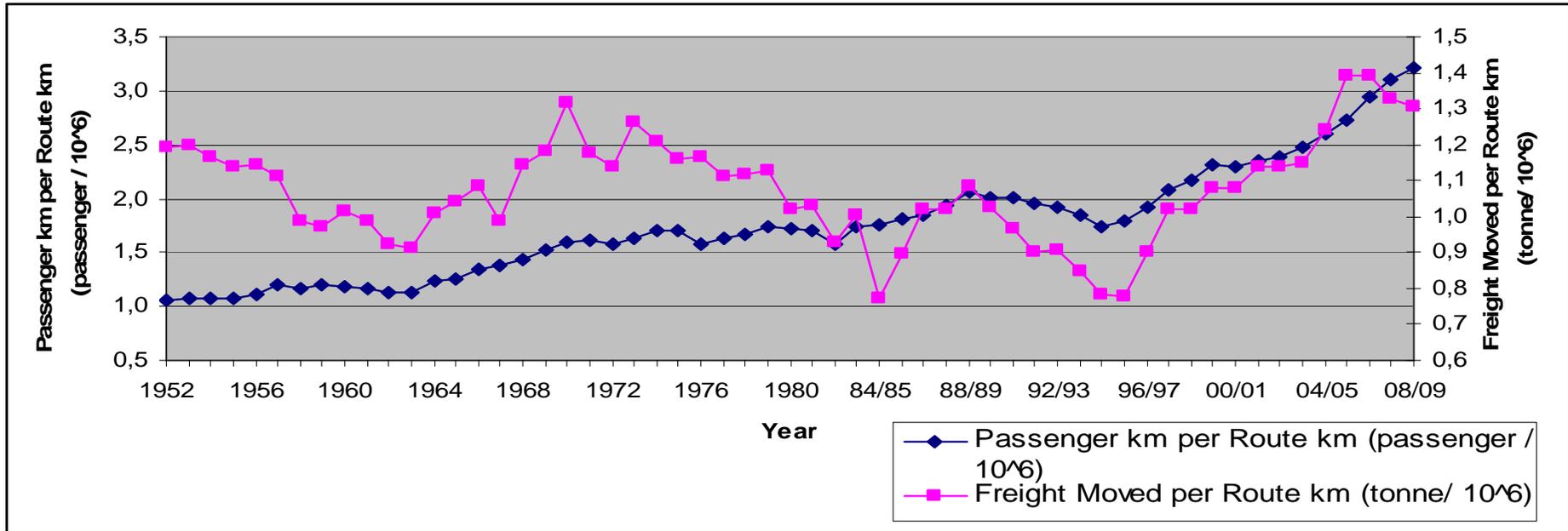


Fig.4 Passenger km per route km (passenger /10⁹)/ Goods moved per route km (tonne/10⁹) diagram (DfT 2008)

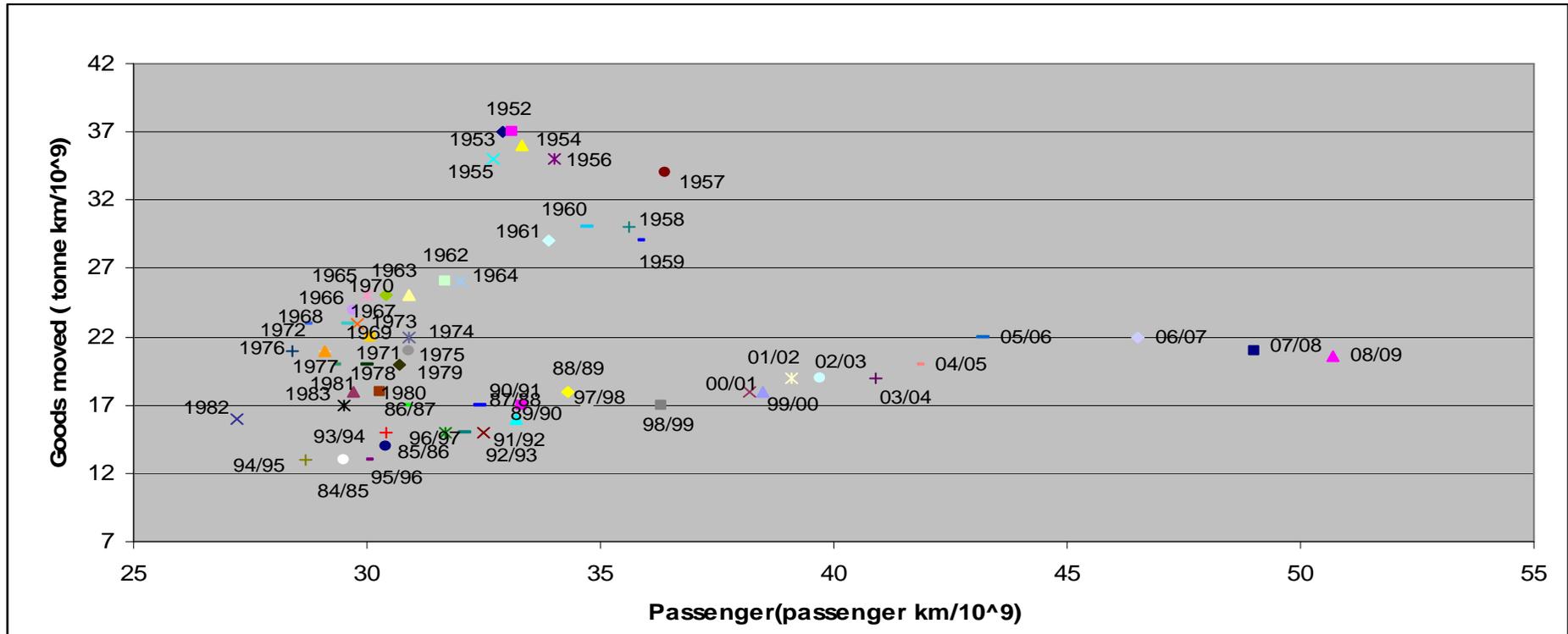
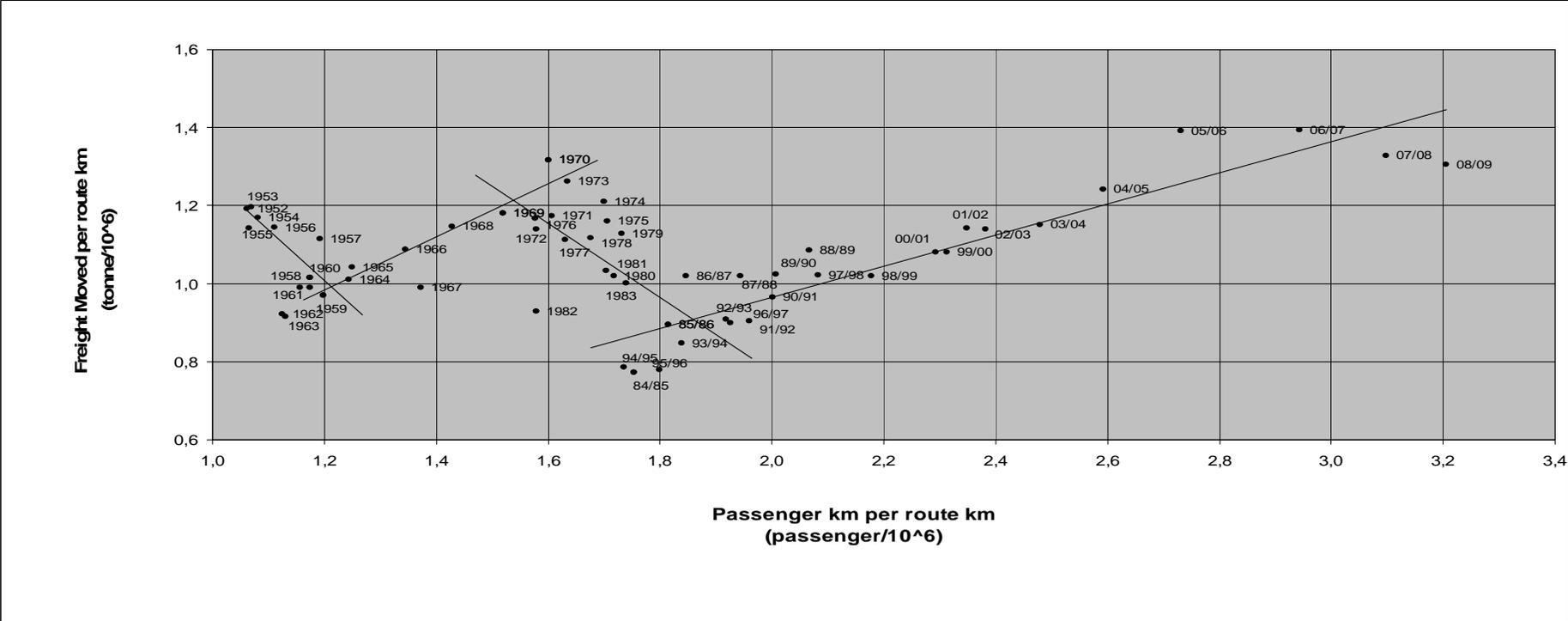


Fig 5 Passenger km per route km (passenger /10^6) /Freight moved per route km (tonne/10^6) diagram (DfT 2008)



1.3 Data Sources

Most of the data are drawn from different issues of “Transport Statistics Great Britain” and the additional publications such as “Transport Trends, Focus on Freight” (1998) or National Rail Trends of the Department of Transport. Necessarily previous data was extended by using Railway Statistics, British Railway Statistics and British Transport Commission Annual Report & Accounts (1948-1962). Caution must be exercised in comparing data over long time period as ways of collecting the data changed. Also in terms of London Underground. In this project most data does not include Underground (where possible).

Diagrams consist of the data since 1952 due to the lack of further information. The data after 1983 is displayed differently than previous ones. They are calculated as the representative data of two years. The reason of acceptance that change instead of calculation the average of two years is the uncertain of changes in the data of each month and lack of data.

1.4 Research Question and Objectives

The purpose of this thesis is to integrate the extent to which the measures of Britain’s railways has changed in the face of:

- Nationalization (1947),
- The Beaching Axe (1963),
- Privatization (1993),
- The Channel Tunnel (1994),

and the accidents at:

- Southall (1997),
- Landbroke Grove(1999),
- Hatfield(2000),

and:

- what is happening now and what might happen in the future?

Chapter 2

Modern Four Eras of the Railways

When freight and numbers of passengers are analyzed it is difficult to find something in common which links them together. The most obvious measure and one that can be used as a proxy for network capacity is the length of the network, i.e. route km. It would be ideal if there was track data used in the project. It would be more precise in terms of train capacity. However, due to lack of availability of this data route km is used. It gives a broad indication of how resources are loaded. For this project it is assumed that is a good measure which combines the two factors.

2.1 Correlation and Regression Analysis

The trend line, also known as regression or curve fitting, obtained by the method of least squares, represents the tendency that “indicates the general pattern or direction of the time series data”. (Business Dictionary 2008)

Fig 5 in the previous chapter displays the relationship between freight moved per route km (tonne x 10^6) and passenger km per route km (passenger x 10^6). It shows four groups of points shaped with a linear relationship. However, in order to find the exact strength of its correlation and regression analysis is used. Table 1 presents correlation coefficient of each group of points. It indicates that three out of four eras present very strong correlation whereas one era displays a weak one. Note that, if there is taken the correlation of factors without normalization, on balance, these values would be smaller than those obtain with normalization i.e. -0.74, 0.94, 0.29, 0.91.

In terms of normalized factors, it might be assumed that there is more than one change point between years and that the correlation coefficient (R) may change depending on

the chosen change points. In this case the years are analyzed by moving boundary ends and checking the correlation coefficient (Table 1).

The correlation and regression diagrams which visually present the trend lines of each era are displayed in Fig 6.

Table 1 Calculation of the strongest correlation coefficient (R)

(a) 1st era 1952-1960

FROM/TO	1958	1959	1960	1961
1952	-0,762	-0,837	-0,854	-0,842

(b) 2nd era 1959-1970

FROM/TO	1968	1969	1970	1971
1957	0,670	0,786	0,872	0,868
1958	0,813	0,887	0,926	0,917
1959	0,815	0,887	0,926	0,916
1960	0,811	0,884	0,923	0,912

(c) 3rd era 1969- 85/86

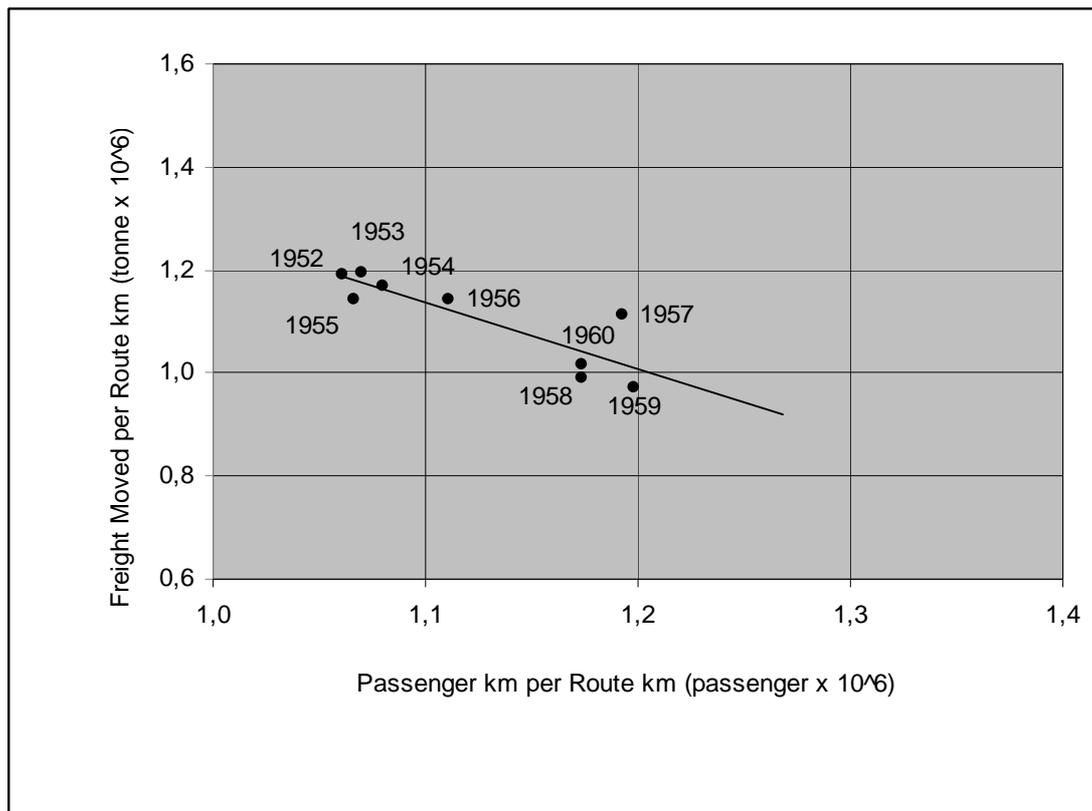
FROM/TO	1983	84/85	85/86	86/87
1967	0,024	-0,177	-0,292	-0,315
1968	-0,241	-0,393	-0,491	-0,497
1969	-0,280	-0,446	-0,544	-0,534
1970	-0,246	-0,434	-0,537	-0,520

(d) 4th era 84/85- 08/09

FROM/TO	08/09
1982	0,907
1983	0,914
84/85	0,926
85/86	0,925

Fig. 6 Correlation and regression diagrams

(a) 1st era
1952-1960
R=-0.85

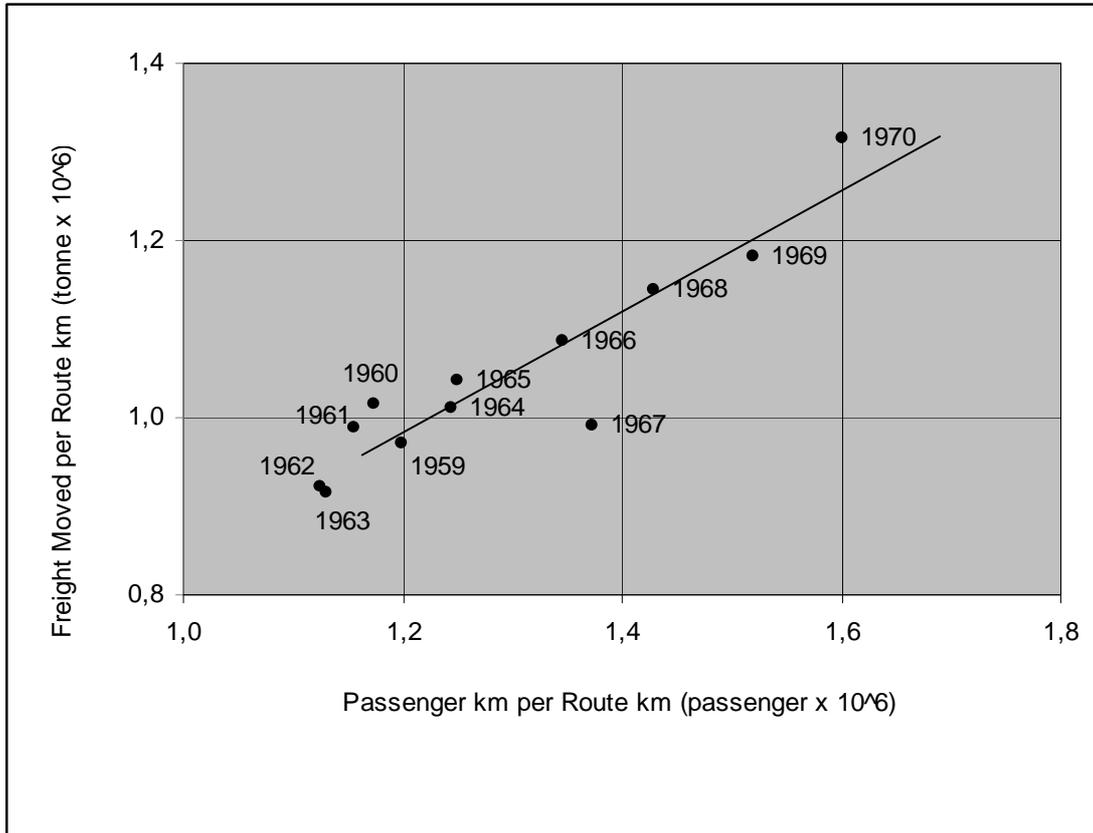


The correlation coefficient in the first era equals -0.85 . It indicates the strong negative relationship between points. It implies that high values on passenger km per route km are associated with low values on freight moved per route km.

(b) 2nd era

1959-1970

R=0.93

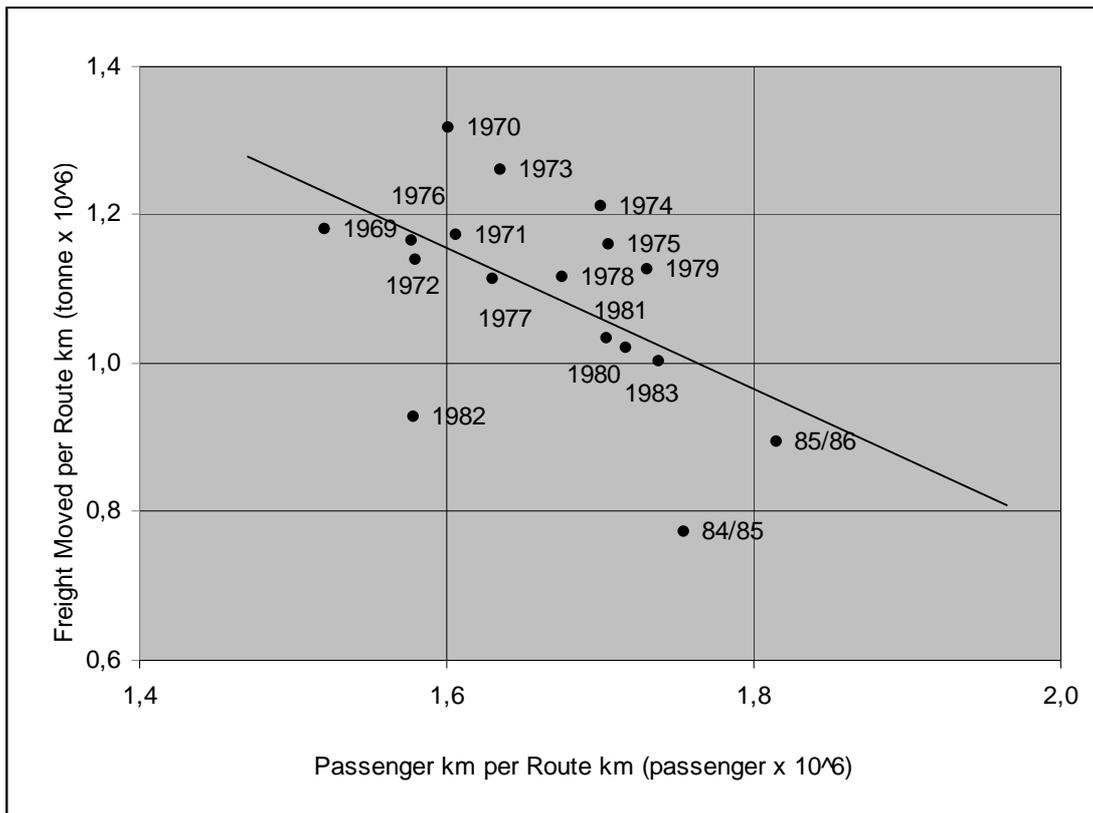


The correlation coefficient is higher in the second era and is equal to 0.93. The relationship between two factors is strong and positive which means that high values on X axis are associated with high values on Y axis.

(c) 3rd era

1969-1985/86

R=-0.54

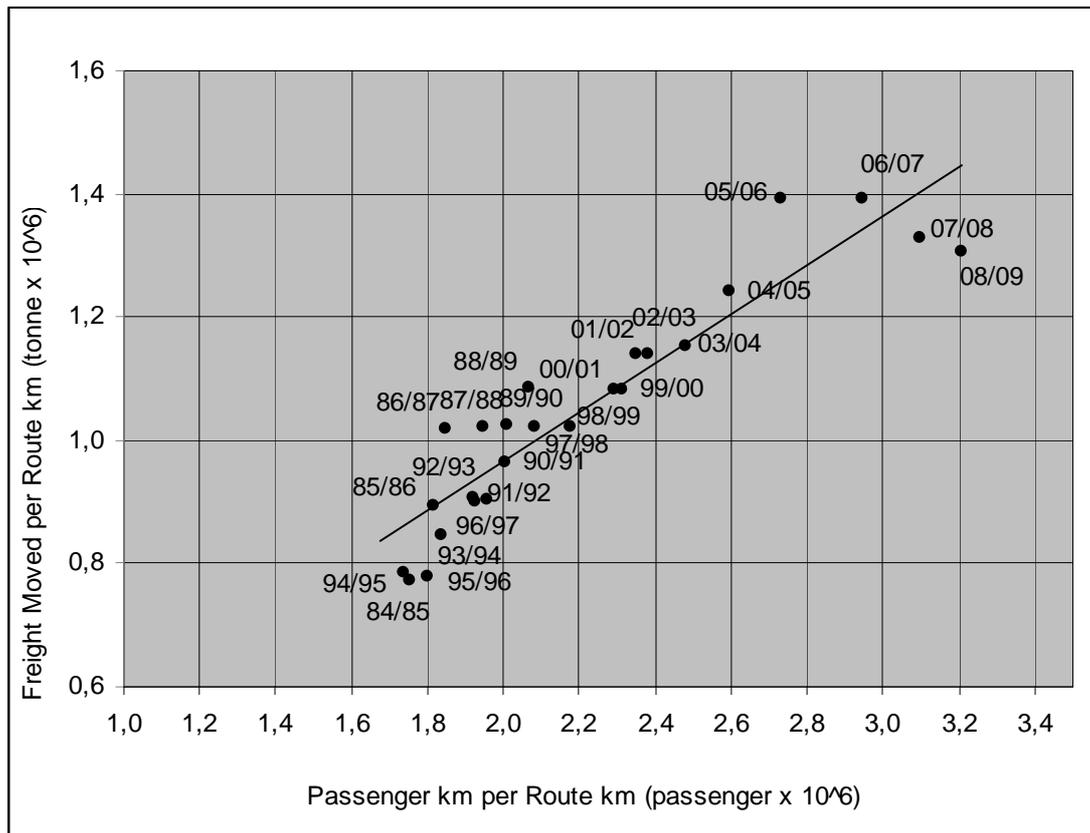


The relationship between points in the third era is the weakest one and is -0.54. The correlation is negative.

(d)4th era

1984/85-2008/09

R=0.93



The strongest correlation out of four eras is in the last era and is equal to 0.93. The relationship between points is positive.

In addition, the correlation and regression analysis indicates that changes in Passenger km per route km (tonne x 10⁶)/ freight moved per route km (passenger x 10⁶) diagram are not sharp but proceed gradually which indicates that through all the years changes in freight, passengers and route km capacity were not sudden but gradual.

Both factors increased during the second and fourth eras in the same time which means that the general efficiency in these periods of time increases. It is impossible to say anything else about efficiency of each of the factors as such as

$$\frac{\text{passenger_km_p.a}}{\text{maximum_possible_passenger_km_p.a}} * 100\% \text{ or}$$

$$\frac{\text{freight_moved_p.a}}{\text{maximum_freight_moved_p.a}} * 100\%$$

measures are not collected. However, the general efficiency can be proved by putting a line with particular gradient and indicating that everything from the line is increasing or decreasing efficiently. Nevertheless, in the first and the third periods the general efficiency is impossible to calculate because neither factor changes in the same directions and we do not know the trade-off between passenger km per route km and freight moved per route km.

The results of correlation and regression analysis suggest that eras are bounded by points (period) rather than a single point. Looking at correlation and correlation coefficient results it may be suggested that in eras where R is strong there were made some logical decisions in terms of Britain's railways hence the relationship between passenger km per route km and freight moved per route km was strong. However, in the third era correlation coefficient is weak which may be an indication of a drift and lack of strategy. Nevertheless it is hard to say, without the historical analysis whether there was any general strategy for all eras classified as an one trend.

2.2 Boundary lines

Rather than being sudden and identifying exact points of change the project focuses on periods of time over which curves are changing. In this case the boundary lines are used to limit the eras and to suggest periods between eras. But because the purpose of these was the identification (rather than prediction) of the breaking points between each era, these were drawn parallel to each trend line (rather than curved, as would be done in routine linear regression) and at a distance such that every point was included within the boundary. This was achieved, for each group, by finding the point with the y-value furthest from the predicted y-value (on the relevant trend line) and expressing the distance between them as a multiple of the standard error in the trend line (i.e. "the

standard error of the predicted y-value for each x in the regression”) as shown in Fig 7.

The change points are located in the intersection of two following groups and they belong to both of them in the same time. The intersections consist of the following change points:

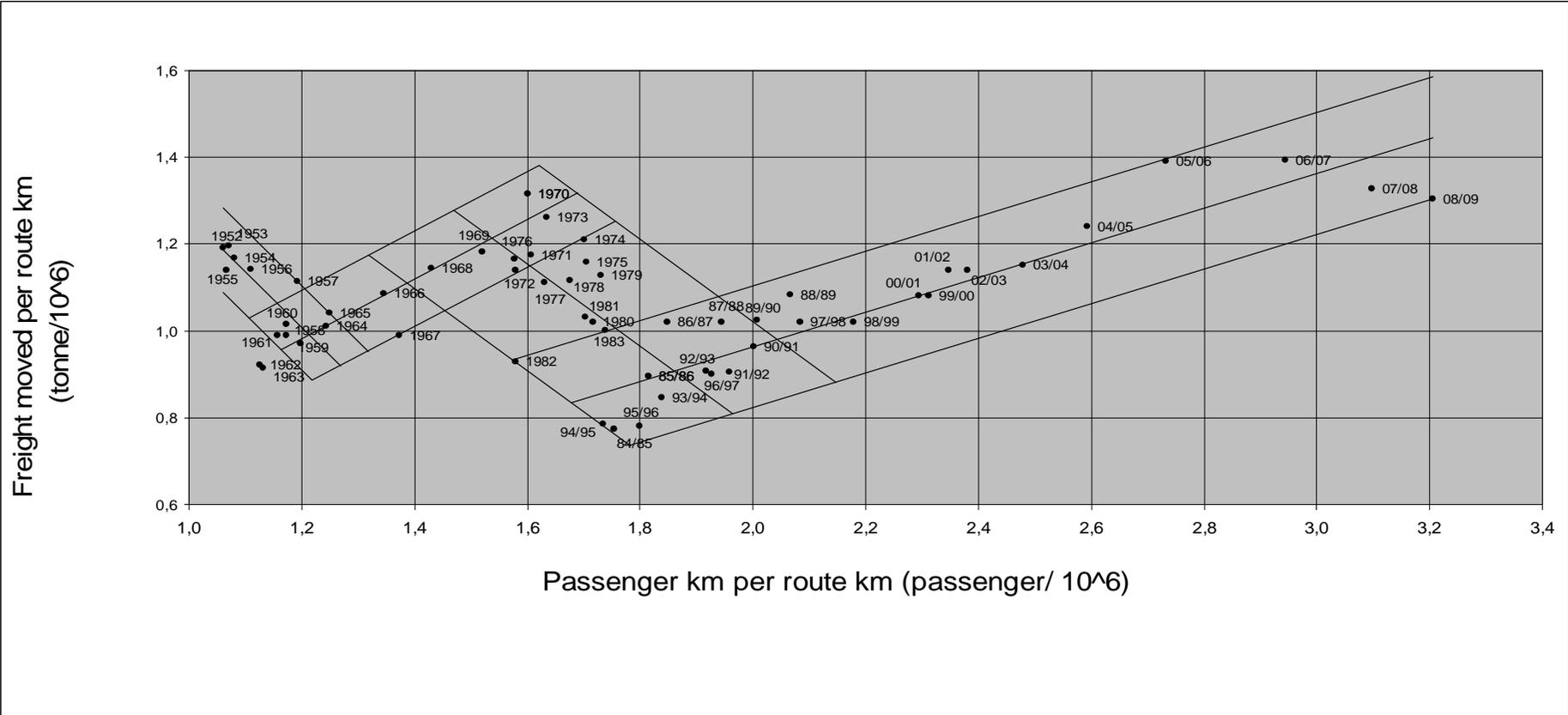
Table. 2 Intersection points

between 1 st and 2 nd era	1959,1960
between 2 nd and 3 rd era	1969,1970
between 3 rd and 4 th era	1984/85,1985/1986

The standard approach (correlation and regression analysis) is used to carry out confidence intervals for each trend line. Whereas the boundary lines method reveals a greater numbers of points in the eras of overlap between each period than were apparent from the correlation alone.

Looking at Passenger km per route km (tonne/ 10⁶)/ Fright moved per route km (passenger/10⁶) diagram (Fig 7) there are changes in number of passengers, freight moved and rail route km. The diagram indicates four eras in the BR’s history which may be selected by inspection. Focusing only on more reliable methods (correlation and regression analysis and boundary lines method) it can be noticed that they do not display exactly the same change points, but in each intersection they lined up. The big impact on these differences may be due to the history of Great Britain and the British railways. The first of eras would see big changes under the so called 1955 Modernization Plan.

Fig 7.Specification of the range of each group points (DfT 2008)



Chapter 3

1952-1960 Post – nationalization

The first era of analysis characterized with correlation coefficient equals to -0.85 which indicates strong, negative relations within the time period (Fig.6a). Most of the time freight moved was decreasing. Although the Modernization Plan did keep it stable for a period but it did not last long. Number of passengers was not as straight forward. Although the post-modernization peak took two years, it did not stay the course.

The main reason in the first era of changes in freight moved and numbers of passengers in the early 1950s was competition between the growth of trains and cars. At that time, BTC invested roughly five times more in road transport than in railway. Train fares were high, petrol was cheap and the purchase of lorries after WWII was beneficial.(Wolmar 2005)

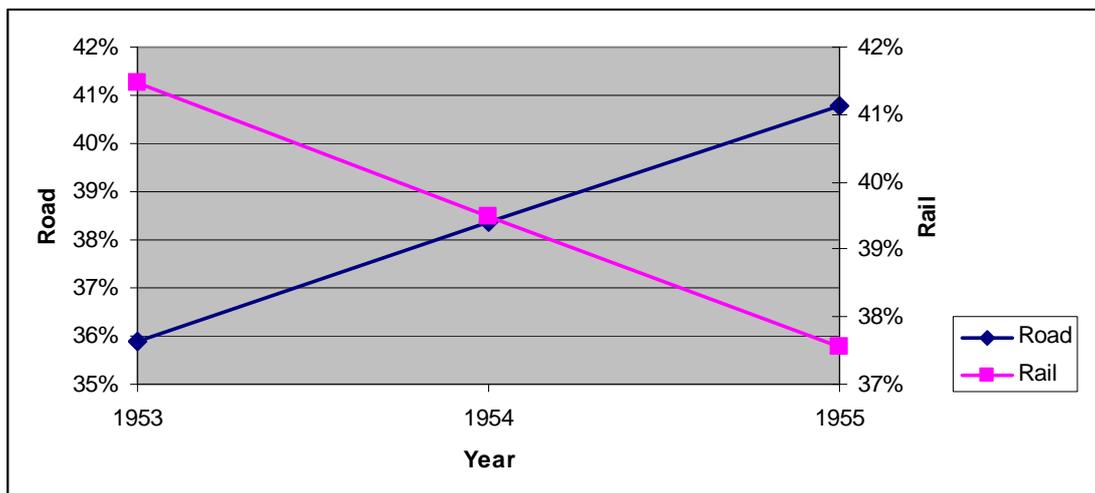
The war had heavily damaged both rolling stock and infrastructure. While in Europe diesel and electric traction, which had higher availability and lower running costs, was becoming commonplace, BTC had to stick with steam on the railways as available funds were not enough for full modernization. Hence, in order to find any solution, up to the middle 1950s about 900 ‘standard’ steam locomotives were produced to fill the gap that the war had left. However, this inhibited technological innovation did not have any chance to catch up with European standards. (The Railway Archive 2004-2010)

After WWII, the British Government involved itself more and increased control over the British railways as a matter of necessity. The spreading Government control limited the Railway Executive’s room to manoeuvre. Following their victory in the 1951 election, the Conservatives wanted a return to competition, commercial policy and administrative decentralisation. Most of all, they were determined that the railway network should be profitable. (Wolmar 2005)

Apart from the political chaos, there were two additional issues which tipped the scales for big changes in 1955. Especially the latter one determined the railway’s situation. First was the accident in Harrow in 1952 which had been the worst railway

disaster in England since 1915 (Quintishill). The reason for it was never known but the collision was caused by the passing a signal at danger (SPAD). Second was the Transport Act of 1953. The Railways Executive Committee was abolished and autonomous area boards were established in charge of setting fares and seeking the maximising income. However, the most controversial aspect of the Act was the denationalization of road haulage. At the time when rail was still under Government control and in much trouble, road transport became the real competition. That time freight moved by rail fell 6% by 1955 whereas that moved by road increased about 19%. In two years the rail's modal share in total freight moved declined about 2% whereas the road's share increased about the same. (Fig.8)

Fig. 8 Modal shares of freight moved (1953-1955) (DfT 2008)



Having in mind the actions described above, and getting some money, the Government decided to take some actions in order to improve Britain's railways condition. The British Transport Commission came up with a massive Modernization Plan realised in 1955. In the beginning everything looked very optimistic. It gave a big chance for the BR with £22mln in annual losses to become the efficient way of transport again. The big modernization planned a £1.2bn spend over 15 years, in order to replace steam traction completely with a mix of diesels and electrics and to invest in wagons, freight, stations and other smaller infrastructure. The outcome of the plan was to improve numbers of freight moved by rail and passengers km and to be a more economically self-sufficient railway. (Wolmar 2005)

The changes which occurred in 1955 gave Government the hope that the BR could stand again on its own feet. Passengers believed that investments and modernization would lead to better service. Initial results of changes were very promising. In the first year, at the post-nationalization peak, the increase in number of passengers was about 4% and goods moved stayed stable (DfT 2007). However the extra income was not enough to stop losses from rising.

The Modernization Plan proved to be nothing else but the quick way to pour oil on troubled waters at least for a short time. The origin idea was to make the BR profitable in 6 years. However, the modernization was not completed until the late 1960s. The rush in creating the Plan contributed to lack of strategy. Railway managers, without experience of managing such a big development budget, made a series of catastrophic decisions. One of them was for example the order of diesel designs from inexperienced British manufacturers, without any previous prototype phase for testing the designs. It resulted in many classes which were scrapped within a few years of delivery. (Wolmar 2005)

The plan soon started being called imaginative. Firstly, it was not based on any analysis or detailed calculations. Hence, rather than spending money on investments, almost half of it was needed simply to nurse the existing network back to its former health. The publication of Modernization Plan made the number of passenger km increase and freight moved stayed stable, however the first started decreasing after two years whereas the latter in the year time (DfT 2007). Secondly, the core idea of the Modernization Plan was unconsidered. The plan (which was supposed to change the country's largest industry) based on nothing else but the simple idea that if money were invested in railway improvements then the number of passengers would increase. But there were other factors that should also have been considered. It can be said that The Modernization Plan did not take into account the role and power of road transport that time. It resulted in wasting big amounts of money on investments in things like marshalling yards, when small wagon – load traffic was in rapid decline.

Resulting from increasing interest in road transport, the railway had a massive problem with freight. Due to increase of interest in different energy sources trains did not carry as much coal as they had previously and the roads were preferred for light freight (Clear Air Act 1956). Also charges for freight were based on out of date

regulations which also made rail unprofitable to transport freight. Additionally, in 1956 the first Britain's nuclear power station was established. Those factors and the decrease in heavy industry caused that the British railways was not combined with traditional freight markets. Additionally, in 1958 the M6 Preston Bypass was open and the year after the first section of the M1; the motorway era began. It permanently changed the situation between rail and road goods traffic (DfT 2009).The effect of that may be seen in freight moved by rail decline by almost 8% from 1955 to 1960(Fig 9). By 1955, owning cars was a luxury that more people could afford as cars became cheaper. Although by the 1960 passenger km by rail had decreased by 2%, and passenger km by road had increased by the same amount, thus not enough to pay off the debt(Fig 10).

Fig. 9 Modal shares of freight moved (1955-1960) (DfT 2009)

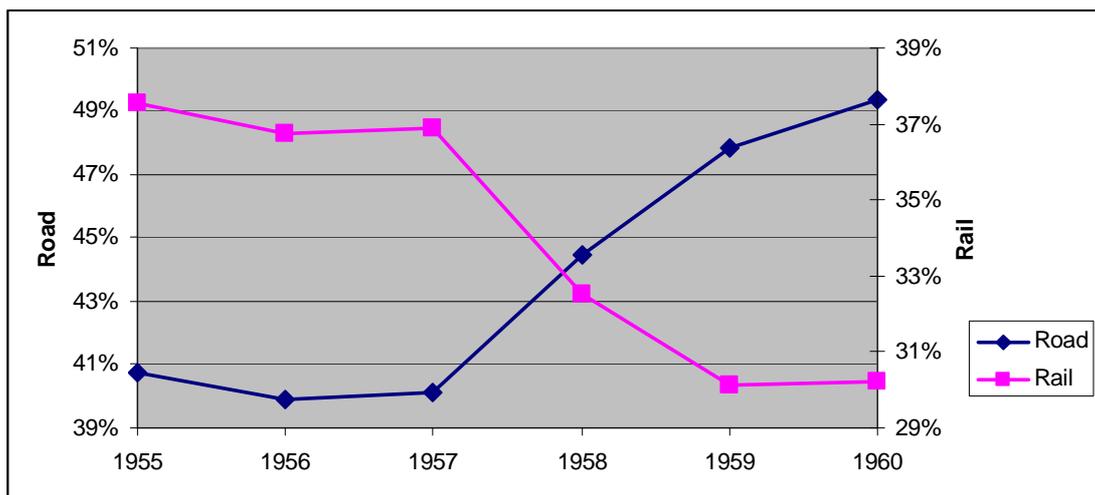
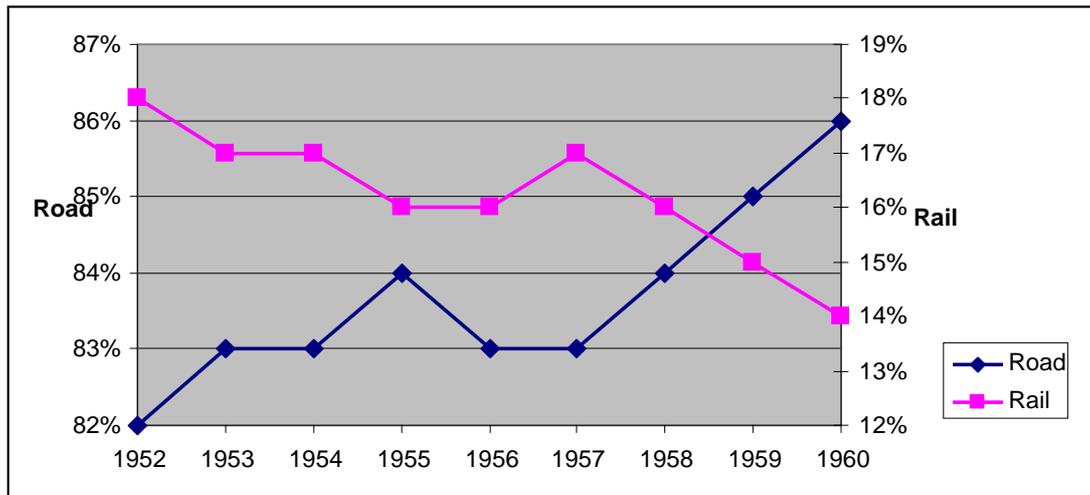


Fig 10 Modal shares of passenger transport (1955-1960) (DfT 2008)



The British Railway's financial situation did not help the fact that two accidents out of three happened in 1955 being caused by signalling errors. However it began the signals modifications called Approach Release (preventing drivers from seeing a proceed signal ahead of a crossover too soon) and lineside speed restriction signs. Also the accident in 1957 at Lewisham as well as another at Harrow and Wealdstone station accelerated the introduction of the Advanced Warning System(AWS), which gave the driver an in-cab indication of signal aspect, and applied the brakes automatically in the event of a signal overrun (The Railway Achieve n.a.)

According to the correlation analysis and boundary lines method which calculation was presented in the previous chapter the beginning of the first change period occurred four years after the publication of Modernization Plan. It suggests that the after- modernization process of changes must have lasted up to 1959 when the relation between the passenger km per route km and freight moved per route km had started to change. The changes were also noticed in the number of rail route km which for the first time since 1900 was less than 30000 km and kept gradually decreasing (DfT 2008).

The Modernization Plan achieved a number of its aims, including the main one which was shifting from steam to electrical power. By 1963 diesel and electric power accounted for 62% of total passenger traction km, compared with only 13% in 1955.

However it did not have such a big impact on freight. In that case steam traction still accounted for more than 50% of traction km in 1964 (Thalman; 2004).

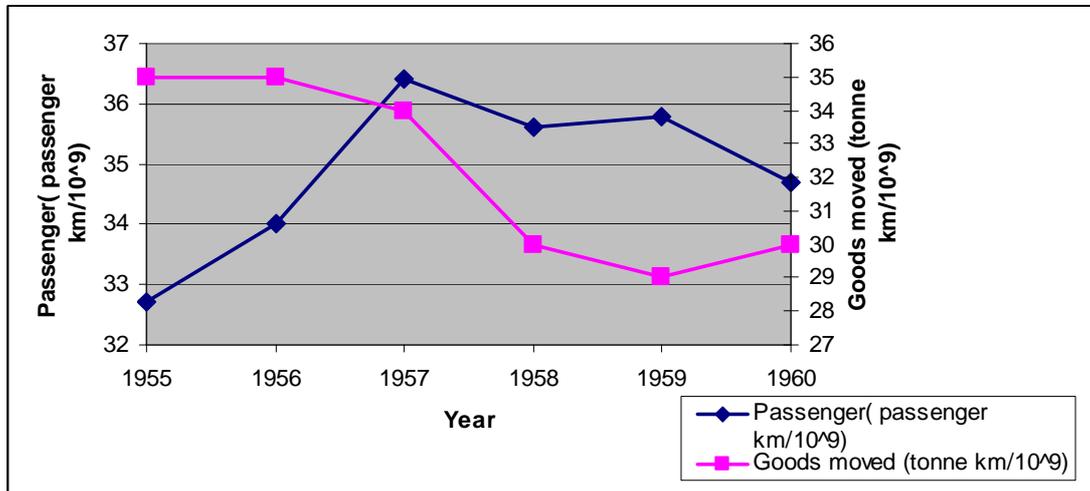
British Railways' financial position continued to worsen as the 1960s began. The Modernization Plan came to an abrupt halt when the Government made a brutal assessment of the rail operation's lack of profitability. The Publication of the White Paper proved that there were taken actions in order to change the railway situation as correlation analysis and boundary lines calculated in the previous chapter indicate. In order to repair the situation, the Government considered a broad review of the financing and structure of the British Transport Commission in 1959 and produced a White Paper on the subject in the following year. The consequence was to abolish the Commission and replaced it with a number of separate Boards to keep more attention to each regions' needs (Ministry of Transport 1960)

The 1950s were a period when much investment flowed into the railways as the industry shifted away from steam to electric and diesel engines. However, the Government had been advised beforehand that it would be a waste of money to invest heavily in the railway as it was a soon to be archaic form of transport (The Railways Archive n.a.). Nevertheless, having the election of 1955 in mind, the Conservative Government had blindly decided to go for it and invest in the Modernization Program without detailed analysis of data. From the present point of view it can be said that it was not a well-thought decision. It also was managed in the wrong way. When managers were given money for investments they invested in everything without thinking about long- term benefits. It seemed like everything was purchased before even it was known what it would be used for and if there is any need to buy it (Fiennes, 1973)

. There was nothing that resembled strategy in the actions taken. The main managing contactors did not cooperate together but rather were looking to their own profit. Additionally, the Plan was always under strict Government control which limited decision makers who were afraid of the Governments power. Although, The British Railway needed to change and The Modernization Plan partly achieved it, the railway's future did still not look very optimistic. Even though the number of passengers in 1960 was higher than in 1955 and there was mostly an increasing

tendency in that period of time, from 1957 the amount of passengers started decreasing. Freight moved kept declining throughout this period.

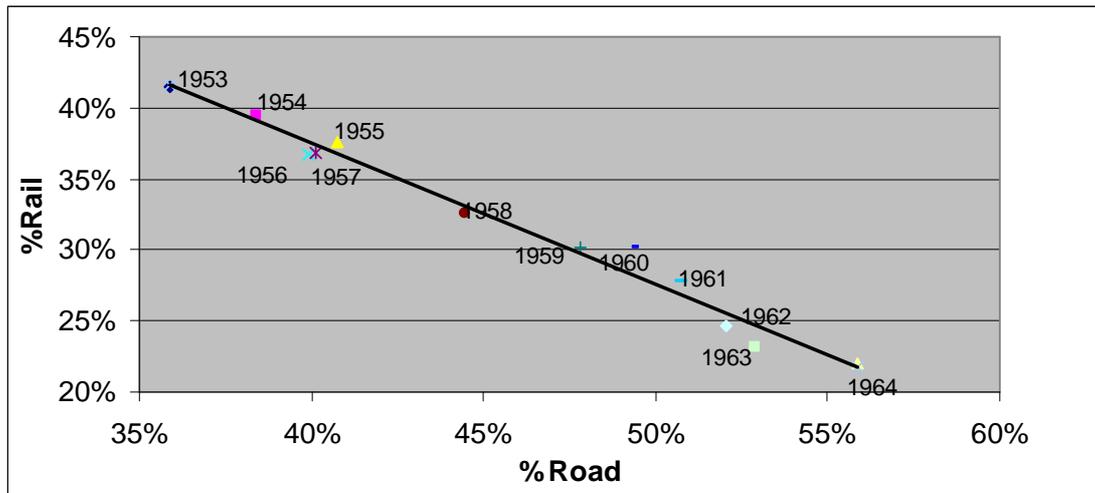
Fig 11 Goods moved and passenger km (1955-1960) (DfT 2007,2008)



With the time passing, more and more politicians became aware of the growing political importance of the mass motoring. The appointment of Ernest Marples (who owned a road business) as a new Transport Minister in 1959 was another step in changes of the British Transport. Additionally, the Modernization Plan was over after five years of its announcement because the unsatisfied Government stopped investing any more money in the British railways. Such quick cuts in money resulted in even worse situation for the railway than before the Plan (Wolmar 2005).

The original idea for the British Railway was that by 1962 it would make a yearly profit of £85m. Instead of this, in 1961, the losses achieved £87m. The situation required sharp actions. In those circumstances, Marples extended the Road Modernization Plan and appointed Dr Beeching as the chair of the BR with responsibility for making it profitable whatever it would take. The further actions mainly resulted from the fact that Marples was pro-roads and during his governance, road transport would develop, for example, by opening motorways at the expense of the railways (Thalman 2004). Scepticism about the future of the British Railways grew and the resources shrunk. Railway's share of freight traffic fell from 42% in 1952 to 22% in 1964 whereas road share increased from 35% to 56% creating the linear relation between two factors which is displayed in Fig 12 .

Fig 12 Modal shares of freight traffic (1953- 1964) (DfT 2008)



Over the same period of time, the BR’s finances deteriorated and there was no sign of improvement as all the problems came on top of the debt left over from the Nationalization. Facing the stronger road transport, Britain’s railways became an unnecessary way of transport. Changes in numbers of passengers and freight moved confirmed that fact. However, Beeching, the new chairman of BR, envisaged a rather different future for the BR.

Chapter 4

The Beeching Era of 1959-1970

During the 1960s or more particularly 1959-1970, passenger km per route km and freight moved per route km would both improve dramatically. The relation between two factors is positive and strong; coefficient correlation is equal to 0.93 (Fig 6b). However this would not be because of any expansion. Rather it resulted mostly from the Beeching Axe and a massive reduction of rail routes. The time when the 1st era was finishing and the 2nd one was starting, is called “turning points” and is dated between 1959 and 1960.

Two points within the second era which evidently stand out are 1962 and 1963 (Fig.7). They represent a sudden decline in passenger km per route km and freight moved per route km (Fig 13). Contrary to the first era, in this case the main reason of change was not due to a decrease in either passenger km or freight moved (Fig 14). The sudden reduction in national rail route km was the main case. Although in 1963 the Big Freeze of 1963 may be taken into account as well.(Fig 15). This was the time of Beeching Axe the aim was to make British Railways an efficient and economic part of the transport system (Beeching 1963)

Fig 13 Passenger km per Route km and Freight Moved per Route km (1961-1964) (DfT 2008)

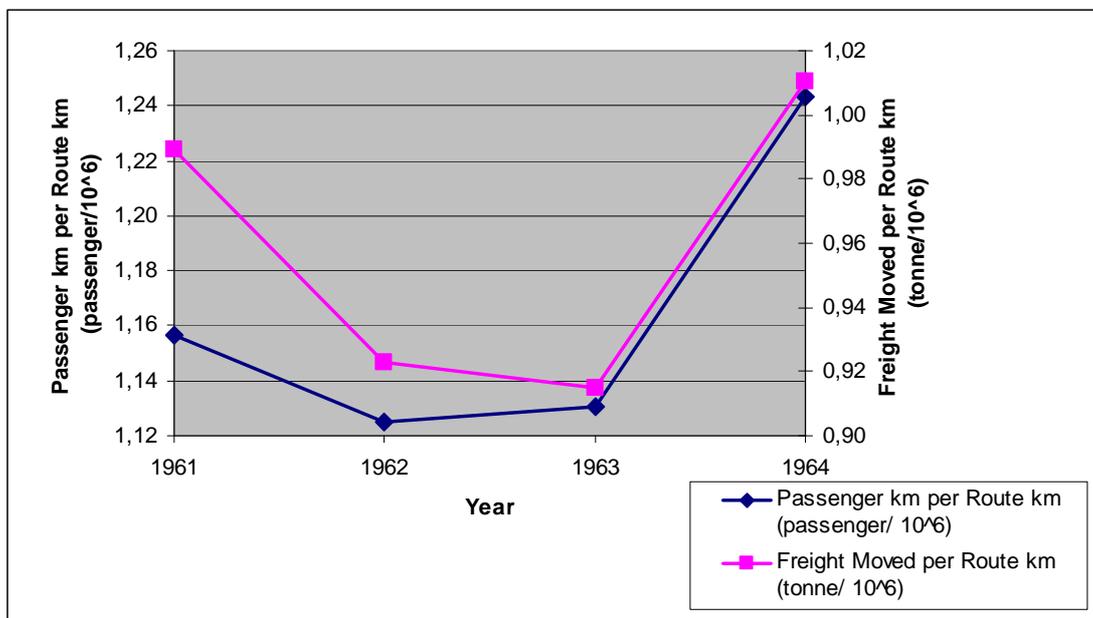
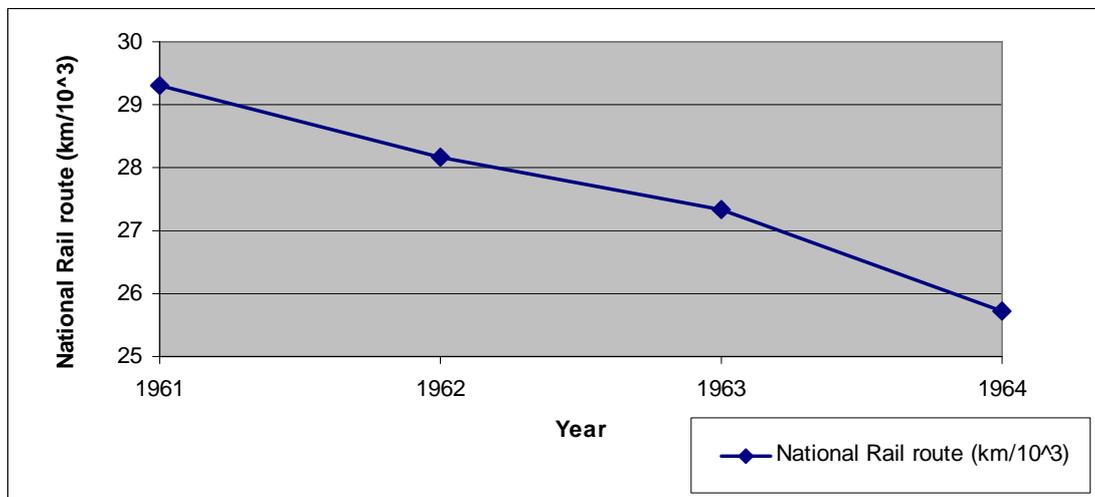


Fig. 14 Freight moved and passenger km (1961-1964) (DfT 2008)_



Fig 15 National Rail Route km (1961-1964) (DfT 2008)



The need for the Beeching Axe arose from the effects of the Modernization Plan- BR's annual deficit at the beginning of the 1960s was rising at an alarming rate. There was no more faith in British Railways and its existing shape. There were no more illusions about making £85 million p.a. profit by 1962. Affected by mild recession, the railway business had a massive loss in 1961 (£87m), which increased about £19m over the one year and would get even worse in 1962 (Wolmar;2005).

In terms of Beeching's further actions the establishment of the Transport Act '62 was helpful. The Act, approved by Macmillan's Conservative Government, brought about the abolishment of the BTC, reorganization of the public transport and separation branches of each way of transport (Department of Constitutional Affairs 1962). Based on the measures in the Act, the closure of about 1/3 of the network became possible in the following year when Beeching's Report was published.

The situation became even worse when in 1963 Great Britain suffered its worst winter since 1948. The low temperature and snow lying until early April in some areas caused disturbances in transport.

All above resulted in a rapid decrease in freight moved (3.8%) and passengers travelled (2.5%) by rail transport (DfT 2007,2008).

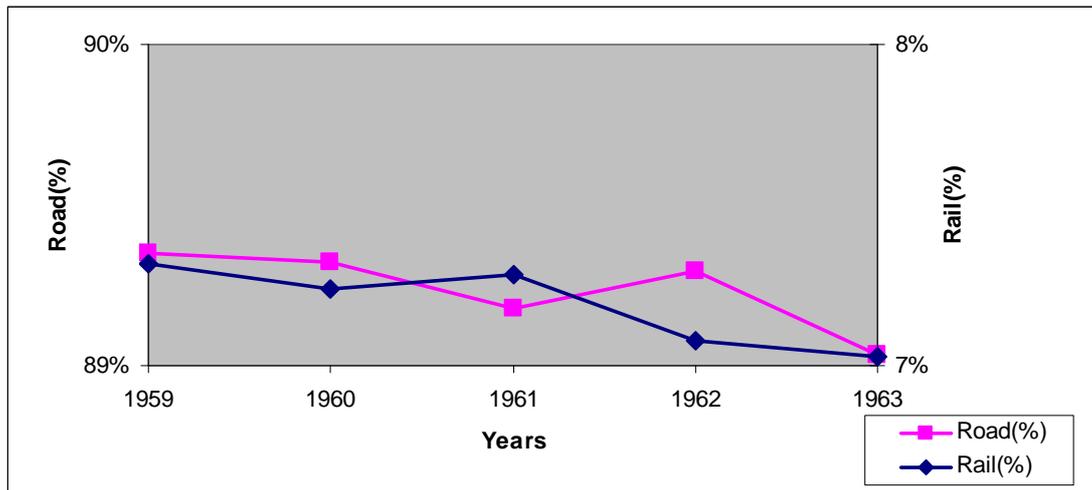
Beeching's Report was published on the 27th March 1963 entitled "The Reshaping of BR" which aimed to find out which parts of the British railways were profitable and which were not. The Report contained shocking statistics pertaining to the levels of efficiency of the time: (Wolmar 2005; Thalmann 2004)

- half of BR route miles were not worth modernising as they carried only 4% of the traffic;
- 1/3 of the rail network carried 1% of total passengers miles and 1.5% of freight tonne miles;
- 118 stations out of 2067 dealing with freight carried 52% of the traffic;
- on half of the routes density was so low that it barely covered the basic costs of the route, track and signalling;
- about 9000 passenger coaches stood idle for three- quarters of the year waiting for the summer season.

The brutal numbers displayed the weakness of railway management and the failure of the Modernization Plan. Managers were focused strongly on changes of labour Government and the switch from steam traction to electric and diesel which did not stop car transport from developing. By 1963, one in nine families owned a motor car and another eight were saving to buy one. In the consequences of such an interest, the number of journeys taken by train were equal to only 10% out of all modes of

transport. Most of them were long distance (Wolmar; 2005).Regarding public transport only 7% of journeys were by train.(Fig.16)

Fig16. Modal share of passenger journeys on public transport vehicles (1959-1963) (DfT 2007)



The Beeching Report proposed the following changes in order to make the British railways profitable: (British Railway Board 1963)

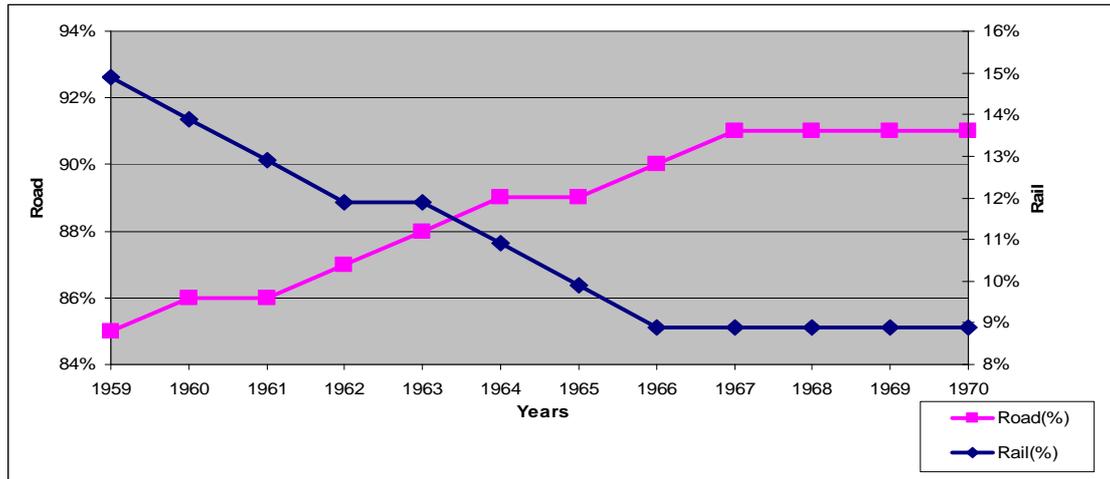
- reduction of passenger stopping services,
- substantial decline in number of small passenger stations,
- increase of block train movements of coal,
- decrease of the uneconomic freight traffic passing through small stations,
- replacement of steam by diesel locomotives for main line traction.

In general, the report indicated that British Railways became a non-competitive means of transport. In order to change it, the solution was to implement the changes listed above and make the railway profitable by 1970 (British Railway Board 1963)

Fig.17 displays the modal share of passenger transport between 1959 and 1970. It can be seen that by 1970 car transport was getting significantly more popular. In the meantime rail transport usage was gradually decreasing. During the Beeching Era road transport usage increased by 6% up to 91% of the transport modal shares and became the most popular way of transport. By 1970, the railway held only 9% of the total share of transport.

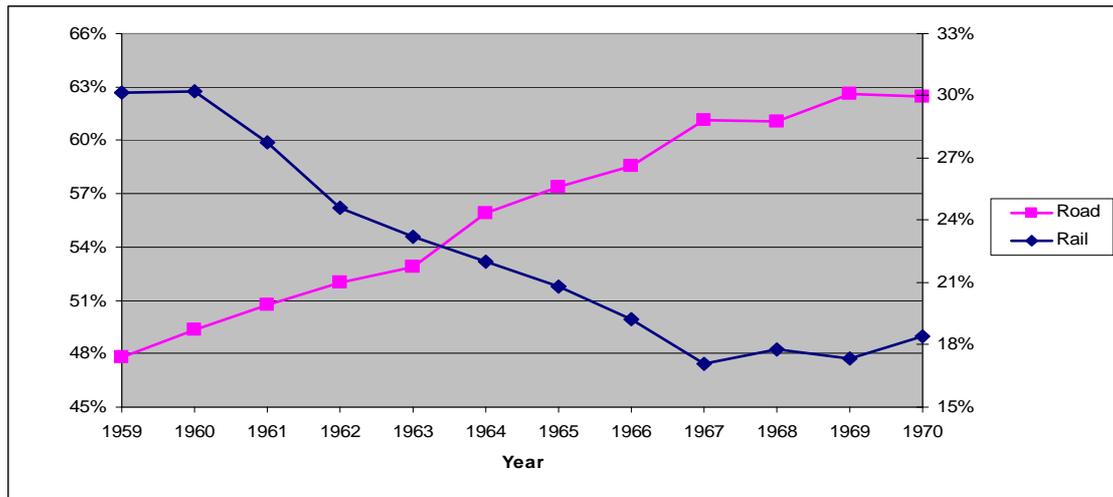
Although car transport had become popular before 1960s, it carried on increasing its share up to the middle of the Beeching Era. According to statistics, in 1965 changes in passenger rail and car transport became stable. It happened to be the time when the second Beeching Report called “The Development of the Major Railway Trunk Routes” was published (Fig. 17) . .

Fig.17 Modal share of passenger transport (1959-1970) (DfT 2007)



In terms of freight transport, the changes are displayed in Fig 18. The modal shares between rail and road transport changed steadily in favour of road. From 1959 to 1970 the modal share of freight moved by rail decreased by more than 10% whereas by road increased by more than 15%. Radical changes in freight transport had occurred up until the middle of the 1960s but then slowed. Contrary to passenger transport, in some cases, like heavy bulk transport, rail was still needed. By the end of the Beeching Era in 1970 rail transport had a modal share of almost 19% whereas road was almost 63% (other way of transport were for example: air or water).

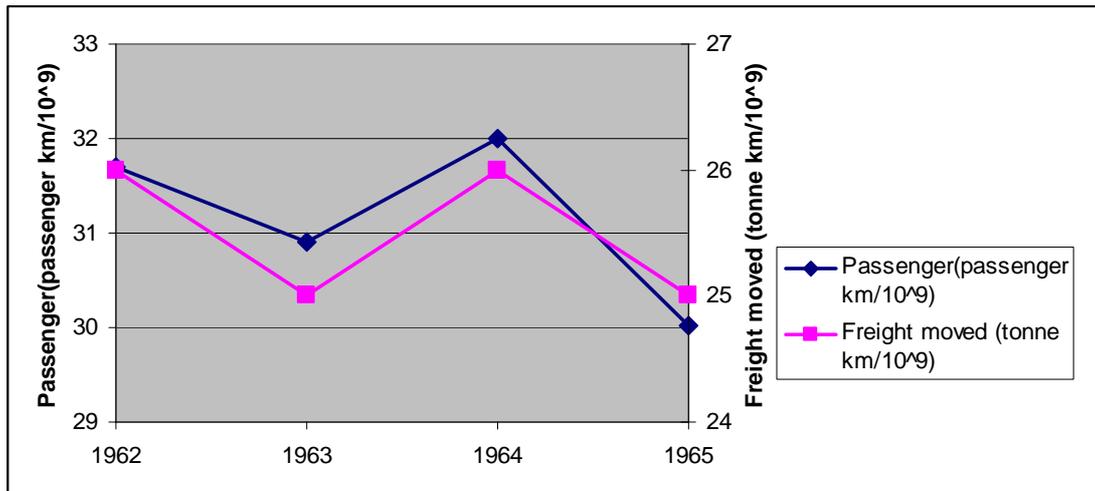
Fig.18 Modal shares of freight moved (1959-1970) (DfT 2008)



Together Fig.15, Fig.16, Fig.17 and Fig.18 reflect modal shift from rail to road and reduction in the national rail network. The process of changes resulted in brief improvements of freight moved and passenger km during the post-Beeching peak: by about 4 % each in a single year (Fig 19). However, this did not last long. Labour's victory in the 1964 election created more confusion for the BR. Even though, the new Prime Minister, Harold Wilson, condemned Beeching and his cuts, his action after winning the election were completely at odds with those promised. In 1965, he announced that he was not able to stop any of planned line closures put forward by Beeching even though not much of Beeching's work had been completed by the election time. Not only did he carry on the closure of lines included in the Beeching Report but also those which Beeching rejected such as that between Oxford and Cambridge. This is an example of "closure with no good intention" as it had been sought to retain due to its heavy freight potential.(Wolmar 2005)

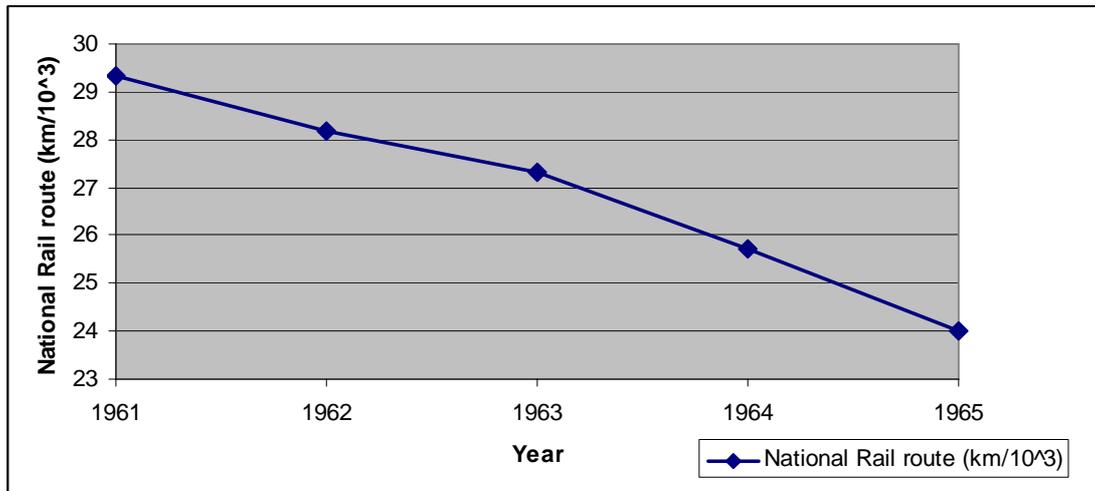
Some of actions seemed to be made without any logic and consideration, especially in terms of rail routes which were important due to an economic aspect; for example . the Glasgow-Stranraer line which was partly closed in Beeching Era but re-opened in 1990s (Glasgow and South Western Railway Association 2009)

Fig.19 Passenger km and freight moved (1963-1964) (DfT 2008)



The confusion that resulted from changes in railway policy, was followed by publication of the Second Beeching report, called "The Development Of The Major Railway Trunk Routes" in 1965. Its very existence suggests that the first one did not achieve its aims. It suggested concentration on investments in key major routes which would link the country's major cities. But the new Government seemed to have its "own unplanned idea" for the BR. It rejected the Report, decided not to renew Beeching's tenure at the British Railways Board and carried on the line closures which were damaging for the BR in the long term. In just four years, by 1965 (two years after the first Beeching Report had been published) about 20% of the rail routes were closed and the cuts were still not finished (Fig20).

Fig 20 National Rail Route km (1961-1965) (DfT 2008)



Closures taken after 1966 seemed to be made without any reasonable purpose. Wilson's Government carried on cutting the network back to about 19000 route kilometres. One particular example of those closures was of The Great Central line linking Sheffield with London via Nottingham and Leicester. The largest single closure of the Beeching Era was made gradually and as the consequence of it the number of passengers had declined; due to poor service which had resulted from cutting back the timetable over a period of years. The line became uneconomic and was not efficient any more. What remained unclear was why at that time the most profitable line in terms of freight tonnage and passengers carried in the BR' system should have been closed at all (Buckman 2002).

The closure of such a large number of lines in the 1960s was not only made in order to make British railways more efficient. The political impact on BR's decisions may also be seen in Beeching's actions. While there were obvious reasons to close some uneconomic lines, some decisions were backed up by a pro-road minister and other figures with their individual interests. Because at that time road transport was seen as the best future for transport all sorts of tricks seemed to be used to minimize rail transport. For example the passengers' surveys were based on data collected on the most unfair date for lines, as for example seasonal business based on unseasoned data which was dismissed as an "irrelevant objection".(Wolmar 2005) Furthermore, revenue was often misallocated. While the seaside locations were made to look

uneconomic, as they revenue was not high, in fact they could have been made highly profitable as most passengers arrived with return tickets.

Looking at the aftermath it may be said that after 1966, closures seem to have been random and made without any long-sightedness of vision. In results of those actions cross-country routes were decimated, major towns were left without direct lines to each other and closed; and wasteland stations which were left (Wolmar 2005).

From the publication of the Beeching's Report till 1970: (Thalmann 2004)

- the number of locomotives had been reduced by nearly 2/3;
- the number of passenger coaches had been reduced by 45%;
- marshalling yards had been reduced by 3/4;
- route length had been reduced by 1/3;
- the number of employees had been reduced by one half.

The Beeching Axe cost the BR vast effort, money, time and the goodwill of its customers. All those strenuous actions were made for a poor annual saving at around £30M. It was less than a third of the overall deficit. Instead of looking for other, more profitable solutions like for example de-manning stations, on-train ticket sales or simplifying signalling, the decision-makers believed so blindly in car transport which supposed to represent the future, that there were even closures of perfectly efficient lines that carried large numbers of passengers.

The consequences of Beeching's actions can be seen even now. The short-sightedness of cutting lines and closing stations is reflected in part by the fact that the Strategic Rail Authority (SRA), the non-departmental body, which provided strategic direction for the railway industry between 2001 and 2006, presented a proposal to reopen many of the lines closed in the wake of Beeching as for example the Oxford-Cambridge line. However, it would have been too late. The railway financial crisis which occurred after Beeching Axe barred any decisions about changing the situation.

The idea of cutting lines and closing stations was fundamentally flawed. The assumption of cutting local routes and leaving main lines did not recognise that actually local routes were the feeders of the main lines. Despite seeking cheaper ways

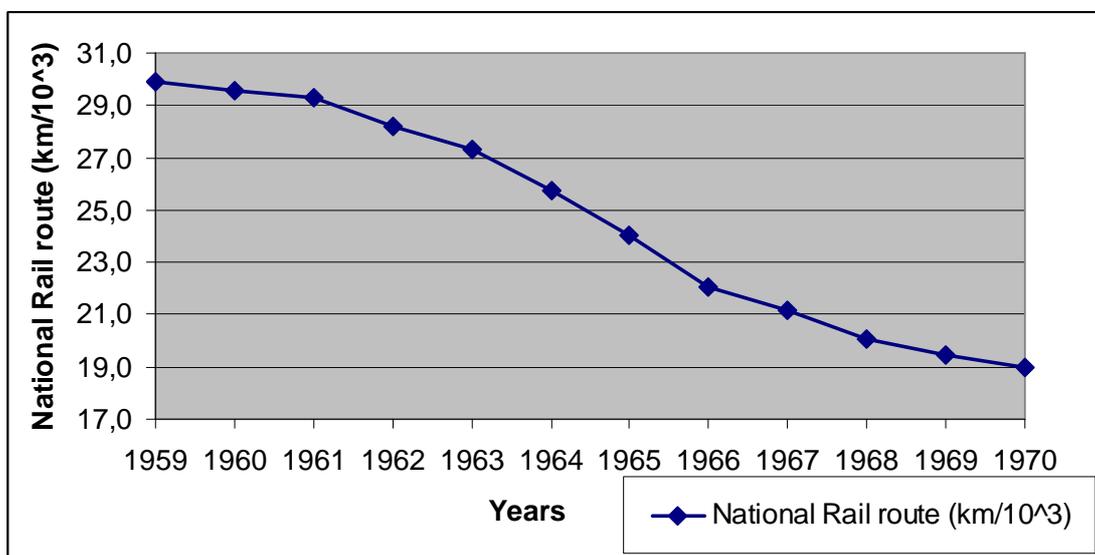
of running services like diesel units or railbuses, closures were made simply on the basis of existing costs. Beeching's assumptions were blindly directed by his faith in road transport. The proof of this was his suggestion that if the rail lines would be cut, passengers would easily swap from trains to buses and indeed additional buses were provided. However, Beeching did not consider passenger's preferences, especially those of the middle-class, which were strongly keen on the railways. Where trains had been full, buses were not and eventually alternative buses were taken out of use. Money was spent pointlessly without any valuable impact on the BR. During the decision making process of cutting rail routes, other factors like number of car accidents were not taken into account. The management at that time was directed to road transport and concentrated on the reduction of rail lines instead of seeking new markets and business for the railway industry. (Wolmar 2005)

Beeching's cuts left Britain's railways in a very poor condition: "The new railway system, billed as compact, efficient and modern, was really demoralised, inefficient and chronically short of investment capital"(Henshaw 1991) Although, lines were still being cut, the situation did get slightly better with Barbara Castle's 1968 Transport Act. The main resolutions, regarding the British Railways, were to create self managing Passenger Transport Executives in the major cities to make strategic and financial decisions customised to local population's needs and integration of bus and rail services (The National Freight Corporation 1968). Castle's idea of a railway which would be the useful service provided to the public instead of social problem judged on a narrow financial basis showed at least the recognition of the wider role of the railway. There were significant grants made available for loss-making services though the amounts of money were insufficient to rebuild the railway and pay off the historical debt of £1.2 billion . Finally, the 1968 Transport Act had made a clear distinction between the "commercial" and the "social" railway (Gourvish 2002;. Anson 2002)

. The changes yielded little improvement in passengers km and freight moved. In 1970, the former increased about 3% whereas the latter about 9% (DfT 2007, 2008). Hence, the integration of the railway which had been encouraged in 1948 when Britain's railways were nationalized, but dropped in 1962 when Beeching's era began, was again taken into consideration.

The second era, called Beeching's era, is characterized by the strong correlation and the increasing efficiency as both factors, passenger km per route km and freight moved per route km, tend to increase. That fact results from Beeching route cuts. Although, Fig. 7 suggests that efficiency increased in general terms over the era, freight moved and number of passengers actually decreased. Hence, the increase in efficiency resulted from the route cutting process not from improvements in rail transport; national rail route km has decreased from 1959 to 1970 about 37% (Fig21).

Fig 21. National Rail Route km (1959-1970) (DfT 2008)



The Modernization Plan and The Beeching Axe were thus similar in that both were based on misconceptions rather than any long – sightedness of strategy. However, the former focused on big modernization investments in order to achieve a more economically self-sufficient railway whereas latter focused on reductions of non-profitable parts of the railway and their reduction in order to leave a core network that could earn money. The Beeching Plan was not reliable, even Beeching himself admitted in his Second Report that the cuts might not be successful in making the railway profitable. Indeed the accumulated loss for 1963-1973 (£775M) was much higher than those for previous years. Even closing the whole railway would not help.(Wolmar 2005)

Chapter 5

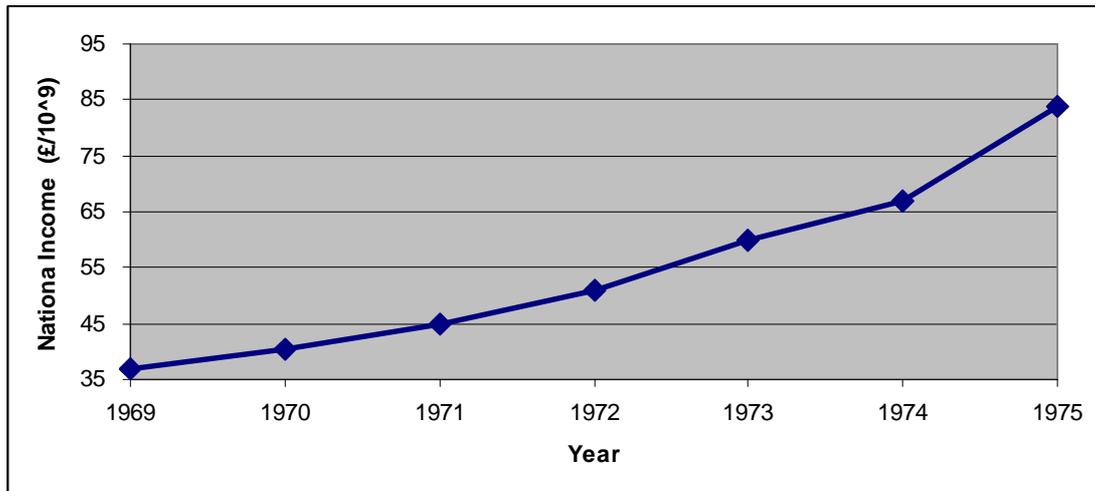
1969- 1985/86 Pre-Privatization

Contrary to two previous eras consisting of remarkable events such as Nationalization, Modernization and the Beeching's cuts, the third was not distinguished by any "hitting" actions regarding the British railways. However, the global situation of 1969-1985/86 affected it remarkably. Great Britain was constantly fighting against world economic recessions, the oil crisis, the energy crisis and strikes by industrial workers.

The third era characterized by an increase in passenger km per route km and decline in freight moved per route km (Fig7). The relation was negative. Both factors changed irregularly. Out of all four eras this one exhibits the weakest relationship between the factors; the correlation coefficient is equal to -0.54 .

At the beginning of the era, in 1969, the year after the publication of the 1968 Act, the changes are already apparent. The new financial arrangement was having its impact. Although, British Railways were struggling with £88 million of deficit in 1968, the turn-round a year later was no less than £136.5 million which led eventually to an operating profit of £48.5 million and a surplus (The British Railways Era n.a.). At the same time the British National Income rose by £4 billion (Fig.22).

Fig.22 National Income (1969-1975) (B.R. Mitchell 1988)



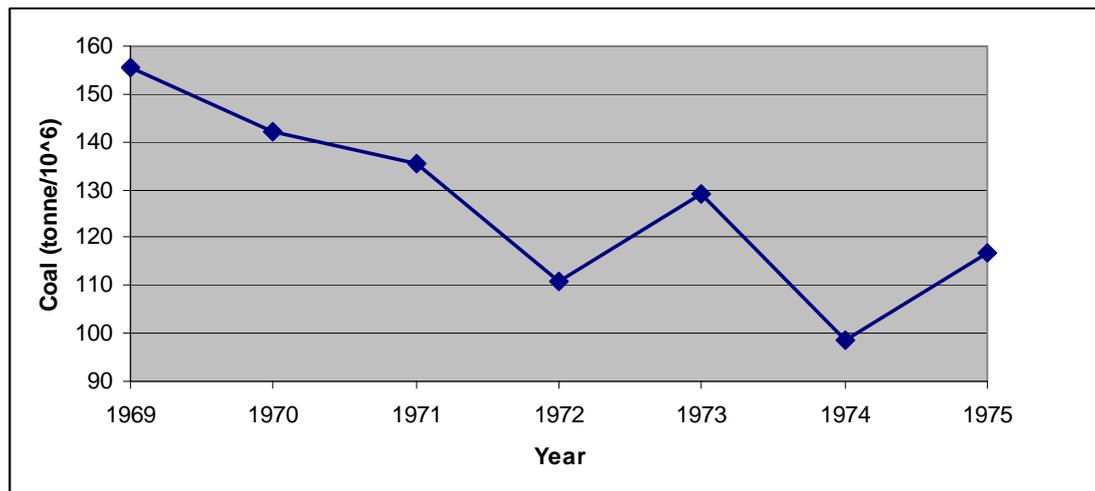
Regarding passengers and freight, in 1969 there were 805 million passenger journeys covering a total of 29,6 billion passenger km with an average journey length of 36,9 km, while there were 23 billion tonne km of freight moved and 211 million tonnes of goods lifted.(DfT 2008)

Fig 7, its correlation calculation, shows 1969 and 1970 as the turning points between the second and third eras. It suggests that between these years actions resulted in changes in both passenger km per route km and reversed freight moved per route km. With regard to the third era not direct acts (like for example cutting lines in the second era) had major influence on the BR but indirect ones straightly relevant to global economic situation.

Although, British Railways recorded improvements in the very beginning of the third era, after publication of the 1968 Act, the situation was short lived. Shortly after, Great Britain and indeed the whole world were hit by global economic recession. For the first time since the 1930s unemployment exceeded 1 million.(T. Pettinger 2008) In the early 1970s, the British economy had to cope with high rates of inflation. In order to solve the problem, the Government decided to limit pay increases which was called “incomes policy”. This dissatisfied trade unions who were arguing that wages could not keep up with prices. The dissatisfaction spread throughout most industries, especially which had strong unions such as coal mining. In the consequences of

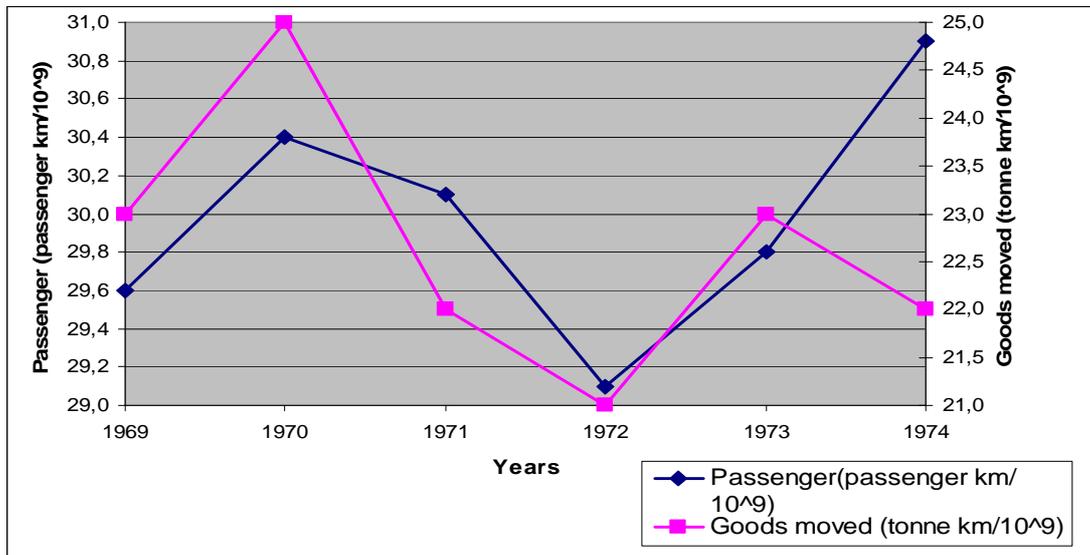
Government actions, coal miners kept working but no more than the minimum required by the rules of a workplace (“work-to-rule”). When the situation did not improve they called the strike in 1972 which resulted in a decrease of coal stock by almost 30% since 1969 (Fig.23)..(The National Archives 2005)

Fig 23. Output of coal in the UK (1969-75) (B.R. Mitchell 1988)



The changes in the global economy also affected British Railways. Fig. 24 shows instability in changes in freight and in numbers of passenger km between 1969 and 1975. Both factors dramatically declined by about 5% in one year when in 1972 miners went on strike first since 1929.

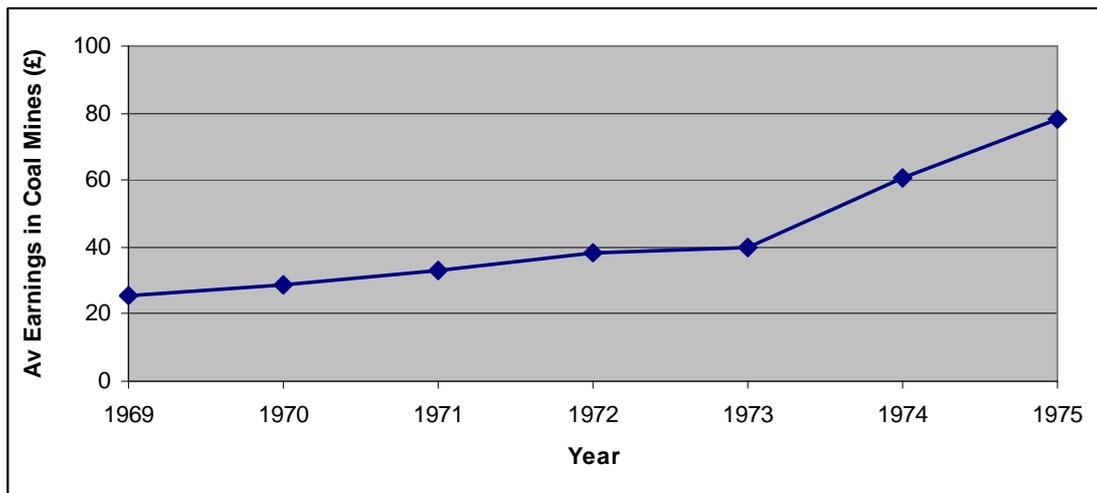
Fig 24. Passenger km and freight moved 1969-1975 (DfT 2007, DfT 2008)



The miners strike, which lasted seven weeks, spread out very quickly and targeted not only at power stations but also steelworks, coal depots, ports and other major coal users. The situation was getting worse and worse and the stock was exhausted. One month after the strike had begun, a state of emergency was declared and to economize on electricity, the Government had to reduce the working week to three days, which was called The Three-Day Week . (University of Wales Swansea 2002)

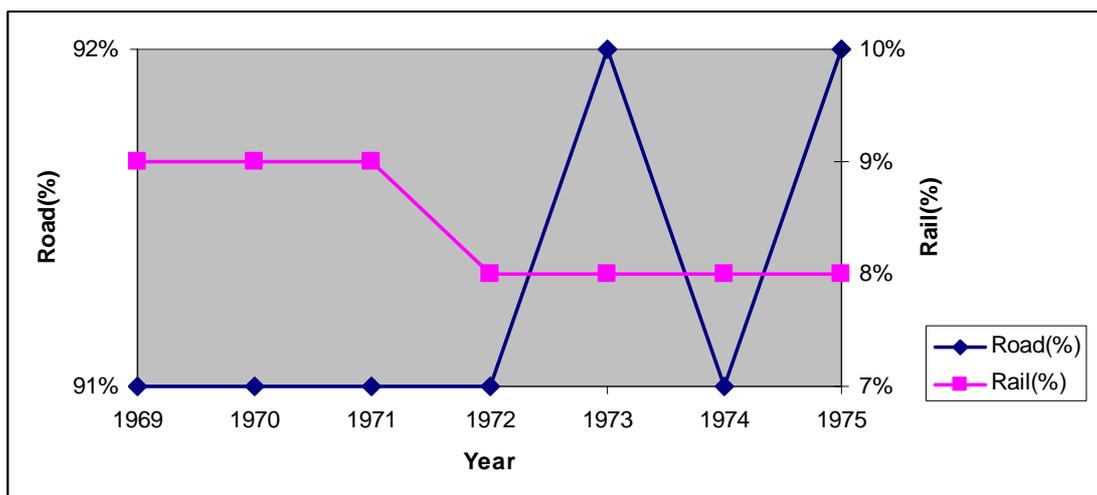
Although, the Conservative Government and NEM (the National Executive Committee) reached an agreement and as a result the miners' wages were increased, becoming among the highest among the British working class by 1974 the miners' situation had got worse and a national miners strike was called again and lasted four weeks (Fig.24). A state of emergency and The Three-Day Week was once again declared. Finally, the new Labour Government elected in 1974 and the miners reached a deal and the strike ended. However, strikes and their consequences showed the country how important coal was to the country's economy. (The National Library of Wales 2007, text available in English)

Fig.24 Average Earnings in Coal Mines (1969-1975) (B.R. Mitchell 1988)



In the meantime, the British railways was still feeling powerless regarding their unstable position in the transport market, where it kept losing comparing to road transport. The global problems did not announce any reformations of railways. Regarding passengers transport, rail shares minimally declined contrary to road ones (Fig 25). By 1974 railway shared only 8% of transport whereas road transport owned 91%.

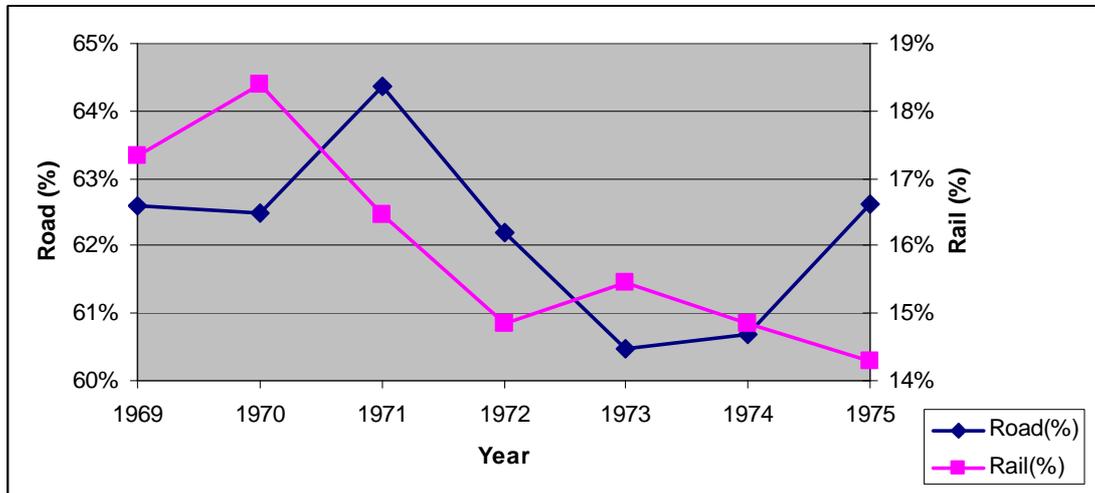
Fig .25 Modal share of passenger kilometers transport (1969-1975) (DfT 2008)



Also rail haulage was losing in comparison to road transport. Not only did the global crisis cause the poor statistic of rail freight transport but also lack of credit from the

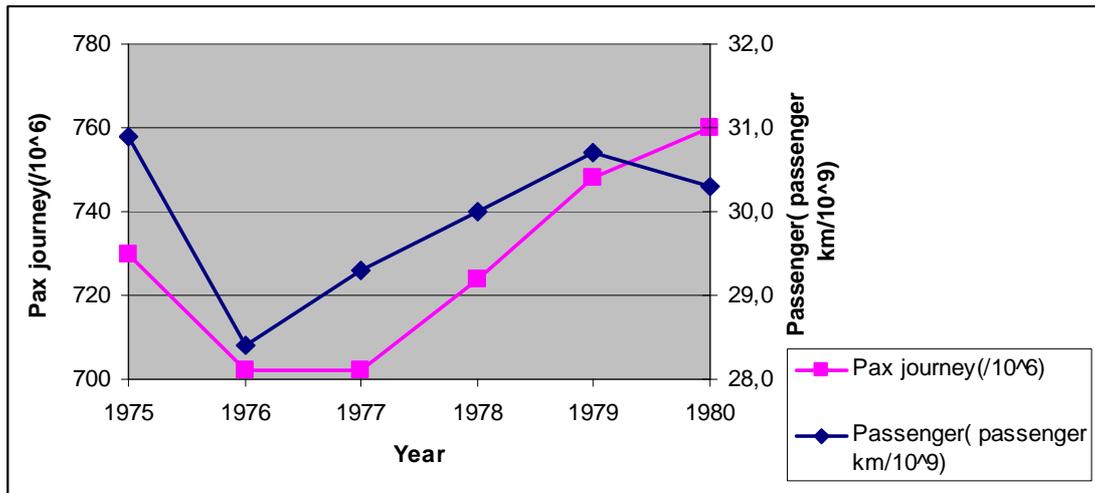
Treasury in order to replace old worn out freight equipment. As can be seen in Fig 26, both road and rail freight transport declined most of the time between 1969-1975 .

Fig.26 Modal share of freight moved transport (1969-1975) (DfT 2008)



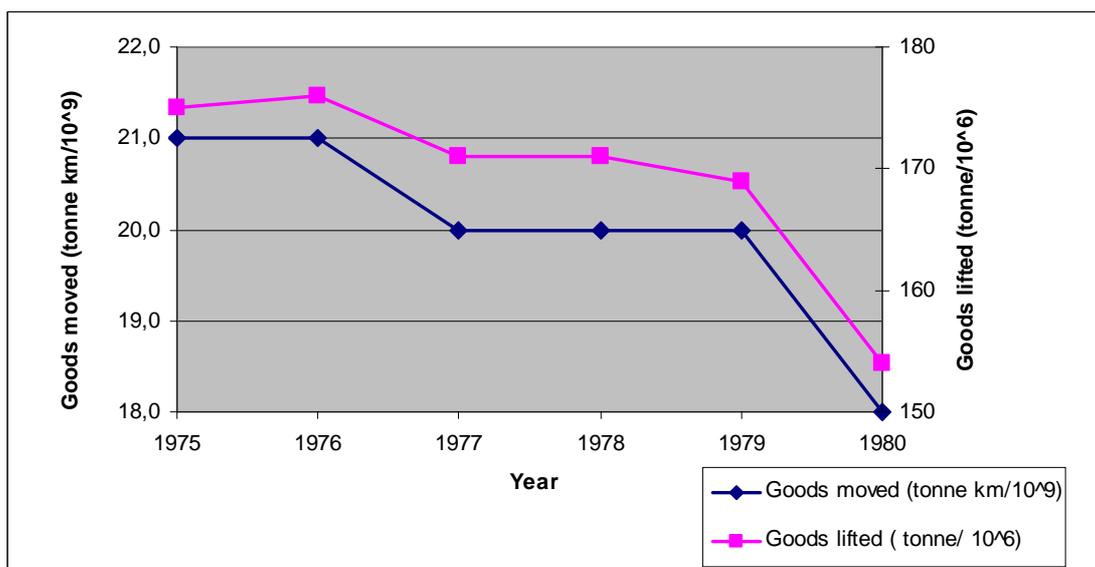
Although the economic crisis occurred, the global oil crisis 1973 gave a new chance to the British Railways. Additionally, in 1970s Great Britain started Advanced Passenger Trains (APT). That decision was made based on the fact, that constantly increasing numbers of cars caused traffic on the road. Also another chance for the British Railways was given by the fact that Beeching wrongly assumed that introduction of journeys by aeroplanes between cities would be the transport innovation. However, it was not cost-effective enough. Therefore, Britain's railways started building new high speed tracks instead of modernization of old ones and eventually the investments became a success.(Wolmar 2005) The introduction of APT and Intercity 125 in 1976 resulted in an increase in passenger numbers by up to 30% on the routes where they were introduced. In five years time up to 1980 the number of railway passenger km increased by 7 % and passenger journeys by 8% (Fig 27).

Fig.27 Passenger km and Passenger journeys (1975-1980) (DfT 2007)



Regarding the railway freight transport, the oil price shock resulted in the revealing of “freight facilities grants” due to the published Railway Act in 1974 in order to improve quality of service and replace old freight equipments (Her Majesty's Government 1974). Although, the BR was given opportunity to develop and rebuild the instable structure, the number of freight moved and lifted kept declining in parallel. Between 1975 and 1980 first one decreased by 17% and the latter by 14% (Fig 28).

Fig 28 Freight moved and lifted (1975-1980) (DfT 2008)



On top of all these problems stood different interests between interests groups. There were passengers and freight customers focused on being provided the best quality services. Then railway managers, consisted of mostly dedicated people with a real commitment to rail transport. Next, the general railway workforce experienced relatively low incomes, but strongly backed up by union organizations. Fourth, was the Department of Transport which was responsible for the condition of all transport modes, although especially focused on road transport which was increasing its share over the railway. And finally, the Treasury with its financial restrictions and dislike to large public sector projects. That had the critical role. (T. Gourvish, M. Anson 2002)

Having in mind the pro-road Government, all chances happened to the BR were facing endless difficulties caused by a constant involvement of the Government in the railway. It was mainly displayed by revenue account control, based on the 1974 Railway Act, which was split into three categories; railway investments, investments in railway passenger facilities by Passenger Transport Executives and investments in the British Railways Board subsidiaries, by establishing spending limits.(Jones 1975, Burt 1975/1976). Government's finance control was also the major reason of refusal for such ambitious projects like an accelerated rate of electrification, the Channel Tunnel. The plan of building the last one was published in 1972 and the work on it started. However, it was halted in 1975 and for next almost 20 years has never been continued. (T. Gourvish, M. Anson 2002)

In the meantime, the economic situation was getting worse. In 1979, thousands of public workers went on strikes due to complaints about money which was limited by the Government fighting against growing inflation (The BBC n.d.). In 1979 the inflation achieved 27%. The unions' strike actions taken in that time were called "Winter of Discontent"; the term used to describe British winter of 1978-79.

The Labour Government's decision to keep pay rises for the public sector below 5% and his powerlessness to stop public strikes, lead to an early general election and victory for the Conservative Party and new Prime Minister Margaret Thatcher)The BBC n.d)

Britain's first female prime minister, an advocate of privatization of state-owned industries and utilities. Reform of the trade unions, the lowering of taxes and reduced social expenditure across the board, was successful in reducing the inflation by increasing the interest rates. Her governing time was also characterized by an increase in unemployment (The BBC n.d.). The Government implemented a Monetarist view to try and tackle the various economic problems of the UK. Margaret Thatcher was also well known as anti-public transport minister, especially towards the railway. That time, British railways moved and lifted only about half as much freight as it had been 30 years earlier. It purely carried freight which road was unable to (Fig. 29).

Fig. 29 Comparison of freight transported by trains in the beginning of 1950s and 1980s (DfT 2008)

Year	Goods moved (mln tonne km)	Goods lifted (million tonnes)
1952	37000	289
1953	37000	294
1954	36000	288
1979	20000	169
1980	18000	154
1981	18000	154

Passenger transport was not the only one which was affected by crisis. Freight transport was also hit by the reduction of cash available to the railways. The plan was to reduce dramatically the number of freight and parcel handling depots but it also involved reduction in the number of employees.

In practice, the cash limits did affect freight and passenger transport workers but most of all the public traveling. Most consequences might be seen in re-investments and maintenance of tracks, rolling stocks and signaling as they were reduced to minimum. The tabor already existed like a highly technological train (the Advanced Passenger

Train) was impossible to use efficiently if the available speed due to the track quality had to be reduced by double. On the other hand there was no sense in maintaining tracks and modernizing signaling if the rolling stock was uncomfortable and archaic and people started looking for other ways of transport, despite them being even more expensive, like road transport (A. Mason, J. Ericson, S. Gazioglu, et al. 1980)

The recession of 1981 was called the manufacturing recession. Thatcher carried on increasing interest rates to decline inflation which caused much higher unemployment. The Government was blamed for its economic policy. The huge rise of unemployment was due to the strong value of the Pound, high interest rates and the deflationary impact of strict Monetarist policies. In particular, there was unskilled labour which was particularly affected, like steel workers, which in 1980 went on the national steel strike due to pay dispute (T. Pettinger 2008)

Although Thatcher's decisions did not find people's approvals it did not stop the PM from increasing taxes in the middle of recession in order to reduce government deficit. Thatcher's Government carried on further changes being involved in a program of privatization. This included the denationalization of British Telecom, British Airways, Rolls Royce and British Steel.

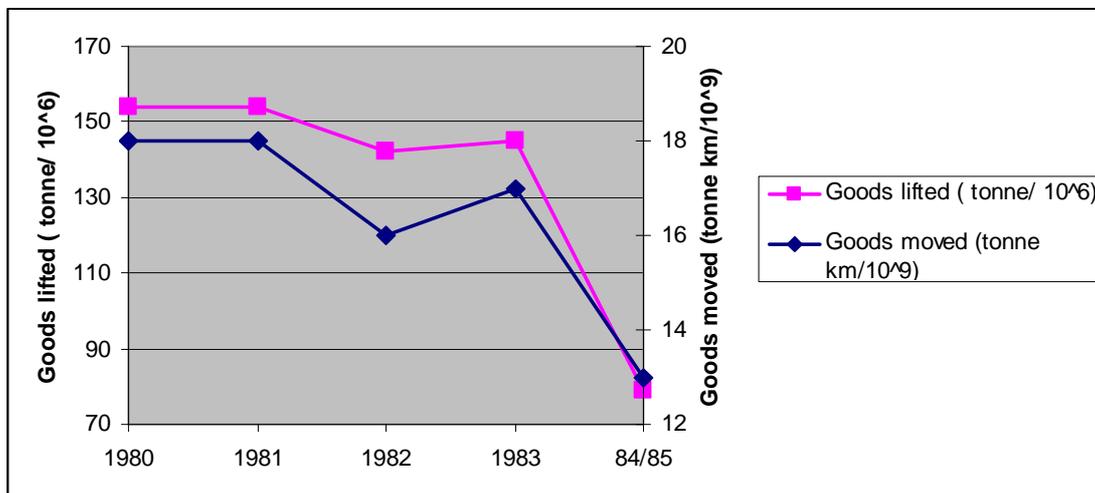
In the middle of 1980 thousands of British workers took to the streets even though the unemployment did not reach three million till 1982. That time one out of eight people were out of work.(The BBC n.d.)

Mrs. Thatcher was heavily influenced by the idea of Monetarism and free market economics. Additionally, she wished to reduce the power of trade unions. In 1981 she decided to halt the plan of closure for 23 pits. The Government provided £300 million of financial assistance to the industry. It was also carried out in order to prevent official strike action. However, in 1984 began a year long miner's strike when the Coal Board announced the closure of 20 pits and 20 000 miners lose their jobs (The BBC n.d.).MP being aware of strikes occurring sooner or later she made sure that there is enough coal in power stations so miners would have to wait many months to hit British energy supply. After a year of fight between miners and the Government

the latter won and NUM called off the strike. Margaret Thatcher speeded up the pit closure (Ch. Jeavans 2004)..

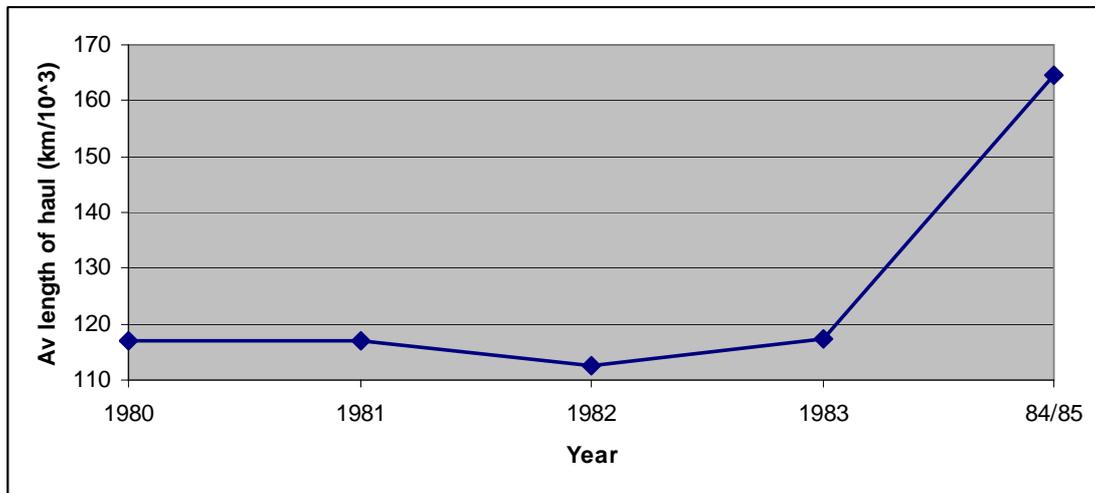
The difficult economy situation in UK affected the BR condition, especially freight transport. In five years, since 1980, goods moved declined dramatically by 33% whereas goods lifted by 49%. The noticeable decrease happened between 1983 and 1984/85 which suggests that main reasons of the decline were industrial strikes. (Fig30)

Fig.30 Freight moved and lifted by rail (1980-1984/85) (DfT 2008)



Also the average length of haul changed radically within that period of time. The average length of haul increased by 41% up to 165km. This indicate that the reason of such changes was down to change in amount of freight due to miner's strike rather than due to network km and the factor increased by 40% only in the last year (DfT 2008).

Fig 31 Average length of haul (1980-1984/85) (DfT 2008)



In the meantime road transport kept a stable condition. Although, the increase was minimal and not as spectacular as in previous years. It was related to the global recession and oil crisis. Freight moved by road transport increased and oscillated above 55% , also freight lifted increased about 2% compare to 1984 . Whereas freight moved by rail decreased for 2% down to 8%; freight lifted was equal to 7%(Fig.32, Fig.33)

In the same time passenger transport did not recorded noticeable changes. However, in 1982 the rail transport was recorded as the year of the lowest number of passenger journeys (630 millions) and passenger km (31 billion passenger km) in the second half of the 20th century.

Fig. 32 Freight moved -comparison of road an rail transport shares (1980-1985) (DfT 2008)

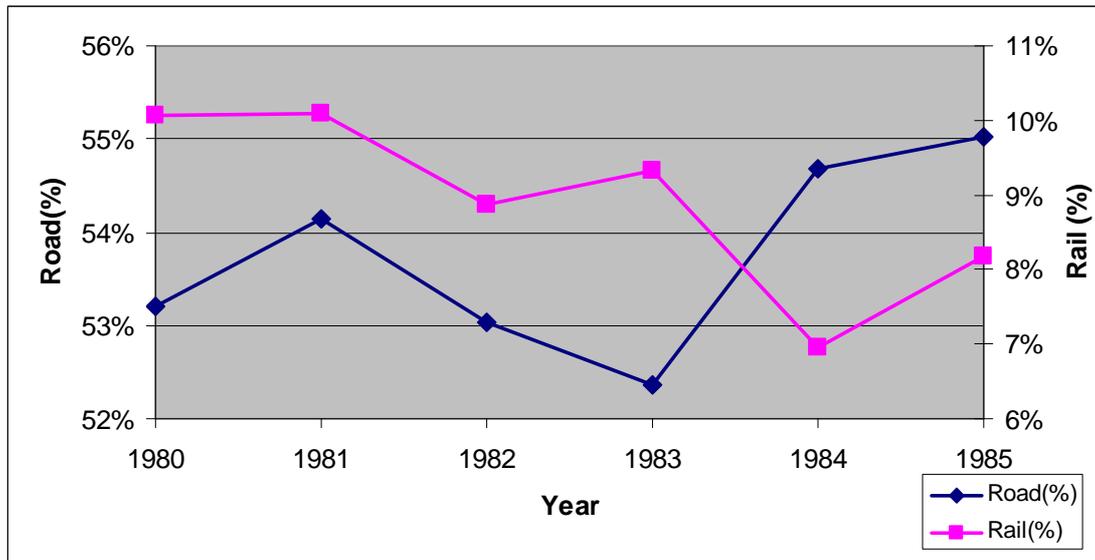
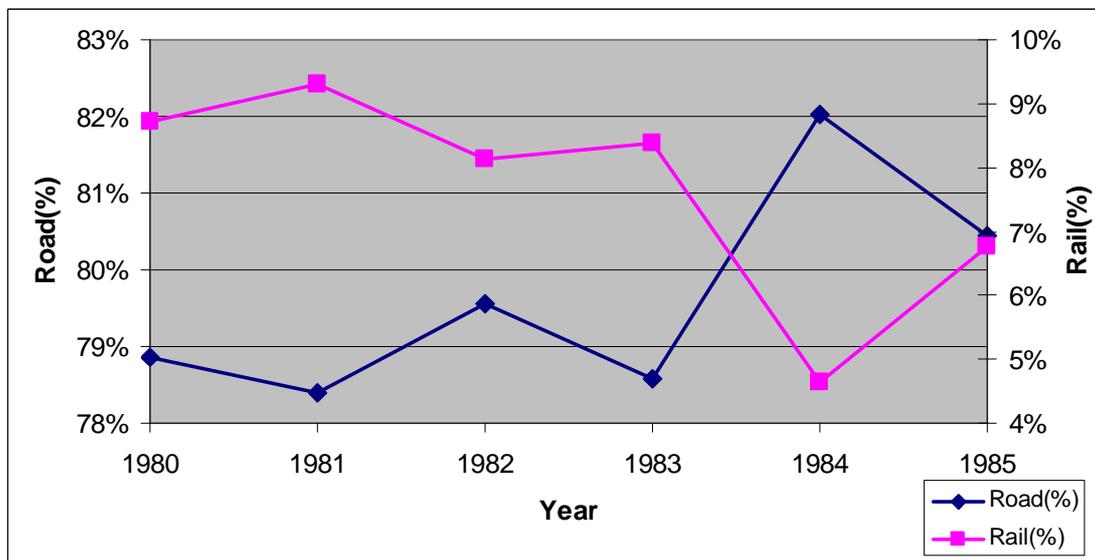


Fig 33 Freight lifted -comparison of road an rail transport shares (1980-1985) (DfT 2008)



The priority of Thatcher’s Government was to achieve two goals: decline inflation which was 27% when Margaret Thatcher became PM and reduce the budget deficit. That time the high level of British Railway’s deficit was another reason to eliminate involvement of this public sector in transport shares. The example of such actions occurred in 1983 when Sir David Sarpell published his report also called by some

people “Second Beeching Report”. The report postulated a range of options from retaining the network at 10,300 miles to cutting it to 10,000; 7,610; 6,120; 2,210 or just 1,630 miles, which would leave most of the country without access to railway (The Telegraph 2008) .When released the report faced heavy criticism. The Serpell Report left the Government and the BR exactly where they had been beforehand, and so the BR went on to reform itself from within under Sir Robert Reid.

Rail transport was struggling with a hard competition and could hardly find any allies in the 1980s. Road transport became more popular and cheaper. It offered more flexibility not only to road users but also road transport employees. The price differences between rail and road were continuously rising due to the large external cost which road users did not need to bear whereas rail ones did fully (P. Thalmann 2004). But the situation was going to change soon due to the coming economic collapse of 1989 and privatization of British Railway in 1993.

Chapter 6

1985/86-2008/09 Privatization and Ten Year Plan

The old saying goes: “after a storm comes a calm”. The 1970s was the time of heavy and light storms and thunders for the British Railways, such as global and national economic problems, industrial crisis and strikes. The 1990s was supposed to bring wind over British railways’ wings.

In the fourth era passenger km per route km and freight moved per route km improve radically (Fig7). The relation between two factors is positive and strong; the coefficient correlation is 0.95 (Fig 6d). This number indicates that the relationship between two factors is the strongest out of all four eras. And, contrary to the second era, where the positive direction and strong relation resulted from Beeching’s cuts of lines, the effect in this case resulted mainly from changes in number of freight and passengers while route km stayed stable, although it decreased suddenly in 2002/03 and stabilized in 05/06 which could result from the fact that the strategic rail authority revealed its 10-year strategic plan for the railways which brought back the hope into rail transport. It included a big investment in new trains, improved station facilities, track repair and signalling work in order to meet the Government's 2010 goals (Fig 34,35).

Fig 34. Passenger km and goods moved (1985/86- 08/09) (DfT 2007, DfT 2007, ORR 2009)

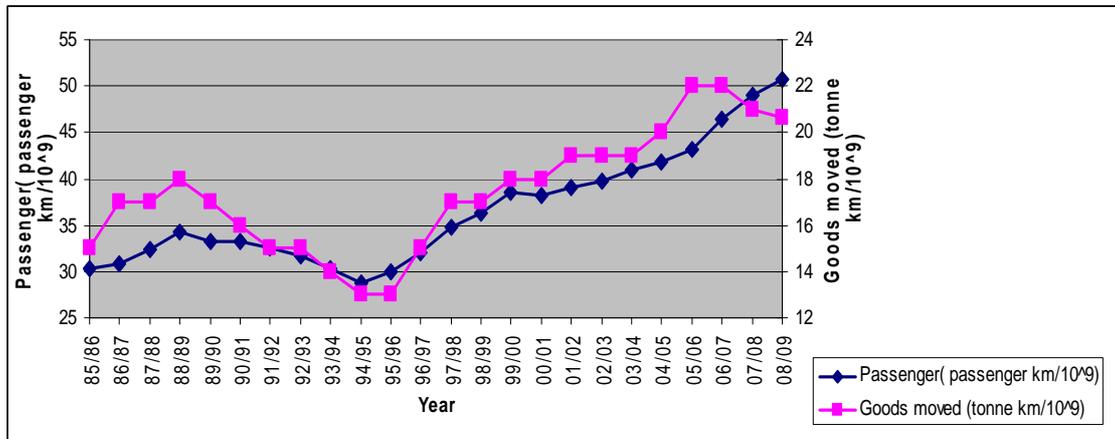
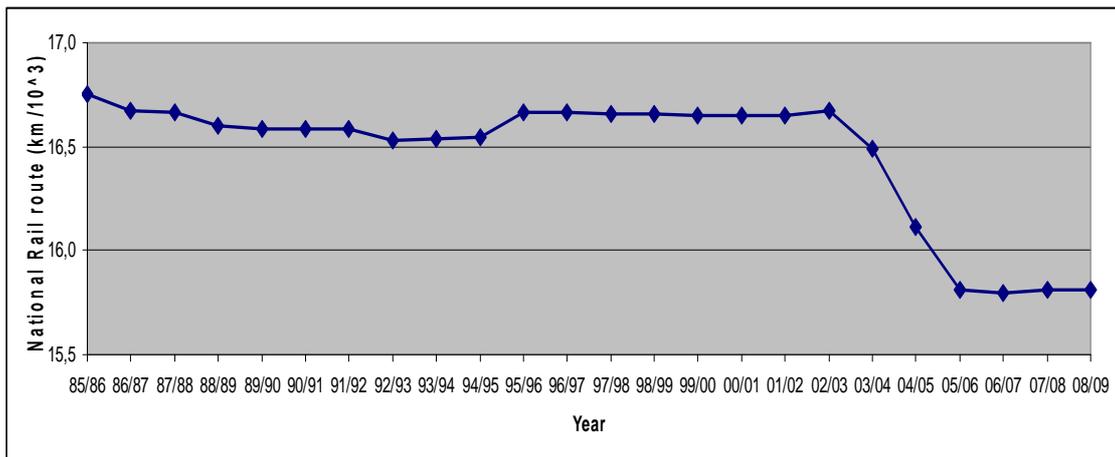
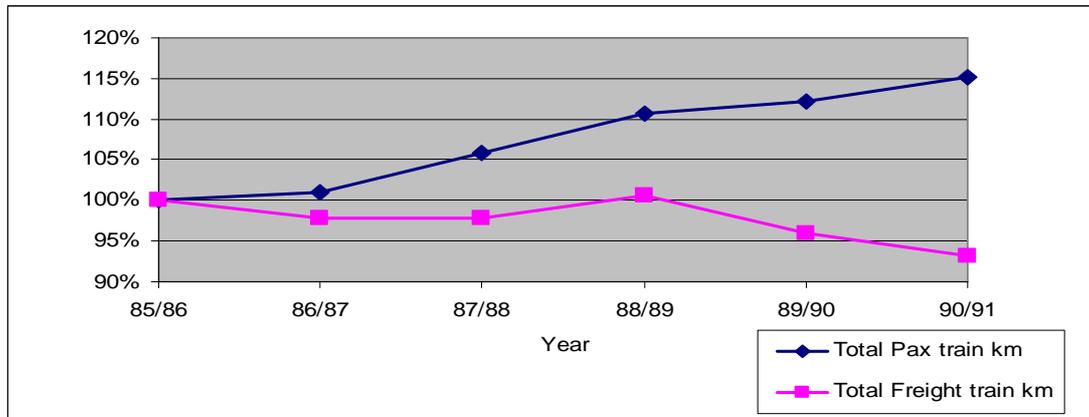


Fig 35. National Rail route km (1985/86- 08/09) (DfT 2007, DfT 2007, ORR 2009)



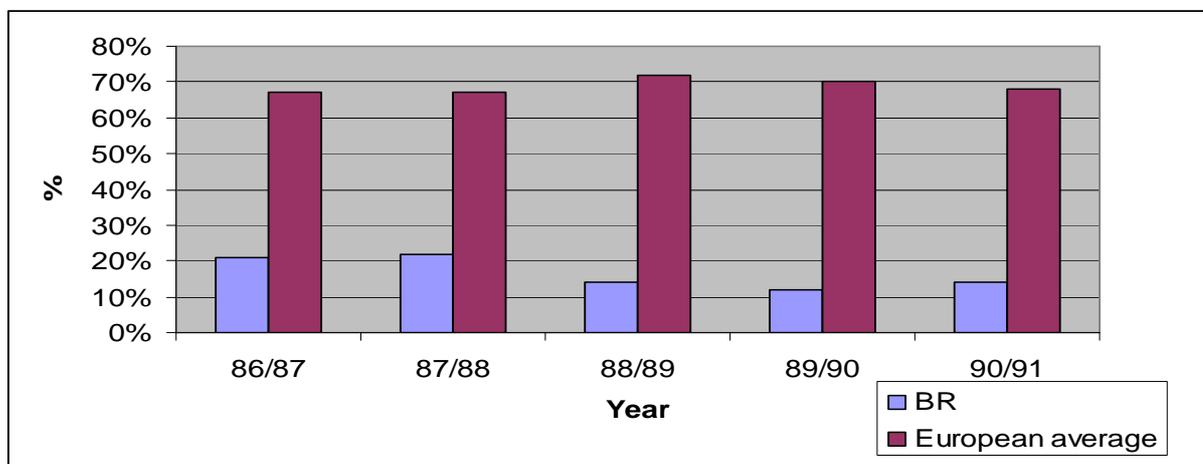
In the second part of the 1980s British Railways became popular again. Both number of passenger km and freight moved increased. As can be seen in Fig. 34, the first factor increased by 9%, whereas the latter one by 7% at the end of decade, however in 1988/89 freight moved even achieved an increase of 20%. In the same time route km stayed stable and passenger train km increased by 15%, while freight train km decreased by 7% (Fig 36)

Fig.36 Passenger and freight train km (1985/86- 1990/91) (Various British Railway Board Annual Reports and Accounts)



During this time the British Railways were known as both the best performing railways in Europe. It is worth to point out that in the same time it was the one -out of all European railways- which received the smallest support from public funds.(Fig37) At this time began thoughts about modernization of the railways. One of ideas was “Total Route Modernization” introduced in the early 1990s, as an ambitious plan to bring the lines into the modern era of rail travel. It was developed by forward-looking rail manager Chris Green. Unfortunately, the program needed to be stopped because of the '91 recession (J, Shoul 2004).

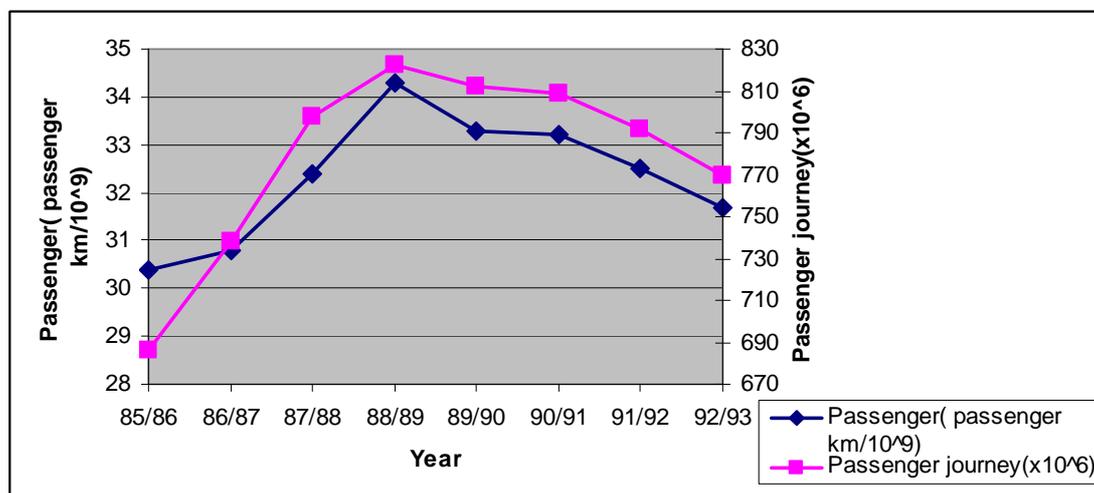
Fig 37 International comparison of percentage support from public funds (1986/87-1990/91) (J, Shoul 2004).



However, British Railways were always dependent on global and national economy (e.g. global economic recession in early 1970s, high rates of inflation, industrial strikes), therefore when the recession hit the economy in 1991, Britain's railways suffered in the same time (Wolmar 2005). As can be seen in Fig.34, both factors decreased in 1989 and they kept declining until 1994/95 which indicates that the British railways suffered even the post-recession consequences. In that time number the of passenger km decreased by about 15%, while freight moved by 28% (DfT 2007, DfT 2008).

With respect to passenger train transport, the recession affected both the length of journeys and the number of them. After the Lawson boom in housing market in 1989 the former factor declined by 8%, whereas the latter one by 6% up until 1992/93 (just before the Privatization).

Fig 38. Total Passenger train km and passenger journey (1988/89- 1992/93) (Various British Railway Board Annual Reports and Accounts, DfT 2007)



According to the statistics of freight train transport, both freight moved and lifted decreased in the same time (Fig 39). From the Lawson boom in 1989 to just before the beginning of Privatization, freight moved decreased by 12% while freight lifted by 16%. Fig.40 illustrates average length and load of haul. Both factors decreased in the

run up to 1991/92 when began the recession and then both dramatically increased in one year by 11% and 13%.

Fig .39Freight moved and lifted (1988/89- 1992/93) (DfT 2008, ORR 2009)

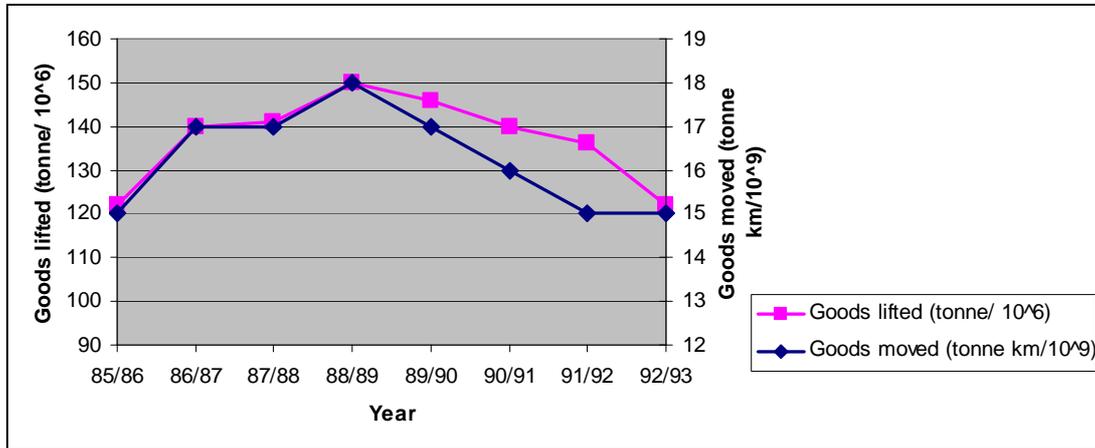
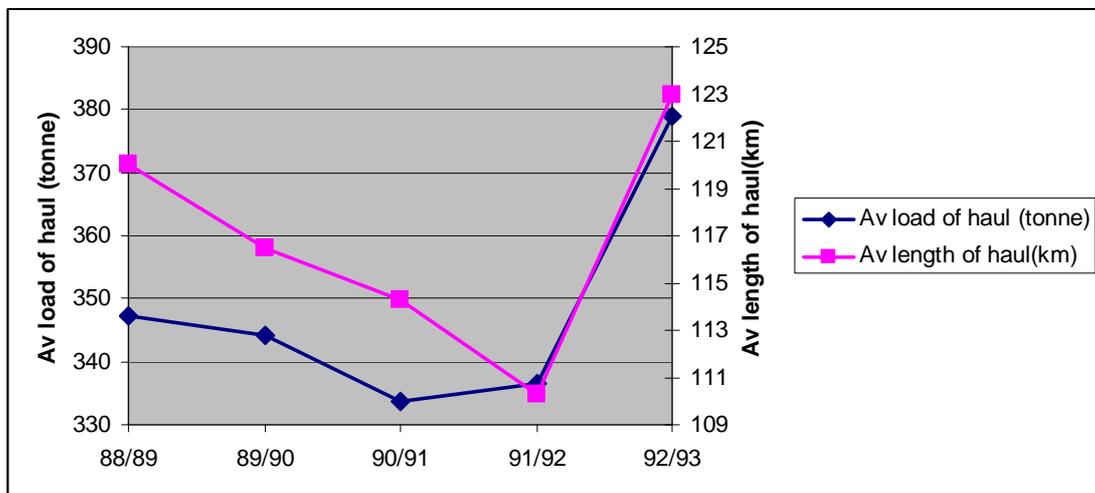


Fig.40 Average length and load of haul (1988/89- 1992/93) (DfT 2008, ORR 2009)



In the 1990s, British Railways kept struggling with the economic situation but also with the Government's involvement. It needed constant investments, whereas at that time, they were changing every time when either first or latter got into trouble. That situation affected the BR's deficit which gradually increased. Through the whole history of the railways in Britain it has been impossible to reach the same language

with the Government. The failure of the Government was lack of strategic thinking and feasible planning.

The Government's solution to the British Railways but also industrial problems was to privatize them. In fact, the idea of a privatized railway was mentioned already in the 1960's in the time of Beeching's cuts and relatively not a long after nationalization (Ch.Wolmar 2005). Nevertheless, there was no doubt that the nationalized model was not capable to work in such a quickly developing environment any more.

Even though the idea of privatization faced a few problems. Firstly, was the fact that not all people were optimistic about that idea. Although there were the gas, electricity and telecom companies successfully privatized, the British railways, contrary to others, needed the Government commitment to provide subsidies (CILT 2005). Secondly, some experts thought that the vertically disintegrated structure of railways would restrain innovations and improvements (CILT 2005). Moreover, the Government did not want to privatize the British Railways. Mrs. Thatcher announced that it was impossible if the railway was losing money. However, in the end of the 1990s and just before the new election, the Prime Minister changed her mind (CH. Wolmar 2005).

The Government's White Paper in 1992 ("New opportunities for the Railways" The Privatization of British Railways; John MacGregor; 1992) set up the plan for privatization of British railways. The implications were very clean and the main beneficiaries would be passengers as a result of the competition between new owners. However, the document was not of very good quality, written under time pressure and did not assure that the privatization would be successful. However a year before the publication there was the European Community Directive 91/440 adopted which turned out to be also helpful by establishing "rights of access for railway undertakings operating international combined transport (Council 1991).

In addition The Railway Act of 1993 supported the financial mechanism to fragment the railways by "track access grants" and "freight facilities grants" that paid access fees where traffic could go also by road (Her Majesty's Government 1993).

The Government affirmed that privatization would improve industrial performance by the better efficiency, competition between new owners using their flexible management skills to intervene and control which everyone would gain from (J. MacGregor 1992). According to White Paper 1992 (p.4), the railways would benefit from:

- concentration on customer's needs;
- competition between new owners;
- freedom of management;
- improvement of quality standards;
- motivation;
- efficiency.

However, there were few key issues which the railways needed to face intent on privatization (CILT 2005):

- the ideological issue- strong trade unions and part of the public which still vote in favour of railway; that area was reflected by political parties and their visions;
- the coming election '97 – nobody wanted to raise such a big problem and take responsibility for it;
- the technological failure compared to the transport revolution which was taking place in the road and aviation sectors;
- simplistic management- such a complex business needed more organized system.
- long- term decline in business.

In 1993 the Government announced that the British Railways were to be split up and sold off. It argued for private sectors and their ability to find money needed for investment programs and their better and more reliable services to the public (J. MacGregor 1992).

The privatization of Britain's railways was meant to be based on one of four options (P. Thalmann 2004):

- privatization of British railways as a single unit;

- the regional model - privatization of British railways as a series of vertically integrated but geographically separated businesses;
- the sector model - privatization of British railways as a number of product-based businesses;
- the track authority model - privatization of British railways as a separation of the infrastructure from operators.

The fourth option earned the approval as it was similar to the model of railways reform agreed by the EU in 1991 as well as the models planned for privatization of other network industries. The privatization program was mostly based on the track authority model, however it consisted of elements of the regional and sector model. The idea was to put all parts of BR on sale apart from the passenger service which would be franchise. The network would have a single owner (J. MacGregor 1992). According to Sir Christopher Foster, who advised ministers about rail privatization, the infrastructure is a natural monopoly due to its scale and operational economies.

The privatized structure was controlled by three institutions (P. Thalmann 2003):

- The Office of Rail Regulator (ORR) which regulated infrastructure access;
- The Office of Passenger Rail Franchising (OPRAF) which was responsible for administering and supervising the franchising of passenger rail services;
- The Railway Inspectorate which was responsible for extensions and modifications to the infrastructure of railways.

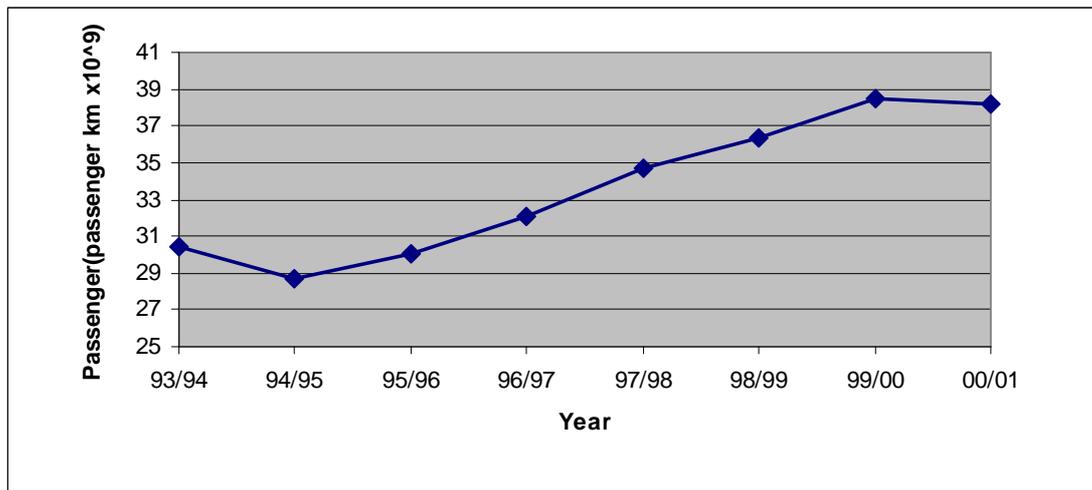
The results of reorganization of the British railways structure were as following:

- the BR's infrastructure was transferred to one separate government- owned operator called Railtrack Group PLC;
- the BR's passenger service was split up into 25 train operators depended on Government's subsidies;
- the train and freight operators paid Railtrack an access fee for the infrastructure usage;
- the freight service was sold outright to an American Company- Winconsin Central.

Regarding the financial performance of the Train Operator Companies (TOCs) it consisted of 25 organizations and the total revenue rose from £2 billion in 1993/94 to more than double in 2001 £4.5 billion. This was a result of several factors (J. Shaoul 2004):

- fares on some routes increased faster than inflation;
- passenger number rose alongside with other transport modes due to raising congestion on roads and changes in social trends (Fig 41);
- revenue rose because of subsidies considerably higher than in the 1980s.

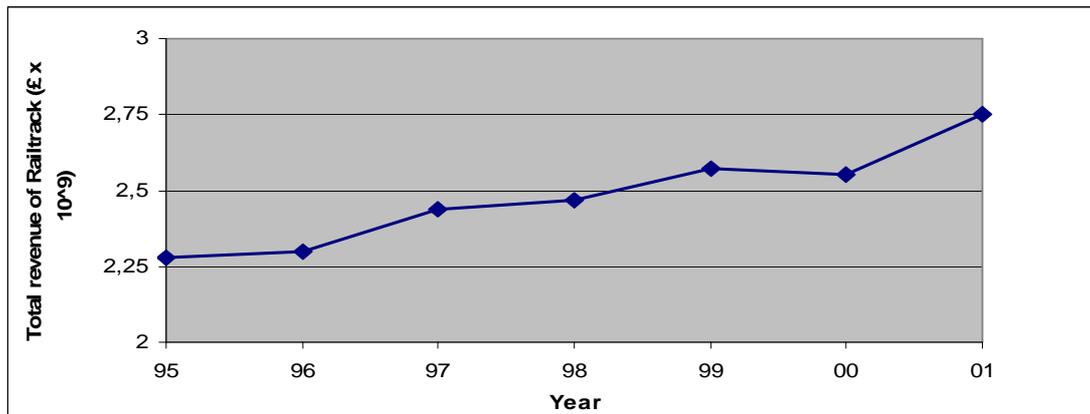
Fig.41 Passenger km (1993/94-2000/01) (DfT 2007, ORR 2009)



The Privatization of the British railways was also made up of the three rolling stocks companies which worked under leasing rules set up by the Government. Even that a lot of franchising train companies were forced to replace their old rolling stock, many of the trains were delivered late and in some cases they were incompatible with the infrastructure. Those circumstances generated additional costs and subsidies.

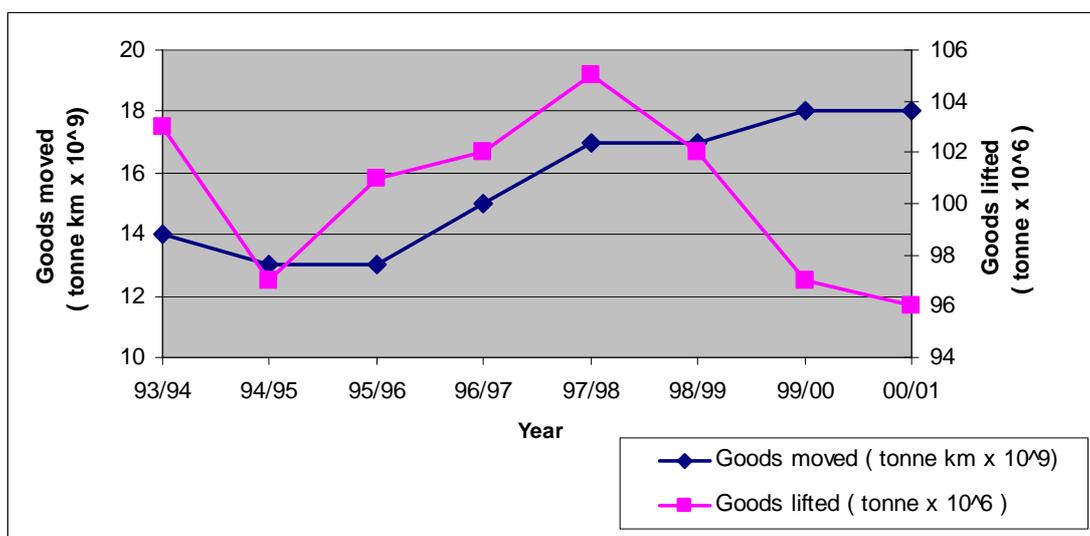
The infrastructure was managed by Railtrack whose revenue rose after 1994 when the BR was reconstituted as Railtrack, and in 1996 when it was privatized (Fig 42). Almost all of its revenue came from the access fees paid by TOCs.

Fig.42 Total revenue of Railtrack (1995-2001)^h (J. Shaoul 2006)



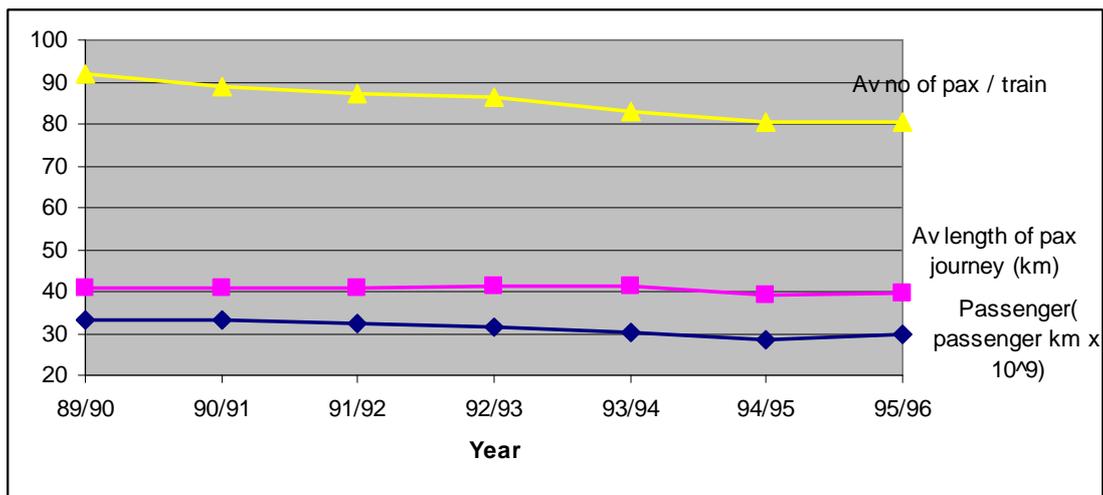
In regard to freight transport it was sold off to small a company in USA called Winconsin Central which merged freight companies under English, Welsh and Scottish Railway (EWS). The freight transport counted on the potential of the transport through the Channel Tunnel opened in 1994. The only part left not under EWS control was Freightliner which was sold to its management organization under the name of Management Consortium Bid Ltd (MCB) (P. Thalmann 2004). After the Privatization freight volumes increased substantially. Goods moved increased by 22%. Although goods lifted changed irregularly its peak was in 1997/08.(Fig 43)

Fig.43 Goods moved and lifted (1993/94-2000/01) (DfT 2008, ORR 2009)



In the first three years of privatization outcome of passenger service, which was the one of the tasks the privatization program concentrated on, was nothing like satisfied. In Fig.44 there are displayed three passenger transport factors and all of them slightly decreased.

Fig. 44 Passenger transport performance after the Privatization(1992/93-1994/95) (DfT 2007, ORR 2009)

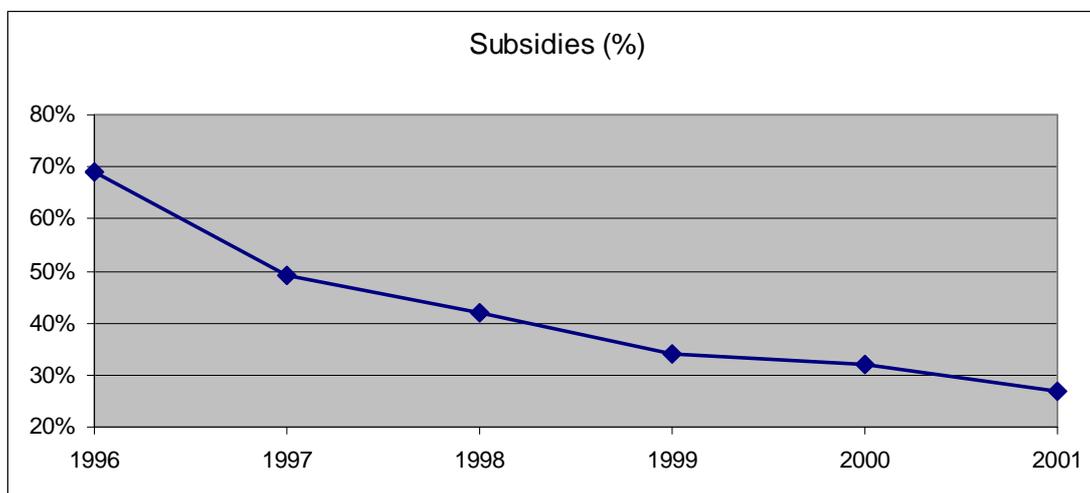


The British Railways condition after privatization proved different from the Government's promises. Its fare structure was one of the highest in the world and was strongly dependent on the Government subsidies and capital grants which were set to increase further (J. Shaoul 2006). The solution of Britain's railways problems did not make them either more efficient or more independent. Although there were promising aims to achieve, the Privatization was implemented in the rush, without adequate knowledge and understanding. The main reason was to dispose of the problem and make the new railway system work before the election of 1997. The Conservative party which governed when the railways were privatized seemed to make only short-term plans and did not think about the future of the railways. The fact that when the British railways were privatized they needed to wait even three years to replace the old rolling stocks proved the lack of long-term strategy. Another problem appeared after the election won by the Labour party which did not particularly consider railway in its plans. That indicates a lack of continuity in government thinking (Ch. Wolmar 2005).

The Conservative Government declined in providing subsidies for Britain's railways. Not only did it not happen but even increased, particularly under "Transport 10 Year Plan". It proved more expensive than anyone expected (J. Shaoul 2006).

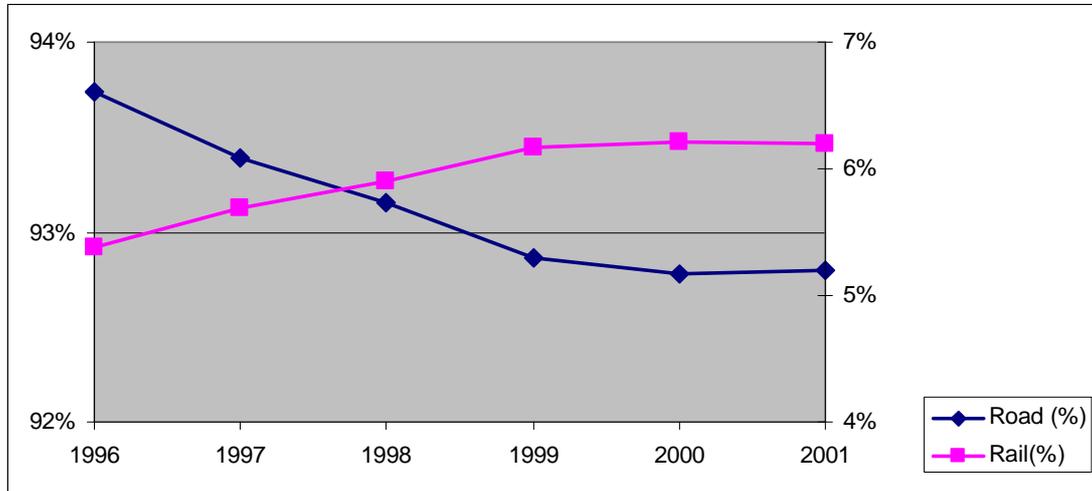
The European railways found it impossible to exist without the Government subsidies (J. Shaoul 2006). Nor found it the British ones. The Government supported the train operators. The plan was that subsidies would be provided to cover both operating and capital costs, such as refurbishing stations. Fig. 45 shows the level of subsidies from all sources provided to the 25 train operation companies as a percentage of total revenue. It indicates that the privatized railway needed less and less subsidies and they declined by about 40% with the time being. However, although it decreased, in the first three years after full privatization (Railtrack's privatization finished in 1996) the subsidies given to the British railways were double those in the 1980s before the reorganization.

Fig. 45 Subsidies of the train operating companies after privatization of Railtrack (J. Shaoul 2006)



In the same time the situation of the railways in the passenger transport market were not satisfactory. Road transport owned a significant amount of shares keeping railway transport far behind. Although there were not dramatic changes, road transport was very stable (Fig 46).

Fig.46 Comparison of modal shares (1996- 2001) (DfT 2007)



Although the British railways were reorganized in a very short time which could be considered as a success the future perspectives of new owners did not seem so delightful. Firstly, as well as establishment of the new composition of industrial activities, Britain’s railways were affected by new methods of industrial organization. The manufacturing knowledge drastically developed at that time and industry became more professional using different methods and philosophies such as “Just in time”, an extended supply chains, multiple pick-up points to multiple drop-off points, Lean Manufacturing or Quality Management. Those new methods were suited to a fixed-track transport which led to developed road haulage and freight forwarding industries. Similar to the caused by electronic communication system such as e-mail and fax on parcels delivery (J. Shaoul 2004).

Although the privatization program of the British railways was supported by the Government subsidies and aimed to improve the financial condition the reorganization and the split-up of the industry created extra costs which were difficult to classify in any financial analysis, such as the transaction costs of operating, planning and coordinating, cost of unusable new trains or costs resulting from a of loss of skills and experience (J. Shaoul 2006).

The biggest failure of the restructure and a new system was Railtrack. In fact, the network operator had not been the part of the privatization which was much considered. It practically started the preparation to be privatized in the moment when it broke up with the BR and became an anonymous organization. There was nothing like long-term plans for Railtrack. However, the organization's aim was to make a profit. Considering the fact that Railtrack made profit only from the lines usage and that prices are fixed it seems like an impossible goal. Nevertheless, in order to achieve it, it paid less attention to the quality of service it provided and cut all possible maintenance costs. They reduced money for network investment. The company's strategy led to fatal a crash in 2000 in Hatfield because of track cause. That accident led to the decision that Railtrack could no longer ignore the safety issue (P. Thalmann 2004). In fact, this problem had not been considered much before privatization. However it still followed the rule "repair not prevent" which an example could be a rail crash at Ladbroke Grove (1999) or Southall (1997). The number of passengers immediately decrease. So did Railtrack's shares. It was unable to pay its debt. Eventually, network operator had its debt partly written- off in order to make its sell easier. It happened in 2002 and the rail infrastructure took National Rail over (Ch. Wolmar 2005).

The new owner announced that track condition was under- invested and that a fifth of the network needed to be replacement. The Government committed to help with such a huge investment.

After the Privatization of the British railways, in 1998 a White Paper written by John Prescott which aimed to end era of cars was published. Railway was a peak point of the publication with its investments and improvements. The most important outcome was the creation of a Strategic Rail Authority (abolished in 2006) which took OPRAF (Office of Passenger Rail Franchising) work and was responsible for long-term strategy for railways and bringing fragmented rail together. However it was hardly possible to manage so many companies by one organization (Ch. Wolmar 2005).

The British Railways have experienced very hard times throughout history. World Wars, political fights, economic crisis and even weather conditions have had an impact on the Railway's situation throughout the century. However, after the dramatic and unstable time, along with all effort made to improve the British

Railway's position (Nationalization, Modernization Plan, Beeching's Axe), Privatization was introduced. to help stabilize the Railways. Eventually, Privatization resulted in increasing both passenger and freight transport measures. Such an improvement let the Railway become a competitive means of transport which provided a high quality of service. The benefits associated with Privatization illustrated to the Government the importance of the Railway to the transport structure.

Chapter 7

Discussion

This paper focuses on finding out how big impact political have decisions, national and worldwide economic changes, tragic train disasters and various modernizations of the infrastructure on different measures of Britain's railways. It also attempts to predict the direction of future decisions and actions.

Britain's railways have constantly experienced ups and downs. Being the country's largest industry in 1920s they experienced the drama of the First and Second World Wars which affected both its passenger capacity and the condition of its rolling stock. The railways were completely devastated and needed help to revive and to face another problem- the increasing popularity of road transport.

In the 1940s The Britain's railways were in such a dire financial situation that the Government decided to nationalize the industry (1948) and took control. Although the railways needed big investments and even bigger funds to do so, the Government apart from small actions in order to hide the problem before the next election did not do anything to contribute to improvement of the railways condition.

The next opportunity to rebuild the railways was The Modernization Plan (1955) which was supposed to change it into a more economically viable and self- sufficient railway. The Plan became a fiasco and British Railways still could not solve the financial problems. Both goods moved and passenger km declined whereas, in the meantime, road transport was getting more popular. The publication of The Beeching Report highlighted the size of the problem. The Beeching Axe reduced rail network by 1/3 in order to maximize the lines usage and make Britain's railways efficient. However, the cuts did not meet the expectations.

In the 1970s and early 1980s it continued to be very difficult to find a solution to the poor financial condition of the industry in the face of global economic problems. That time showed how much the railways were dependent on the condition of the national economy.

By the middle of 1980s the British Railways became again popular and their performance improved. However, in 1993 the industry was privatized as the result of the impact of the economic recession and a new structure emerged. Although they were sold off to private owners, they still needed Government funds. In the end of 1990s The British Railways experienced tragic accidents: the Southall rail crash (1997), the Ladbroke Grove crash in 1999 and the Hatfield crash in 2000 which were caused by poor maintenance of the infrastructure.

None of above solutions made the British railways the independent and self- sufficient industry that had been envisaged. The big plan to achieve it was meant to be “The Ten Year Plan 2000”. According to the Deputy Prime Minister of the day, John Prescott, the paper would deliver “the scale of resources required to put integrated transport into practice” and “radical improvements for passengers, motorists, business- and all of us as citizens concerned about congestion, safety and a better environment.” (Department for Transport, Local Government and Regions 2000, p.3)

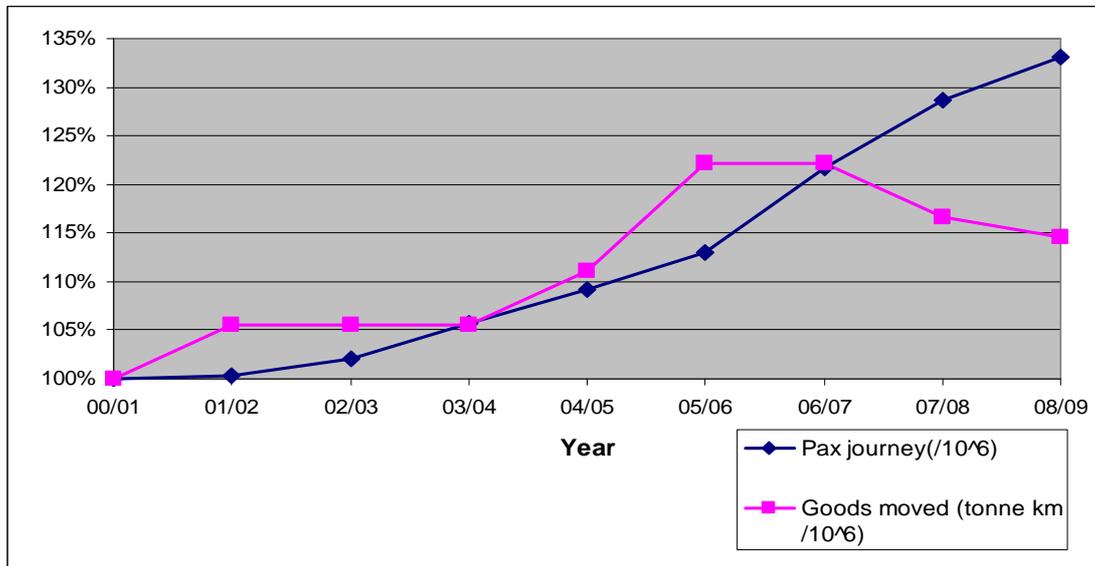
The Plan announced an investment of about £180 billion over ten years within which £121 billion was to come from private and public capital investment almost 75% more than ten years before (DfT, Local Government and Regions 2000). The plan focused not only on railway transport but also on road and London transport and locally across England.

Regarding railway transport the goal was “to increase the use of the railway by passengers and freight, to provide new capacity to meet demand, and to improve the quality of service to customers, while reducing most currently regulated fares in real terms.” (DfT, Local Government and Regions 2000, p.23). The current statistics suggested that the aim might actually be achieved.

One of outcomes expected out of the implementation of The Transport Plan 2000 was the increase of 50% in passenger journeys and of 80% in freight transport by rail in ten years time. However, in reality, by the turn of 2008/09 the former had increased by 37% whereas the latter only 15%. Passenger journeys increased continuously

throughout, while freight moved grew up to 2005/06 when the growth started slowing down. (Fig. 47)

Fig. 47 Passenger journeys and freight moved (2000/01-2008/09) (ORR 2009)

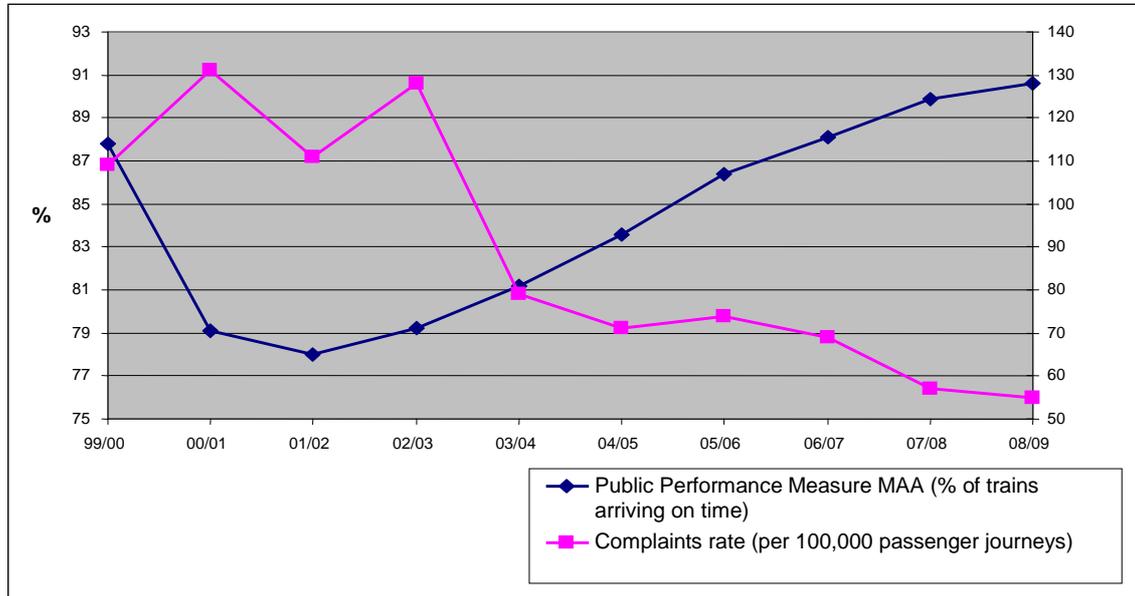


Another target set up in the Plan was to improve the reliability and punctuality of passenger trains. According to the National Rail Trends Yearbook 2008-2009 and National Rail Trends 2005-2006 Q1, the percentage of trains arriving on time increased about 3% to up to 90.6% since 1999/2000. However, when the Transport Ten Year Plan was published, this Public Performance Measure (PPM) dramatically decreased by about 9% and then slowly increased (*for long-distance operators, the data show the percentage of trains arriving within ten minutes of timetabled arrival at final destination. For London and South East, and regional operators, the data show the percentage of trains arriving within five minutes of the timetabled arrival*). It is hard to say whether the achieved performance was satisfying enough as no specific targets were set (ORR 2009).

Another issue raised in the Transport 10 Year Plan was the customer satisfaction. Analyzing the complaints rate, which is defined as a number of passenger complaints per 100,000 passenger journeys; it decreased by more than 50% (Fig. 48)

Fig.48 Performance indicators (ORR 2007,2009)

(The data for 00/01 and 01/02 is not directly comparable with more recent data due to a new method of recording telephone enquiries.)



Regarding transport modal share, according to the Plan, rail transport would increase its share of the freight market to about 10% i.e. an additional 15 billion tonne-km moved. In reality, rail's modal share successfully increased up to 8% in 2007 whilst road rose to 68% (DfT 2008; Table 4.1). However, the freight moved by trains hardly increased at all by only 3 billion tonne-km, and indeed it seems to have decreased recently.(Fig 49,50)

Fig. 49 Freight modal comparison (1999-2007) (ORR 2006,2009)

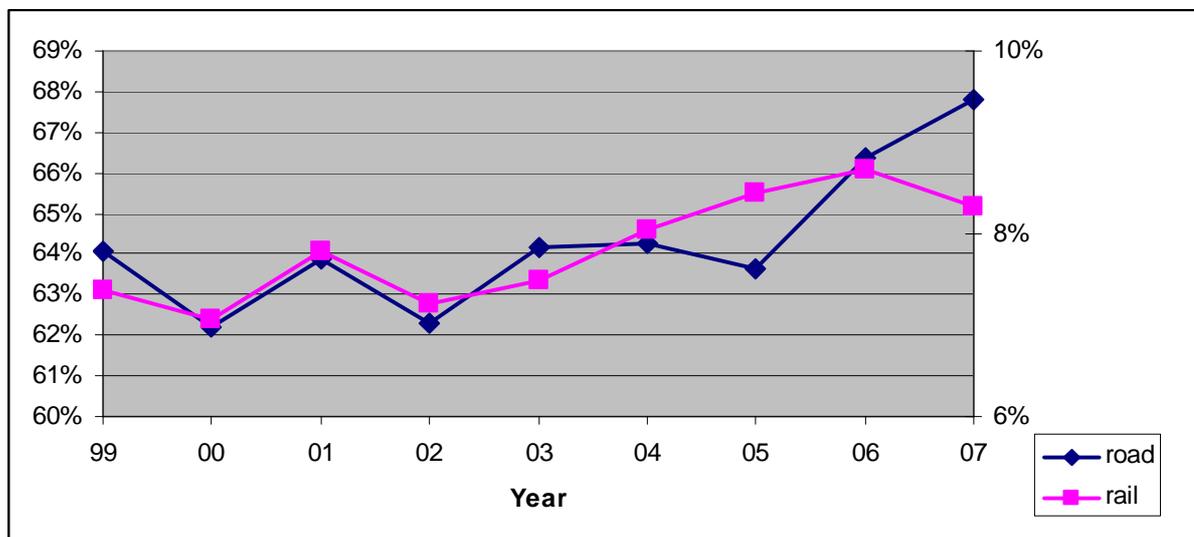
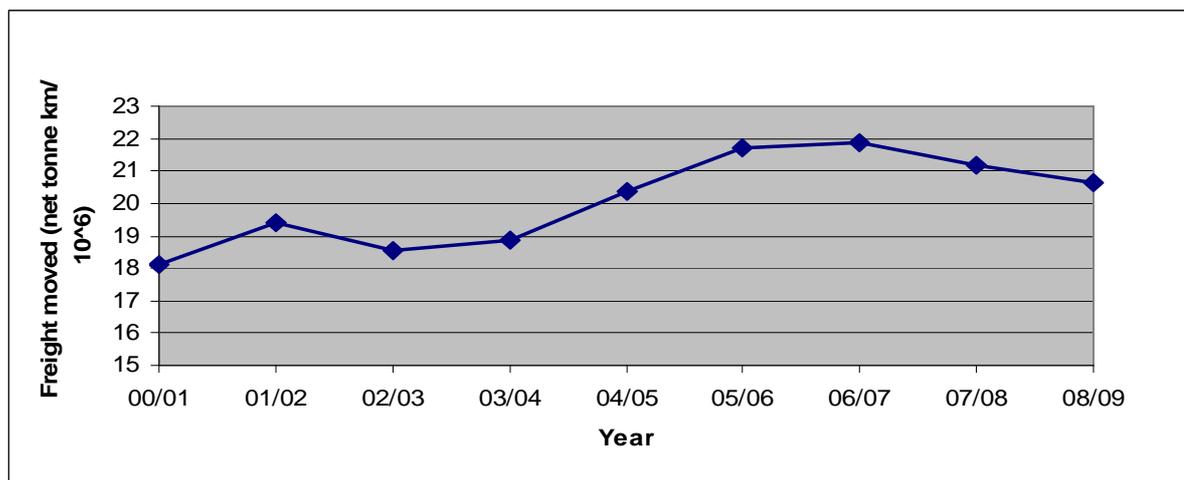


Fig. 50 Freight moved (tonne km/10⁶) (ORR 2006,2009)

(freight moved is measured in net tonne kilometres (NTKm). This takes into account the net weight (excluding the weight of the locomotive and wagons) of the goods carried (the freight lifted, measured in tonnes) and the distance carried)

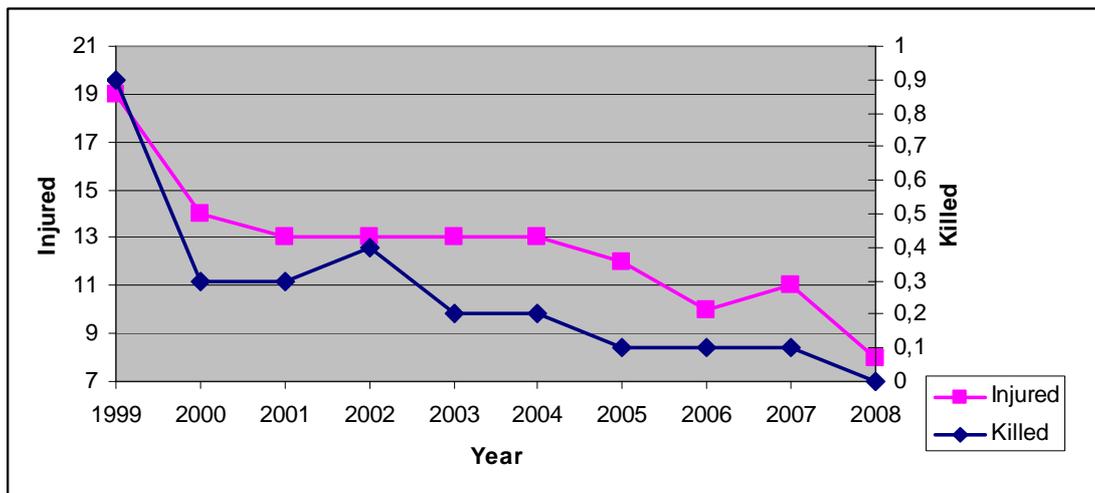


The Transport Ten Year Plan 2000 focused on major investments. Especially, regarding rail transport due to tragic accidents like the Southall rail crash (1997) or the Ladbroke Grove crash caused by a SPAD(signal passed in danger) in 1999 and the Hatfield crash in 2000 caused by poor maintenance of the infrastructure. (DfT 2000).

According to the Paper, the safety of rail transport is a priority for the Government and the industry and by 2010 key factors of rail accidents will decline by 50%.

With regard to passenger casualty rates, which can be understood as the risk of injury, per billion kilometers traveled (DfT 2009 p.10), the number of passengers killed declined by 100% in 2008 compared with 2000 (excluding suicide), while the number of passengers injured decreased by 43% over the same period (Fig.51).

Fig.51 Passenger casualty rate (1999-2008) (DfT 2009)



This project shows that changing the ownership (private to public or vice versa) of Britain's railways is insufficient to make it successful. To provide efficient, safe and affordable public transport requires a planned system and integration of all modes of transport both with respect to people and freight. The analysis shows that the British railways had to be privatized as the nationalized system was unable to keep pace with industrial, economical and technical developments. However, the privatized railway system is a very expensive way of providing public transport and must, without bringing public ownership back, lead to increase fares, taxes or cuts in other public services.

It has been 17 years since the British railways were privatized. As can be seen neither Privatization nor The Transport Ten Year Plan 2000 achieved their proposed outcomes. Fig. 7 shows that from 2005/06 the relationship between freight moved per route km and passenger km per route km is changing. So does the direction of the

trend line. This raises the question of whether there is going to be soon another major change in Britain's railways? What structure needs to be implemented? And will any system ever be fully able to make the industry profitable and efficient?

Chapter 8

Conclusions and Recommendations

This thesis concentrates on using different measures of passenger and freight train transport in order to assess the size of the impact of the key strategic actions such as Nationalization (1947), The Modernization Plan (1955), The Beeching Axe (1963) or Privatization (1993).

The main conclusions from this paper are as follows:

- the graphic relation between passenger km per route km and freight moved per route km between 1952-2009 shapes four eras where within each of them can be found the linear relationship (Fig 7),
- analyzing the history of the British Railways and relating it to intersection points between eras presented in Figure 7 (Table 2) brings the conclusion that British Railways structural and financial condition has always depended on the political position of the British Government,
- passenger km per route km and freight moved per route km relation, relied on the condition of the national and world economy, such as the economic crisis of the 1980s for example,
- Although the Government continued to invest heavily in road transport, and attempted to phase out the railways, the British public continued to use this means of transportation as the British have a historical fondness of the railway.
- Because the Government's decisions were politically motivated, most of the major changes to the railways were usually rash, not- well- thought and without long sighted vision.

This paper is based on detailed analyze of the relationship between passenger km per route km and freight moved per route km along with correlation and regression analysis and boundary line method. In addition, towards the end of this paper there were presented different performance factors such as Average length. Load of haul, Passengers Complaints rate, Passenger casualty rate or reliability and punctuality of passenger trains.

Future research actions could consist of the following:

- The further analysis of the relationship between different factors such as Passengers loaded train km, Av no of pax / train, Av length of pax journey (km),
- It might be useful to look at the railway transport in the context of different areas in the UK (North, South), and analyze them in regards of unemployment average salary and costs of tickets.
- In order to gain a wider picture of the situation it might be beneficial to look at other countries transport statistics and compare them to the UK, concentrating on the railway.
- Looking at Figure 7 it can be noticed that towards the end of the Fourth Era the relationship between passenger km per route km and freight moved per route km is changing direction. This interesting observation might suggest the creation of the Fifth Era. It would be interesting to forecast using different analyzing tools the future trend in railway transport.

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