

THE PRESENT STATUS AND FUTURE PROSPECTS OF RAIL PASSENGER TRANSPORT IN CHINA

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1. BACKGROUND

The reform that the People's Republic of China has carried since 1978 is essentially a market-oriented reform. Since "China practises socialist market economy" has been included into PRC's Constitution, the process of transforming Chinese Economy from Planned to Market has been speeded up. Market system is superseding planning system, and playing a key role in resource allocation. Our country's consumer good market and essential production factors market have been greatly cultivated. At present, more than 80% of agriculture product, 90% of industry product, 95% of consumer goods are adjusted by market. Our transport market has also been developed greatly along with the formation of the whole country's uniform market. In 1995, the whole freight traffic is 12.2 billion tons, of which only 0.2 billion ton coal carried by railway is under plans, which means more than 98% of the carrying capacity is utilised under market allocation. Unlike railways in most other countries, the passenger transport of Chinese Railways(CR) is more market-oriented than freight transport. The competition in passenger transport, especially the competition between road and railway, is being spread gradually. According to the statistics, by the end of 1996, the total length of motor way in China has reached to 3200 kilometres. Its networks have been formed between the economic zones in the East of China. With the development of motor way and high level road, the number of passenger transport enterprises who run passenger business in motor way has reached 10,000. There are 7000 coach routes that spans two provinces or longer than 400km. All that has formed a powerful trend of competing with railways (see appendix 1). The service scope of road passenger has currently been developed into more than 400km while the advantage of road transportation was in short distance in the past. Among road, railway, waterway and air, the air in China has the quickest development speed. During the 8th-five-year plan period, the passenger trip of air has increased by 24.57% yearly, which is 2.48 and 17.3 times of that of road and railway, and its passenger km has increased by 24.25% yearly. The advantage of air is in long distance, but has currently developed to medium distance, 1000km. With the competition from road and air, the railway market share in passenger transport is descending. From 1985 to 1995, CR's market share in passenger trip dropped from 18.1% to 8.5% and that in passenger km dropped from 54.5% to 39.4% (see table 1). China is a developing country with 1.2 billion populations. The people's income is low. For many years, CR is a key mode of passenger transport, and the receipt from passenger service is the main source of railway's income. Together with the increase in people's income and passenger fare (see appendix 2), the percentage of the receipt from passenger service has increased every year. From year 1985 to 1995, the percentage has increased from 21.2% to 31.9%, that is 10.7% increased and 1.07% per year on average.

The macro environments of China economy system transformation, the fierce competition from other transport modes and the importance of passenger transportation to the railway economy

have promoted CR's reform and determined the future prospect of market-oriented passenger transport.

2.THE PRESENT STATUS OF CR'S PASSENGER TRANSPORT

Along with the development of our country's reform and opening to the outside, the market-oriented reform of CR in passenger transport is being spread out and speeded up. Considering the current situation of passenger transport market, we concentrate on analysing the different strategies in different market segment, increasing capacity, improving quality of service to make railway more competitive. Main measures are as follows:

2.1 The change in philosophy

Guiding ideology should be transformed from focusing on freight to treating freight and passenger equally and even giving priority to passenger transport. In the traditional planning economy system, people paid more attention to production than to living. This resulted in that freight has more priority than passenger. In China, there are big development gaps among regions: the East is more developed than the West. This unbalanced economy structure is also reflected in railway transportation. Passenger and freight traffic are centralised on several busy trunk lines, such as Jingguang(Beijing-Guangzhou), Jinghu(Beijing-Shanghai), Jingha(Beijing-Haerbin), Longhai(Xuzhou-Xi'an). These four lines, take 10.0% in operating length, but undertake 36.2% freight traffic, 41.5% passenger traffic. In other words, the busy lines for passenger transport are also that for freight transport. For long time, freight has more priority than passenger in transport planning, which causes the situation that railway cannot meet the needs of competition in passenger service. The first step for market-oriented reform is to transform the way of thinking, e.g., transforming the guiding ideology from focusing on freight to treating freight and passenger equally and giving higher priority to passenger transport instead. On the busy lines, where the capacity is in shortage, the carrying capacity should be allocated rationally according to the market demand. Aimed at economic benefit, CR should adjust its production structure. As passenger transport has obviously more economic benefit than freight at present (the ratio of passenger fare to freight fare is about 150% - 200% by the end of 1995), it should have more priority in planning.

2.2 Adjusting the structure of passenger products

Along with the development of road transport, the product structure of railway passenger transport has changed a lot: short distance passenger traffic has dropped sharply, while medium and long distance passenger traffic have increased in different extents. From 1986 to 1995, within the railway the ratio of passenger traffic whose average trip length is under 100km has dropped 23.5%. On the contrary, the ratio of passenger traffic that is between 101km to 500km, 501km to 1000km, 1001km to 2000km, and above 2001km have increased by 14.5%, 67.6%, 67.4% and 66.7% respectively (see table 2). In 1995, the average passenger trip of CR is 347km. Although the travelling distances of most passenger trip in CR are less than 500km, the demand of passenger traffic whose trip is above 500km is becoming more and more active. This is also the potential increase point of railway economy. So this area should be paid more attention to when allocating railway carrying capacity. The measures to adjust passenger trains according to demand are as follows:

2.2.1 Adjusting the structure of passenger train on busy lines

To improve the benefits, Chinese railway should adjust the structure of passenger train on busy lines. Firstly, stop some slow trains on busy lines. Secondly, reduce suburban train in order to relax the tension of railway junctions. Thirdly, reduce sharply the trains of which the carrying capacities are wasted seriously. Fourthly, control the slow trains whose running distance is too long. Finally, change the component of the high service level passenger trains whose capacities are wasted seriously by reducing the sleeping coaches and increasing seating coaches.

2.2.2 Giving higher priority to medium distance passenger transport

To make good use of railway's advantage, CR should give higher priority to medium distance passenger train in transport planning. Since passenger demand centralised in big cities, such as Beijing, Shanghai, Tianjin, Guangzhou, Chengdu, Zhengzhou, Wuhan, Xi'an, and Shenyang, CR should organise some passenger shuttle trains which start in the evening and arrive in the morning, combining the best route with the best starting and arriving time to these trains.

2.2.3 Taking part in the competition actively.

CR should rival road and air actively, giving higher priority to passenger train on the transport routes, where the competition is fierce and the demand is great.

2.2.4 Expanding passenger transport capacity

On trunk lines, we should operate more passenger trains to increase passenger transport capacity. CR's network can be divided into six corridors: North-south corridor, Northeast corridor, coal corridor, East corridor, North-west corridor, South-east corridor. The busiest corridor is south-east corridor where capacity is in great shortage. Even under such situation, four inter-regional passenger trains have been put into operation recently to increase the passenger capacity.

2.3 Improving the passenger service quality by increasing speed and frequency

According to the actual situation, the key point is to increase the speed of passenger train. CR's equipment has been improved greatly since 1978. Compared 1995 with 1980, the percentage of diesel and electric locomotives to the total locomotives has increased 47%. The workload finished by diesel and electric locomotive has increased 70% and reached 90% in 1995. The transfer of traction mode from steam to diesel and electric locomotive has been basically completed, but the speed of passenger train has not increased accordingly. Compared 1995 with 1980, the technical speed of passenger train only increased from 55.1 km/h to 58.3 km/h, while travelling speed increased from 43.9km to 49km, only 5.1km/h increased. The quickest passenger trains, which run on Jinghu line(from Beijing to Shanghai) at the travelling speed of only 84km per hour. Low speed and long travel time have made our railway less competitive. At the same time, as the improvement of road condition and automobile technology, the speed of road transport has improved a lot. All of these have strengthened the advantage of road transport and its competition ability. Therefore, increasing the train's speed is the key point of improving railway's service quality and competition ability. In this field, CR has taken the measures as following: (a) increased the train speed of Guangzhou to Shenzhen to 160km/h in 1995. This is the beginning of high speed railway construction. (b) In June 1996, the Ministry of Railways

of P.R.C. decided to increase experiment high speed trains with a speed of more than 140km/h on lines between Beijing-Shanghai, Beijing-Qinghuangdao, Beijing-Dalian.(c)After 1th of April 1997, passenger train speed will be improved on three trunk lines: Jingha line (from Beijing to Haerbin), Jinghu line(from Beijing to Shanghai), Jingguang line(from Beijing to Guangzhou). The travelling speed will be increased to 110km/h or 140km/h on different sections. The speed of passenger train on other trunk lines will also be increased correspondingly. (d)speeding up the preparation of the construction of Jinghu high speed dedicated passenger line, try to get the official approval in 1997.

2.4 Establishing computer ticket-selling and reservation system

There is a strange phenomenon in China railway, that is, coaches are not full, but people cannot get tickets. It's a disastrous effect of the old ticket-selling idea and selling method. We should transform from waiting for traveller to buy tickets to going out to sell tickets actively by reforming the ticket-selling organisation, increasing ticket selling places, extending the service time, developing ticket agency and telephone reservation, booking in different places and mobile ticket-selling, etc. We will make great effort to establish computer ticket-selling and reservation system, in order to realise the target from manual selling to computerised selling. It's planned in three steps. Firstly, establishing computer selling system in 42 large passenger station, such as Beijing, Shanghai, Tianjin, Guangzhou, etc.; Secondly,establishing regional computer selling system in regional rail administration or sub-administration; And finally, completing the network of computer ticket-selling system to provide convenient service and better information to travellers .

3. THE FUTURE PROSPECT OF MARKET-ORIENTED REFORM FOR CR'S PASSENGER TRANSPORT

In recent years, along with the spread of competition in transportation market, most of the measures taken by Chinese railway are starting from improving marketing and technology. But the enterprise's incentive to improve technology and participate in market competition should come from the enterprise itself. Enterprise in planning economy system is essentially a pure product unit, and it does not have the internal power to compete. That is why most of the measures taken are pushed ahead from upside to downside. In order to strengthen the competitiveness of CR in passenger market, it's necessary to reform our railway's organisation structure (regional administration and sub-regional administration)thoroughly and to transfer them from traditional product units to commercial companies. Therefore, along with the deepening of China reform, the market-oriented reform of Chinese railway has entered a difficult period: a period to restructure the railway enterprises . Change them from production units to the main competitors in the market, with operating independently, bearing its benefit and loss, restraining and developing by itself.

3.1 Separating the infrastructure from operation and separating passenger service from freight

As a both vertically and horizontal integrated organisation, CR operates not only the infrastructure, but passenger & freight business as well. In the traditional planned economy, the disadvantage of this Monolith structure does not appear. As the development of market economy and transport market, the disadvantages caused by this organisation, such as the unfair

competition conditions and barriers to new investors and operators, are becoming more and clear. To overcome the disadvantages, separating infrastructure and operations, which is carrying on by British rail and Sweden rail may be an effective way. CR takes much interesting in this kind of separation. According to CR's characteristic, the separation may only be carried out regionally, that's to say separating the infrastructure from operation based on regional railway administrations (or corporations).

Now CR has 13 regional railway administrations, which are formed according to territory. They have main lines and branch lines, while main lines can be parted into trunk lines and ordinary main lines. Therefore, when the administrations carry out the separation policy, it's possible for branch line to be united to local railway, then to form branch line company. Jingguang (from Beijing to Guangzhou) and Jinghu (from Beijing to Shanghai) are the main trunk lines of CR. In 1995, their maximum densities (pkm per route km for passenger and tkm per route km for freight) were 1.92 and 2.47 times higher than that of the average density of CR respectively. These two lines have the biggest transport traffic, the best economic benefit and play a very important role in CR. Along with the deepening of China market-oriented economy, it's possible to separate these lines from others and establish trunk line freight & passenger companies in the future. Furthermore, the two companies will be changed into share-hold limited corporations, operating freely in market economy. They are likely to become key enterprises in China passenger transport market.

3.2 Organising all kinds of railway passenger companies

In 1995, CR transported 1.02 billion passenger trips, of which regional and local traffic is 0.72 billion, commuter is 0.11 billion, inter-regional traffic is 0.19 billion. The percentages are 70.6%, 10.9% and 18.6% respectively. To meet the needs of transport market, the regional railway administrations (Corporations) can create regional and local passenger company, suburban passenger company, and inter-regional passenger company according to passenger flow. As regional and local traffic take the main part of total traffic, the regional and local passenger company can be divided into several branches. Inter-regional passenger traffic, which starts and ends in big cities, for example, from Beijing to province capitals (excluding Haikou, Lasa and Taipei), are essential for CR and have better cost advantage. Railway has another advantage, that is it can adapt to the peak demand, which means it can play an important role in commuter market in the future.

At present, all regional railway administrations have more capacity supply in regional and local transport market, where is the main area that road and railway compete with each other. So all administrations (corporations) will organise some short distance passenger companies correspondingly to strengthen railway's competition ability. All kinds of railway passenger companies will operate based on market segment and face market competition directly. They will participate in the competition, create advantage and maintain vitality consciously.

3.3 Relaxing the control to railway passenger transport

With the development of transportation market, the government should deregulate railway passenger transport. CR is a key mode in passenger transport market, but not the monopolizer at all. For a long time, railway is under the strict control of government. Railway construction is mainly invested by the central government, freight and passenger operations are managed by the central government, and tariff is controlled by the central government. The highly centralised

regulatory regime is not suitable to market economy. It's urgent to relax the control. At present, the length of road that is parallel to railway has reached 14,000km. It takes 26% of railway operating line and 88% of main line. Competition has appeared in passenger transportation market, and is very fierce sometime. Therefore, relaxing the tariff control, modifying the uniform tariff system and adopting elastic tariff policy are becoming more and more important. Government can regulate the basic rate and the range of floating, so passenger companies can adjust their tariff within certain range freely according to market condition. In order to create the competition within railway passenger enterprises, government can break the monopoly by franchising, select the best operator and rationalise the railway operating line with the market method.

3.4 Building dedicated passenger high speed line

China has a large population with big gaps among regional economy. The trend of centralisation in passenger transportation is very obvious, especially on Jinghu line, Jingguang line, Jingshen line, Hada line, Longhai line. The average density of these five main lines is 28 million passenger km per route kilometres, that is 4.31 times of average level of the whole railway. And furthermore, many sections of the five main lines have reached 45 million passenger km per route kilometres, which is much higher than the standard of constructing a high speed or dedicated passenger line. In order to meet the demand of century 21st, it has been determined in <<Outline for 9th-Five-Year Plan and Prosperous Objectives for 2010 of National Economy and Social Development>> that, "constructing Jinghu high speed railway line to form a large passenger capacity in transport corridor". Therefore, China government will accomplish the preparation of Jinghu high speed railway line in 1997, which is the beginning of the construction of CR's high speed line. Other high speed lines or passenger lines will be constructed. They are Jinghu, Jingguang, Jingshen, Hada and Longhai. A high speed line network centralised on Beijing and connecting 15 big cities, such as Shanghai, Guangzhou, Shenyang, Xi'an, will be formed.

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TABLE 1: CHINESE PASSENGER TRANSPORT (Passenger Trip in 10 thousands, Passenger km in 100 millions)

Year	Passenger Trip			Passenger Kilometres		
	Total	Rail	Rail %	Total	Rail	Rail %
1985	620206	112110	18.1	443700	241600	54.5
1990	772682	95712	12.4	562800	261300	46.4
1995	1172596	102745	8.8	911300	354600	39.4

Source: "Chinese Statistics Summary", 1996

TABLE 2 DISTRIBUTION OF CR'S PASSENGER TRIP BY DISTANCE (%)

Year	0 - 100km	101 - 500km	501 - 1000km	1001- 2000km	>=2001km
1986	56.1	31.0	6.8	4.6	1.5
1990	51.3	33.1	8.2	5.6	1.8
1995	42.9	35.5	11.4	7.7	2.5
1986-1995 (% variation)	-23.9	14.5	67.6	67.4	66.7
1986- 1995 (a.a.g.r.)(A)	-2.9	1.5	5.9	5.9	5.8

Source: "Railway Economic and Planning Information", No.2, 1997

(A) a.a.g.r.: Annual Average Growth Rate

Appendix 1

Case Study of the Competition Between Rail and Bus on a Specific Route

Guangzhou to Shenzhen (Guangshen) route

Guangshen route which is 146.3 km long is operated by Guangshen Railway Company, a public listed company on the Hong Kong Stock Exchange. After the completion of Guangshen Motor Way in 1994, there is vigorous competition between rail and bus. The passenger traffic of Guangshen Railway Company declined year by year. At the beginning of 1995, the quasi-high speed trains were put into use in Guangshen route, with a speed of 160 km per hour, to improve the passenger service quality, but this did not prevent the rail from continuous loss of volume. The passenger trips in 1995 were 24.2 million which was 20.1% less than that of in 1993.

On November 1 of 1996, Guangshen Railway Company decided to reduce 20% of passenger fare and increase the number of high speed trains in peak hour (20 minutes a train). The effect on volume was dramatic. The passenger traffic increased by 1.73% by the end of November, 1996 and a further increase of 4.1% in December, 1996. The passenger trips of both January and February in 1997 reached to 2 millions which was 33% more than that of 1996. The passenger revenue of the company increased 4 million Yuan monthly and the company's shares were trading at HK\$ 3.63 on Hong Kong Stock Exchange on Friday, January 3, 1997, a 24.7% increase over its price on Friday, November 1, 1996.

Appendix 2

The Evolution of CR's Passenger Tariff

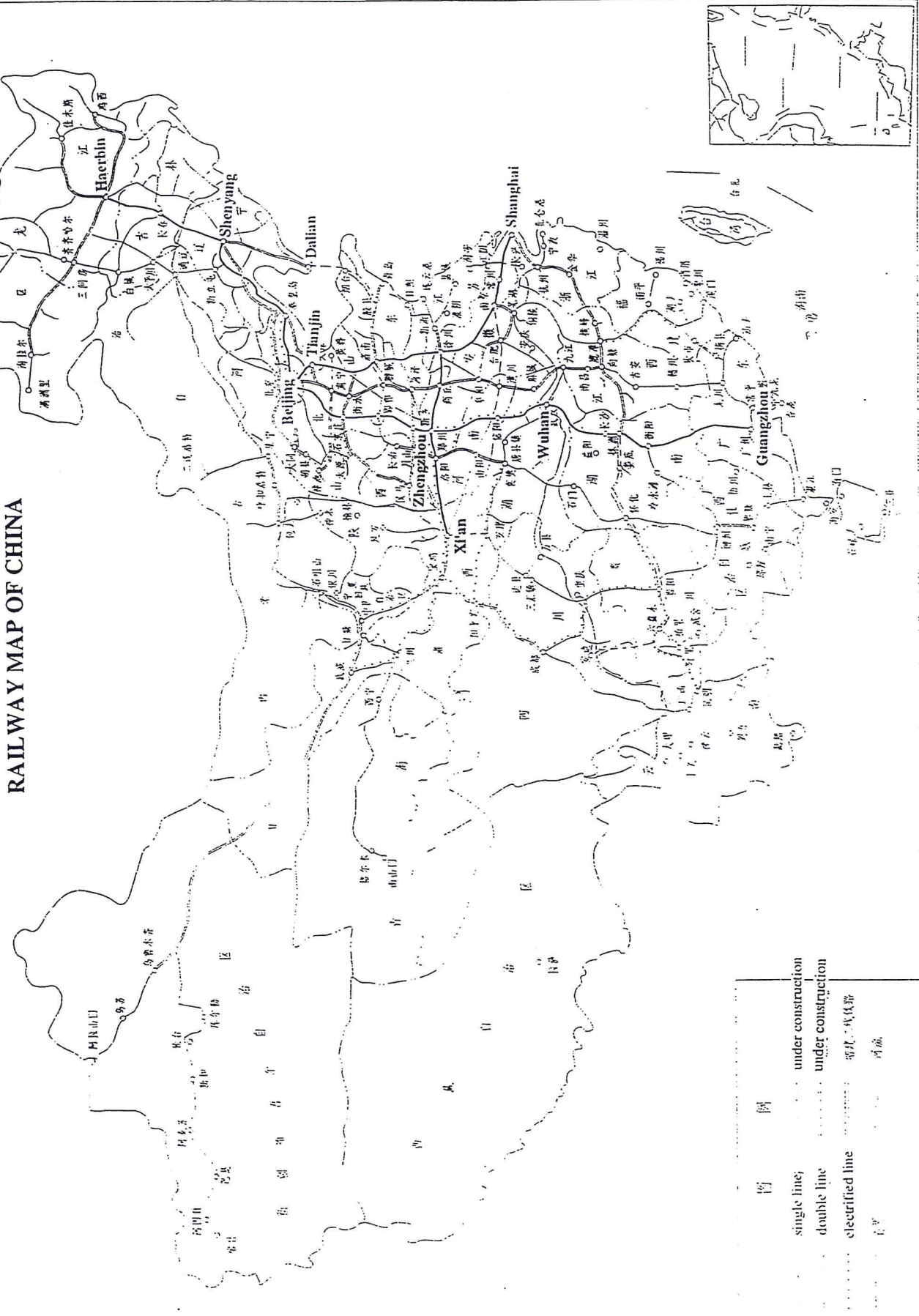
From 1955 to 1985, CR's passenger tariff was nearly unchanged with a basic rate of 1.49 cent^(a) per PKM. In May of 1985, short-distance (less than 100 km) passenger rate was increased by 36.7% to induce some shift of short-haul passenger from rail to bus. In September 1989, the basic passenger rate was raised to 3.86 cent per PKM, that is a 112% increase. The passenger trips in 1990 decreased by 15.9% compared with that in 1989. The average price elasticity with respect to demand was 0.22^(b) with great difference between fast trains and slow trains. The price elasticity of slow trains was about 2.0. In October 1995, the basic passenger rate was raised to 5.86 cent per PKM, i.e. a 51.8% increase. The passenger trips of the fourth quarter in 1995 dropped by 19% compared with that of the fourth quarter in 1994. The passenger trips in 1996 were 12% less than that of 1995. The average price elasticity was 0.19^(c).

(a) [100 cent = 1 Yuan, 1£ = 13.0 Yuan]

(b) [average fare increase for all classes was 72.2% in 1990]

(c) [average fare increase for all classes was 68.1% in 1996]

RAILWAY MAP OF CHINA



single line	under construction
double line	under construction
electrified line	railway
	road

