PROBLEMS OF FINANCING THE INFRASTRUCTURE IN GERMANY

Werner ROTHENGATTER
Institute for Economic Policy Research
University of Karlsruhe
Kollegium am Schloß, Bau IV
7500 Karlsruhe 1

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INTRODUCTION

In Germany the provision of transport infrastructure is traditionally a public sector activity. It is due to the huge financial burdens of the German unity that politicians have discovered the possibility of private finance. In the US, Japan, France, Italy, Spain and the UK there has already existed an extensive experience with privately financed infrastructure. The Netherlands and the Scandinavian countries have recently introduced systems of private finance or plan to introduce them in the near future, respectively. This possibility has never been taken seriously into account in German transport policy and, therefore, the problem has suddenly come up in an environment which is absolutely unprepared:

- The infrastructure has not been designed for raising user charges.
- The legal base is not appropriate for privately building, operating and financing the transport infrastructure.
- People are not prepared to regard transport infrastructure as a private business and use their political power to resist to such plans ("car drivers party").

These reasons have stimulated the German Ministry of Transport to develop a particular "German Way" of private financing which will be in the focus of this presentation.

1 DEVELOPMENT OF TRANSPORT DEMAND AND SUPPLY IN THE PAST

In the past two decades the real Gross Domestic Product in W. Germany has risen by 60 %, the passenger km traveled increased by 58 % and the ton km in freight transport by 39 %. But the real gross investments in the transport sector have decreased by 18 %. Consequently there is a sharp decline of transport investment per unit of GDP from 3.3% to 1.7% or per unit of transport (pass. + ton km) from 6.54% to 3.51% (Table 1).

In critical studies on the role of the transport infrastructure for economic growth, the conclusion has been drawn from this development (also based on regression analysis) that the transport infrastructure in W.Germany is already on such a high level that its extension is irrelevant for the economic prosperity of the country. This conclusion, however, is wrong. There are clear signals showing that the decline of investment activities in transport was a political failure which nowadays yields consequences in terms of bottlenecks, chaotic flow patterns, time losses and drastic cost increases which jeopardize the economic growth.

2 PROSPECTS OF FUTURE DEVELOPMENT OF PASSENGERS' AND FREIGHT TRANSPORT

The driving forces of the transport development in Germany are:

(1) the development of the single market in the EC;
(2) the opening of borders between the West and East European Contries;
(3) the economic and social integration of the former GDR;
(4) the individualization of passengers' transport, and,
(5) the flexibilization of freight transport logistics.

All signals point to a drastic expansion of road and air transport under free market conditions. The only dampening factor in the next two decades is the government policy towards a reduction of environmental risks. In the forecasting scenarios for the first integrated German Transportation Master Plan three different sets of assumptions have been formulated:

- trend development (no restrictive policy): Scenario F,
- soft restrictions: Scenario H and,
- harsh restrictions for cars and trucks in terms of high user charges and regulations: Scenario G.

The outcome of the forecasts is shown in Figures 1 and 2. The reference scenario of the Ministry of Transport is scenario H. Under this regime of assumptions the passenger kms for car travel are expected to rise in the next two decades by 29 % (car km: 42 %), the passengers' km of rail travel by 58 % and of air travel by 157 %. In the freight sector, the growth rate is 95 % for trucking, 50 % for rail and 84 % for inland waterway shipping.

Year	GDP (Bill.DM, base 1985)	Pass.km (Bill.)	Ton km (Bill.)	Gross Inv. Transp.Infr. (Bill.DM,1985)	Gross Inv. over GDP in %	Gross Inv. p. Pass.+Ton km in %
1970	1321	456,5	215,3	43,95	3,33	6,54
1975	1471	522,5	213,7	39,17	2,66	5,32
1980	1727	598,6	255,3	38,06	2,20	4,46
1985	1823	602,1	255,2	33,93	1,86	3,96
1990	2119	723,1	300,1	35,89	1,69	3,51
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Table 1: Development of Transport Investments and Transport Demand in West Gemany

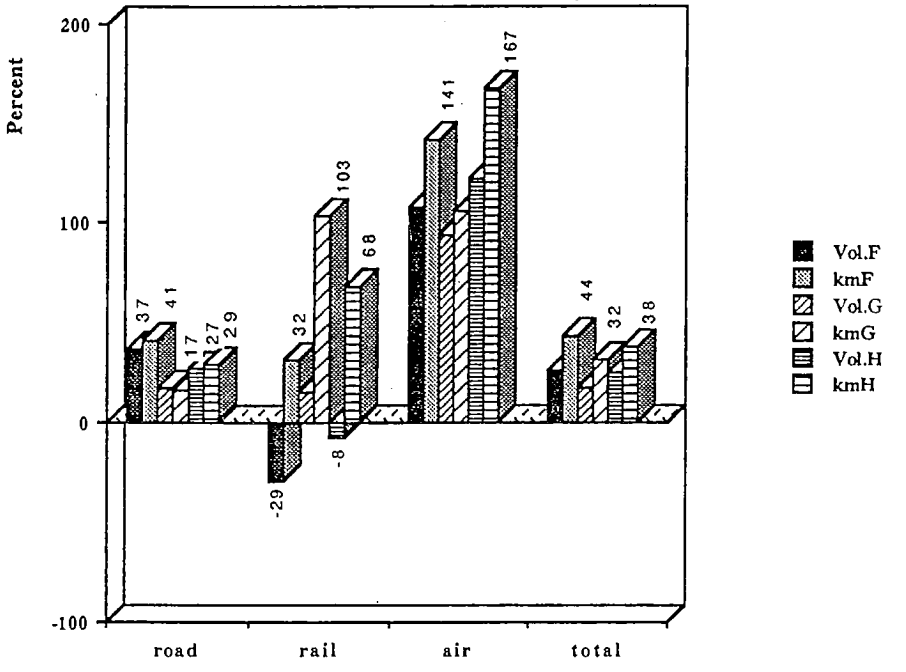

Figure 1: Percent Change 2010/1988 Passenger Transport

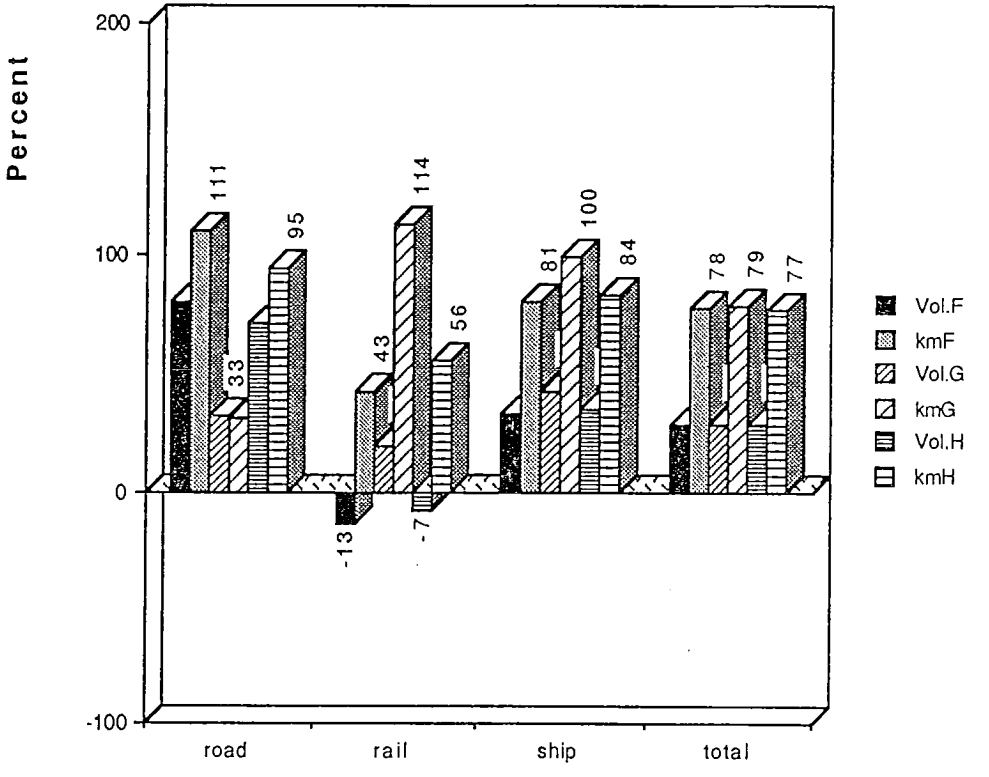

Figure 2: Percent Change 2010/1988 Freight Transport

A closer analysis of the different demand segments shows that Germany is facing an explosion of East-West transport due to the integration of the former GDR and the expected closer relationships between East and West Europe. The passengers' traffic between East and West Germany is expected to grow by the factor 8, the transit between the West and the East crossing German borders is even expected to grow by the factor 29. The growth factors for East-West and international freight transport are only a bit lower.

3 NEED FOR INFRASTRUCTURE AND INVESTMENT BUDGETS

There are four reasons advocating a dramatic increase of the transport infrastructure investments in Germany:

(1) correcting for the failure of too low investments in the past;
(2) extending the supply according to the adjusted demand (adjusted by soft restrictive policies);
(3) supplying sufficient capacities for the East-West corridors which has been neglected in the past and,
(4) making up for the neglected replacement investments in East Germany and adjusting the quality of their infrastructure to the West German standard.

The final argument is the most challenging one. The scientific advisory council of the Ministry of Economic Affairs has stated in their report for 1991/1992 that the bad condition of the East German infrastructure and the low capacity of East-West links are a major impedance for the economic development in East Germany. According to the council, the rapid improvement of the transport capacity is therefore a national task force of highest priority.

In a first rough estimation the transport investment demand in Germany was fixed to 280-300 Bill. DM until the year 2000. If the same instruments for financing the investments are used as in the past the budget would sum up to 180 Bill. DM which means that 100-120 Bill. DM are missing. Therefore new ways have to be found to close the financial gap.

4 PUBLIC AND PRIVATE POSSIBILITIES TO FINANCE TRANSPORT INFRASTRUCTURE INVESTMENTS

The public sector in Germany is composed of three levels: the federal, states and community level. The principle of finance is that every territorial unit is financially responsible for that part of the infrastructure which it can decide on. As the tax income of the states and communities is not sufficient to finance large investments such as underground rail the federal gives additional ear-marked financial support.

The most important instrument of vertical investment funding is the "Municipal Funding Law". Projects which satisfy the requirements of this law are financed to 60 % by the federal, to 25 % by the states and to 15 % by the local government. For projects in East German communities the federal pays 100 %. In 1992 the federal will spend altogether 6.6 Bill.DM, 3.8 Bill.DM for roads and 2.8 Bill.DM for public transport. The communities in East Germany receive 2.8 Bill.DM, or 42 % respectively, although the share of population is 21 % only. This indicates the extraordinary needs for local transport investments in East Germany.

Table 2 gives an overview on the development of the total expenditures of the federal government for the transport sector, Table 3 shows the development of investments. The

figures comprise the financial supports for states and communities mentioned above and the expenditures for the federal network.

The funds for financing the expenditures stem from taxes and credits. The share of credits of the total income is about 12 % in the year 1992.

Bill. DM	1991	1992	1993	1994	1995
Total Expenditures	410.33	422.56	428.5	438.8	449.2
Tax Income	311.80	337.93	355.1	380.0	398.6
Credits (Net)	66.42	49.86	45.1	30.2	25.1
Share of Credits (%)	16.20	11.80	10.5	6.9	5.6

Table 4: Development of Expenditures, Taxes and Credits in Germany According to the Financial Plan

As is exhibited in Table 4 the share of credits was extremely high in 1991 due to the financial consequences of the German unity. The government is willing to reduce the credit volume step by step and to cut credits by half in the next 4 years.

For the transport sector and the following discussion on private financing three points are important:

(1) The credit volume should not exceed the volume of public investments according to the constitution.
(2) There is no ear-marking of taxes or credits possible for transportation investments financed out of the budget.
(3) While fiscal policy aims at the consolidation of the budget, the needs for transportation investments is exploding. Only a small part of these needs can be financed by restructuring the budget, i. e. by cutting military expenses.

It is obvious that there is a bias between the aims of transportation policy and fiscal policy. Furthermore there are a number of impedances for an economically efficient investment policy in transport which stem from the principles of budget control and the X-inefficiency of the governments' administration. These are the reasons for discussing alternative ways of financing:

a) building, operating and financing by public enterprises, or
b) building, operating and financing by (regulated) private enterprises.

The solution a) has been chosen by the European partner countries for operating toll expressways, bridges or tunnels (in Austria). For Germany this way could be attractive because parts of the transport investment budget would no longer be controlled by the restrictive administrative regime. The transport link or network companies could raise funds by emission of loans and recover the costs by imposing user charges.

Solution b) goes one step further to stimulate further efficiency gains by introducing private activities in planning, building, operating and financing the project. Until now experiences with private commitments have been made only with well defined separate links (Seikan Tunnel, Channel Tunnel). In this case the costs for investment and operation can be calculated and the demand development can be estimated reliably. If however the project is a part of a closely knit network offering many possibilities to choose routes and destinations it

Financial Plan (Bill.DM)

Expenditures for the Transport Sector	1991	1992	1993	1994	1995
1. Deutsche Bundesbahn	11,375	12,276	12,702	13,002	13,702
2. Deutsche Reichsbahn	8,043	8,350	10,110	11,090	11,390
3. Highways and Primaries	8,418	9,950	10,900	11,950	11,950
4. Municipal Transport	3,283	4,782	6,280	6,280	6,280
5. Inland Waterways and Ports	2,409	2,541	2,698	2,774	2,923
6. Air Transport and Other Expenditures	2,137	2,377	2,228	2,211	2,084

Table 2: Planned Expenditures of the Federal Government in Germany for the Transport Sector 1991-1995

Financial Plan (Bill.DM)

Investment Expenditures for the Transport Sector	1991	1992	1993	1994	1995
1. Deutsche Bundesbahn	1,918	2,435	2,642	2,623	2,850
2. Deutsche Reichsbahn	3,790	5,793	7,535	8,545	8,867
3. Highways and Primaries	6,654	8,093	8,944	9,885	9,762
4. Municipal Transport, Roads	1,636	2,386	3,136	3,136	3,136
5. Municipal Transport, Public Transit	1,636	2,386	3,136	3,136	3,136
6. Inland Waterways	0,885	0,921	1,072	1,133	1,275

Table 3: Development of Investments 1991 - 1995

is highly inprobable that private investors are interested in an equity stake because the risks are hardly to be calculated and the company has little control on the market. In such cases only cream skimming can be expected from private investors who eagerly would pick out some profitable parts of the network and leave the rest to the public.

Private investment in single links also implies a considerable risk for the public. Take the case of road investment. The private investors and operators are interested in increasing road traffic to raise returns and profits. The public might be interested to enforce policy towards cars for reasons of the environment but could be prevented from applying this policy because of the long term contracts with private operators.

5 THE "GERMAN WAY" OF PRIVATE FINANCING-INNOVATION OR A DEAD END

To understand the proposals, which a working group of the Ministry of Finance and the Ministry of Transport has worked out, some preliminaries are necessary:

(1) The railways are highly subsidized such that it is hard to find a profitable link.
(2) The highways (Autobahnen) are designed in a way that a road pricing system dependent on distance is extremely expensive (low distances between accesses and departures).
(3) New highways will be built to the greater part in East Germany. Financing new roads by user charges would be a disadvantage to the East German firms and consumers, and such, violate the equity principle of the German constitution.
(4) People still have a strong feeling that transport facilities are public and cost free. Imposing tolls is generally understood as a modern form of street robbery.

Under consideration of these restrictive conditions, the working group had to find solutions which could be called "private finance" but still left the use of the infrastructure free of charge.

a) Leasing Model

A private company or consortium receives the property right for a track and the right to build a transport link. The project is planned, built and financed with private capital, partly by equity stake (20 - 25 %) and partly by loans and credits. After accomplishment the object is leased to the public which pays for the leasing rates. Usually leasing is costly compared with credit financing of the public. But if the public would allow for tax deductions for the capital owners of the project company who have a negative cash balance for the years before the project starts operation this disadvantage can be compensated.

b) Concession Model

In the concession model the property right for the track is left with the public while the private project company gets the right (concession) to build the transport facility. The private investor finances the project like in the leasing model. After accomplishment the public pays annual rates to the private company and becomes the owner of the asset after amortization of the investment costs.

As one can easily check the leasing and concession models don`t get into conflict with the politcal principles:

- Private financing also for nonprofitable projects.
- No user charges.

- No regional discrimination.

This makes this way look so attractive for the politicians and it is not surprising that also state ministries and local authorities call for a private financing of this type. But there are some basic shortcomings of these models:

(1) Financing by leasing is socially unfair if tax deductions are given to the capital owners of the project company. The rich get advantages and the poor have to pay more taxes to balance the budget.

(2) Financing by leasing is no way to accelerate the process of project realization. The usual way to realize a project step by step in those sections for which the legal approval is given can no longer work because the leasing model presupposes that the property right for the whole project is transfered to the project company. But this is not possible until the last section of the track is given free to construction by the responsible authorities which in general means that all proceedings at law, e. g. the expropriations trials, must be terminated. This can cause considerable delays for the planning and construction process.

(3) The leasing and concession models spare budget funds for some years but imply higher burdens for the future. This is shown in Figure 2. For a couple of years (1994 - 1996 in the picture) the public has a higher investment budget. But if it has to pay back amortization and interest a part of the future budgets (1997 - 2024 in the picture) is fixed and no longer disposable.

(4) The concession model legally comes close to a separate budget which undermines the parliamentry control. This means that high risk fiscal policy would be combined with low possibilities of public control.

Because of these arguments the leasing model is out of the recent political discussion. The possibilities to apply the concession model have been drastically restricted by a decision of the Ministry of Finance: The current payments for concession projects should not exceed a defined share of the investment budget for transport projects. The consequence is twofold: First the restricted concession model allows only for a time shift for investments from the future to the present, and secondly the volume shifted is rather modest in order to fulfil the budget requirements. Consequently only two projects have been selected until now for private financing: a high speed rail track between Nuremberg and Munich (investment expenditures: 3 Bill. DM) and a tunnel for a highway link in Baden-Wurttemberg (A 81/Engelbergtunnel, investment expenditures: 250 Mill. DM). Compared with the estimated budget needs of 100 - 120 Bill. DM this is only a small contribution.

Concluding this overview of the "German Way of Private Finance" it is easy to prophize that it will turn out a dead end. A real private financing will presuppose the raising of user charges and the bearing of market risks by the investors. As introducing user charges on the German network has to be harmonized with the EC-transport policy the most urgent political challenge is to achieve an agreement on transport user charges according to the territoriality principle. Unfortunately the German governments' policy in the past was to slow down the progress on this field such that it will be difficult to define a new political position.

6 CONCLUSION

There are possibilities for private financing of transportation projects. Object oriented planning, operating and financing only makes sense for separable transport facilities such as airports, tunnels or bridges. The general problem is to open networks for private operation

and financing. But in the case of the German transport sector, major changes of the laws, including the constitution, are necessary to create the basis for a real privatization. As long as these legal changes cannot be realized the second best solution for the public is to simulate the behavior of the private and to balance supply and demand by the price mechanism. This would yield two important results: a market regulation of the traffic growth and the income needed to build up the necessary, economically and ecologically tested, transport investments.

Literature

Arbeitsgruppe "Private Finanzierung öffentlicher Infrastruktur", 1991: Bericht und Vorschläge der Arbeitsgruppe "Private Finanzierung öffentlicher Infrastruktur" vom 27. Juni 1991. Bonn.

Bauverlag, 1991: Private Finanzierung und privater Betrieb öffentlicher Infrastruktureinrichtungen. Sonderdruck aus: Bauwirtschaft, Heft 5, Mai 1989.

Bergström, S., 1991: Infrastrukturprojekte: Vorzüge und Grenzen einer Privatfinanzierung. In: Internationales Verkehrswesen. 43. Jhg. S. 183 - 188.

Dresdner Bank, 1991: Privatwirtschaftliche Infrastrukturinvestitionen in den neuen Bundesländern. Corporate Finance, Volkswirtschaftliche Abteilung. Frankfurt

Deutscher Industrie- und Handelstag, 1990: Verkehr finanziert Verkehr. Bonn.

Friauf, K. H., 1991: Zur verfassungsrechtlichen Zulässigkeit eines privaten Autobahnbaus. Rechtsgutachten erstattet im Auftrag des Bundesverbandes der Deutschen Industrie e. V. und des Hauptverbandes der Deutschen Bauindustrie e. V. Köln.

Grosse, P. B., 1989: Projektfinanzierung aus Bankensicht. Angewandte Investitionstheorie. Frankfurt. Mimeo.

Hauptverband der Deutschen Bauindustrie e. V., 1991: Leasing-Modell zur privatwirtschaftlichen Finanzierung und Betreibung von Bundesautobahnen. Mimeo.

Musgrave, R., 1974: Finanztheorie. III. Auflage. Tübingen.

Tuckermann, M., 1991: Finanzierung von Verkehrsinfrastrukturinvestitionen. Frankfurt. Mimeo.

VDA et al., 1991: Privatwirtschaftlicher Ausbau der Verkehrsinfrastruktur. Autobahn A2 Berlin-Helmstedt. Frankfurt.