Swiss Transport Policy: Mobility vs. Sustainability

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1. Introduction

Already many centuries ago, the Lucerne region played an important role as a crossroad between the north and the south of Europe. Crossing the Alps was not an easy matter, however. The best routes were the pass of Saint Gotthard right in the middle of Switzerland, the Simplon and Grand Saint Bernard to the west, and the Spluegen to the east. As the saga goes, the people of Uri at the Gotthard route even needed the devil's help to build a bridge. The devil was willing to do so on the condition that the first being crossing that bridge would be his. The Uri people agreed. Clever as they were, they forced a goat to use the bridge as the first creature. The devil got angry and threw a big rock down the valley. Today you can still see this rock when you travel over the Gotthard pass or use the tunnel, either by car or by train.

Nowadays building roads and rail tracks over or through the Alps is somehow less romantic than at those ancient times. Nevertheless, transport policy has remained a very important element of Swiss policy. As is well known, Switzerland is not a member of the European Union, and has done quite well in staying outside so far. One of the reasons for this is that Switzerland has a precious trump-card to take advantage of the economic benefits of the European common market. This trump-card are the transit routes through the Alps. Of course, the Swiss transport policy does not only consist of this component.

In my keynote address, I want to present a survey of the Swiss transport policy. In section 2, I will show how in my country transport policy has developed and where it stands at the beginning of the 21st century. The main part will consist of the various attempts to come to a coordinated transport policy. Coordination in this context means finding an equilibrium between the various modes of transport. In section 3, the new challenges to the Swiss transport policy will be discussed: the conflict between satisfying mobility needs on the one hand and guaranteeing sustainability on the other hand. This question, I think, is even more vital for my country than elsewhere, because the Swiss mountain regions belong to the most sensitive parts of Europe. In the last section, I shall try to draw some conclusions.

2. Development of Swiss Transport Policy in the Past

2.1 Overview

The building of a rail network in the second half of the 19th and the first decades of the 20th century, including two tunnels through the Alps (Gotthard 1882, 15.0 km; Simplon 1906, 19.8 km), was the achievement of private investors. Government was nearly absent in the planning process. The only thing the Federal Government did was to engage two British experts to sketch a rail network hoping to influence the private investment decisions. Furthermore it accorded the right of expropriation of land to the railway companies. In the first decade of the 20th century a major part of the railway network was nationalised and the Swiss Federal Railways were founded (Schweizerische Bundesbahnen SBB).

Until World War II, the railway companies did not have to fight against competitors. Road transport was not yet developed. Rail transport was economically successful. It helped Switzerland in its development from a poor to a wealthy economy. After 1945 private transport gradually became a dangerous challenger. The Swiss Federal Railways, though legally still in a monopoly status, and the so-called private rail companies ran into financial difficulties. The Federal Government had to subsidise them by increasingly larger amounts.

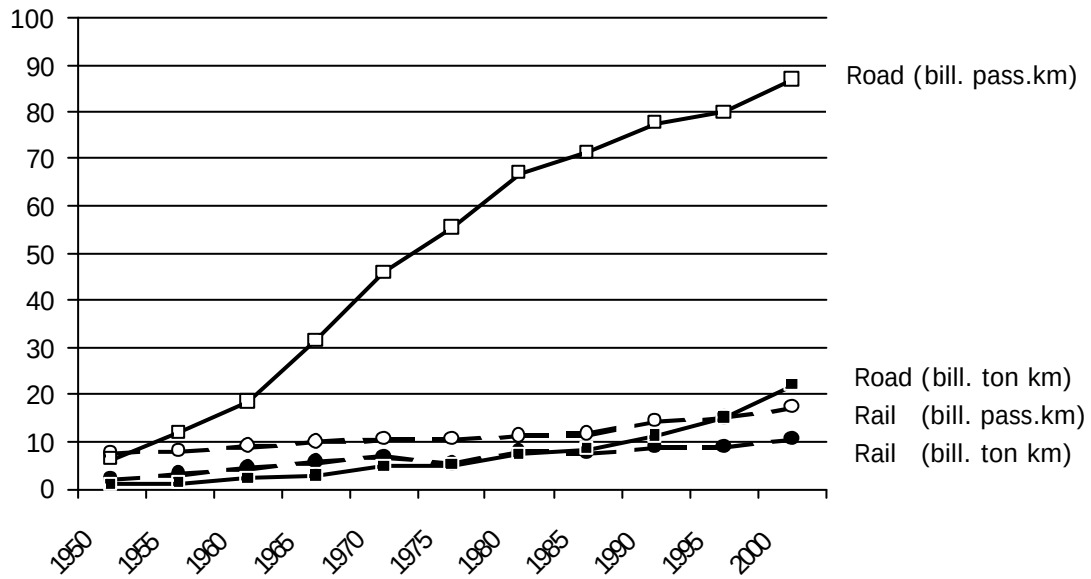
In the fifties, a completely new motorway network was initiated. Competition between rail and road turned out to be in favour of the latter, both for freight and passengers. The government had to act if it did not want rail transport to deteriorate or even collapse. As often in situations of political helplessness a federal commission was engaged to develop a so-called «integrated transport concept» (Gesamtverkehrskonzeption, 1972-1978). This work was successful. It achieved a consensus between the different interest groups. Its implementation failed, however. In 1988, in a public plebiscite the Swiss voters declined the proposals. The time was not yet ripe. The ecological debate was too weak to arrive at a new policy concept. Too many voters wanted to enjoy the freedom of car-driving. The Swiss transport policy was still characterised by two main principles: the competition between road and rail and the free choice of the transport mode.

As is shown in Figure 1, traffic grew rapidly in the last fifty years. The sectoral approach to transport policy could not be followed any longer. It would have been too costly. Instead of aiming at an integrated transport policy concept as in the seventies, many single measures were adopted by the parliament and the voters:

- Gasoline taxes (1985, 1993) and vignettes (1994), the receipts being earmarked for financing the capital and maintenance costs of the motorways.
- Rail 2000 (Enlargement of the railway network, 1987).
- Two new railway tunnels through the Alps (1989).
- Charge on Heavy Vehicles (1994, Leistungsabhängige Schwerverkehrsabgabe LSVA, 1998).
- Combined funding of new large railway projects (1998).
- Deregulation and partial privatisation of the Swiss Federal Railways (rail reform, 1999).
- Bilateral Agreements with the European Union regarding road, rail and air transportation (in effect since 2002).

With one exception, these reform steps were initiated by the Federal Government. In 1994, however, a popular initiative called «Alpen-Initiative» (Initiative for the Protection of the Alps) was adopted against the will of government and parliament. This constitutional amendment forbids the increase of the road capacities in the Alps and claims that the transport of freight from frontier to frontier be done by rail within ten years, that is to say before 2004. Already today it is clear that such a rigorous regime cannot be implemented.

Figure 1 Development of traffic by road and rail, Switzerland, 1950-2000



Source: Litra Verkehrszahlen ’02.

2.2 Road transport

Beside the construction of a dense motorway network of 1700 kilometres length, the main road policy measures regard regulation and taxation.

- Regulation: Until a few years ago, the total weight of trucks was limited to 28 tons, compared to 40 tons in most countries of the European Union. This, for Switzerland, was an effective way to deter foreign trucks from using the Swiss transit corridors trough the Alps. It was not efficient at all from a European perspective, however. In the negotiations of the Bilateral Agreements Switzerland had to give way and increase the weight limit for trucks to 34 tons today and 40 tons once the two new rail tunnels will be in use and will allow an efficient system of combined traffic (containers, etc).
- Taxation: The Charge on Heavy Vehicles is an electronic system of collecting a fee for trucks travelling on motorways and all other categories of roads in urban and rural areas. This tax depends on three elements: distance, weight and emission. The tax rate is rather high and exceeds the rate to be raised in the planned German truck tax. The Charge on Heavy Vehicles intends,
  - to skim part of the productivity gains that can be realised by the increase of the weight limit for trucks.
  - to shift the modal split by making rail transport more attractive at the price level compared to the transport services on the road.
  - to finance the motorways (infrastructure and maintenance) as well as part of the investments in new rail tunnels through the Alps.
  - to internalise at least some of the external costs of heavy weight traffic on the roads.

2.3 Rail transport

The Swiss railway system is in a comparably good shape. The trains are modern, clean and normally run on time. Switzerland is the world champion in travelling by rail: 1987 km per person and per year (1997). France is on position 2 with 1050 km. The figure for the European Union is less than half (767 km) (Statistical Yearbook of Switzerland 2003, p. 447).

Although the population is very proud of the Swiss Federal Railways, the liberalisation wave has also influenced rail policy. A few years ago, a rail reform was adopted aiming at increasing the competitiveness of rail transport compared to the road. This is urgent. According to the White Paper of the Commission of the EU on European Transport Policy in 2010 the cross-border freight traffic has no chance with its average speed of 18 km/h (2001, p. 31).

The Swiss reform concept followed Directive 91/440 of the EU. Its main elements are the separation of infrastructure and operation, the free access to the markets and the railway net-

work on specific conditions, and the promotion of intermodality and interoperability within and between the different modes of transport. The Swiss Federal Railways were freed from historical debts and transformed into a private firm with the Federal Government as only shareholder.

IBM Business Consulting Services and Christian Kirchner (Humboldt University of Berlin) have analysed the European countries according to their progress in liberalising the rail sector. According to this ranking Switzerland is on position 6 of the 17 countries included in the study. It is qualified «on schedule».

Beside liberalisation, the Swiss rail policy has two further targets. It wants to ensure that Switzerland will be connected to the Trans European Network planned for the next decades. This especially holds for the new high speed rail tracks. And within Switzerland public service shall be guaranteed for everybody at moderate cost and in a non-discriminatory manner.

2.4 Air transport

For many decades Swissair, the Swiss national carrier, and Crossair had an excellent reputation. This changed when, in the eighties, the concept of open skies gained ground on the European continent. As a non-EU company Swissair was discriminated. It followed a forward strategy by investing in airlines of EU countries, e.g. the Belgian Sabena. This escape attempt was a failure because only weak companies were on the market. It ended in the «grounding» of Swissair in autumn 2001 and later the liquidation of Swissair and Sabena. With the financial help of the Swiss government and private firms a new airline was founded: Swiss. At the moment (May 2003) this company is in trouble, too, due to the global economic recession but also for non-commercial reasons such as September 11th, the Iraq war and Sars.

We will have to wait in order to judge whether favourable boundary conditions for air traffic will be re-established and whether liberalisation will go on. As long as European air traffic is dominated by national politics, airlines of small non-EU countries, such as Switzerland, will be handicapped.

Another problem of Swiss civil aviation is the conflict with Germany regarding the starting and landing corridors of the main airport, Zurich-Kloten. This conflict has its origin mainly in the noise immissions in residential areas. All local communities, regions and countries want to have a good access to air transport but try to shift noise to others. «Not in my backyard» seems to be a widely followed guideline.

2.5 Water transport

Thanks to a very liberal international agreement, the so-called Mannheim Acts of 1868, free access to the Rhine is guaranteed for all ships registered in one of the Rhine countries. The benefits for Switzerland are obvious: A large percentage of the Swiss imports (by quantity) coming from Rotterdam enter the country through the port of Basel.

Navigation on the many Swiss lakes is mainly of interest for tourism and does not pose policy problems.

2.6 Urban transport

Compared to many other countries the largest metropolitan region of Switzerland, Zurich, is rather small. It only counts about one million inhabitants. Geneva and Basel, ranking on the next positions, have about half a million inhabitants. It is therefore no surprise that traffic congestion exists but is less troublesome than in the very large centres of the world.

As a general rule, the urban transport policy is under the responsibility of the local jurisdictions. On this lower level direct democracy is even more developed as on the cantonal and national level. This explains why urban transport policy is rather pragmatic, even conservative. You will hardly find high capacity motorways through our cities. On the other hand, public transport is very well developed, efficient, clean and secure. Most Swiss cities have busses and tramways. Switzerland never had kings, princes or mighty lord mayors who tried to leave traces of their power in history. Therefore the streets are narrow, grand avenues are missing. As a consequence the gauge of the Swiss tramways is 1 metre only. This is a disadvantage because, in our days, progress is faster for tramway technology with normal rail gauge.

Zurich was the first Swiss city that built an urban mass transit system. The authorities initially proposed a new underground. In a plebiscite the voters said no. But a few years later they gave their approval to the S-Bahn (rapid-transit railway). It partly consists of newly built tunnel sections, partly of the normal railway net belonging to the Swiss Federal Railways. This company also operates the Zurich S-Bahn – without national subsidies. In the last years Berne and Basel started to copy the Zurich example and began to erect an S-Bahn. Other cities expanded their tramway net and invested in modern vehicles.

Decades ago season tickets valid for all public transport services (tramway, bus, S-Bahn, railway) were introduced in urban regions. A large part of the urban population owns such

tickets. They have contributed to the high acceptance rate of urban public transport. Electronic ticketing is discussed but so far it is nowhere in operation.

The S-Bahn is less spectacular than a real Underground or Metro. It is a less costly solution for cities of the Swiss size. The Zurich S-Bahn has significantly contributed to the rapid growth of that metropolitan region. I am sure that the voters would not opt for the underground concept if they had to decide on it again.

If you ever had the chance to drive a car in a Swiss city you will have realised that they cannot be declared as «car-friendly». Parking facilities are scarce and electronic parking guide systems have only been introduced in the last few years. This reflects the predominating view that it is better to use public transport than the car. Compared to cities in other countries, in Switzerland the modal split is very much in favour of public transport ... and, not to forget, the bicycle.

In the Swiss political system the cities have to finance urban transport to a large extent by local and cantonal taxes. Only a few years ago the Federal Government has discovered its heart for the larger cities. It has developed an agglomeration policy. Now, a new federal law is in preparation to give the cities more money to adapt road and rail capacities to the growing demand. Road pricing is not yet a political issue. It is only discussed in academic circles.

3. New Challenges

Let's look at the challenges the Swiss transport policy will have to cope with in the future. These challenges have to do with two conflicting forces: the increasing mobility on the one hand and the limited natural resources on the other hand.

I want to start with mobility. Globalisation and the Single European Market made the national frontiers permeable for labour, goods, services, and capital. New technical and legal possibilities have promoted the international division of labour. As a consequence international trade and economic welfare grew rapidly. Competition among firms and competition among locations, regions, and countries were intensified. Both factors, economic growth and competition, plus decreasing transportation costs led to a tremendous increase in mobility. The interest groups that articulated the mobility demand in the past were politically strong and succeeded in continuously increasing transport capacities. Economic growth and mobility growth depended on each other. In this respect Switzerland was no exception.

Now to the limited natural resources. The specific topographic and geographic situation of Switzerland and its political system explain why this country has become a guiding figure in coping with the ecological problems of transportation. At least this is my impression when reading the White Paper published by the Commission of the European Union on the «European Transport Policy for 2010». In this document Switzerland is considered as a pioneering country. It shows in which direction to go in the long run. Sustainability is the new keyword. Let me say a few words about this issue as it is discussed in Switzerland. My interpretation will be based on an economic reasoning.

For decentralised market decisions leading to optimal results, i.e. efficiency, a number of conditions have to be met.

- Firstly, there must be competition within and between different modes of transport.
- Secondly, all costs and benefits must be internalised. This means that the users and supplier of transport services must take into account not only their private costs (and benefits) but also the external costs (and benefits). For time reasons, I cannot develop why this precondition for efficiency is important. I simply refer to introductory textbooks on welfare economics.

It is uncontested that in the transport sector there are a lot of external costs due to congestion, noise, accidents, pollution, degradation of landscapes, etc. For Switzerland the economic losses resulting from externalities of this kind amount to approximately 10 billion Swiss Francs (7 bill. €) or 2-3 percent of GDP (see e.g. Maibach et al. 1999).

What are the consequences of not internalising external costs?

- The modal split is distorted, at the disadvantage of public transport which has a lower amount of costs that are externalised per transport service unit.
- The amount of traffic as a whole is higher than it would be if all efficiency conditions were met.

These two statements can be proved by looking at transport policy in the real world. Obviously neither the Swiss population nor the majority of the politicians are satisfied with the current trends. This explains the great number of regulations and government interventions aimed at reducing the negative side-effects of traffic. Let me cite a few examples for this «market failure»:

- Subsidies to the rail in order to achieve more or less equal chances: They create new distortions because transport services are too cheap compared to all other goods and services produced and consumed in the economy.
- Operating regulations to reduce negative effects of road transport: The 28 ton limit (today 34 tons) for trucks in Switzerland is a good example. The disadvantage of this measure is that it causes higher private costs than more flexible instruments.

- Investment regulations to prevent negative effects of transport, e.g. tunnels and walls to reduce noise in residential areas. They, too, are characterised by high costs.

What would be the correct measure to cope with the externality problem? The answer is simple in theory, but difficult in practice: internalisation of the external cost. A nearly perfect application of this prescription is the Swiss Charge on Heavy Vehicles. This instrument today differentiates according to weight, distance and emission. In the long run it should include congestion as a fourth determinant of the tax rates. Furthermore it should be expanded to private cars. This, however, will take a long time. It will only have a chance in case of a severe aggravation of the congestion problem.

If such a comprehensive internalisation scheme were in vigour the traffic structure would improve and the total volume would be smaller. A lot of problems of actual transport policy would be reduced. Certain investment projects which today seem to be urgent in order to meet the current mobility demand would prove to be unnecessary. Costs could be saved, not only in the transport sector itself but also for society as a whole.

As I have said, in Switzerland two new railway tunnels are under construction. They have a length of more than forty kilometres each and are extremely costly. Similar projects are planned in Austria and France. I predict that once these tunnels will be in use and are to be financed by user fees, rail demand will decline. The prices will be too high compared to the road services. Government subsidies will be needed for an endless future. The vicious circle will go on: higher capacity – new traffic – higher capacity – new traffic, etc. Why not internalise the external costs first, then observe how mobility reacts to this measure and decide afterwards whether large investments projects really must be realised?

This question brings me to a last aspect. What will happen when other determinants of traffic will change in the future? Let's think of technological breakthroughs in emission reduction (e.g. zero emission vehicles). The transport system we are accustomed to could look old-fashioned in the future. What should be done? We need strong incentives for inventions and innovations in the transport sector. Internalisation would also be a good recipe to meet this request.

4. Conclusions

Let me conclude my keynote address on the Swiss transport policy.

Of course, the Swiss transport policy is far from being perfect. It has, however, developed some elements that will be apt to reduce the conflict between mobility and sustainability. For

a long time Switzerland, as many other countries, followed a transport policy accepting mobility demand as given. The Swiss voters' right to influence politics by direct democratic means such as public initiatives and popular referenda gradually created a pressure to develop mechanisms to steer the transport sector towards a long-term equilibrium. Switzerland, in its transport policy, has implemented an instrument appropriate for attaining this goal: the internalisation of external costs. The idea is not new. Its theoretical foundations were developed by Arthur C. Pigou, an English welfare economist, nearly hundred years ago. Now, there is a chance to implement it. I hope that the opposition of the neighbouring countries and the automobile and transport associations will not stop this effort.

Mobility growth and economic growth formerly were Siamese twins. They have to be uncoupled in the future. In my view, the internalisation of external costs of transport is the best strategy to do so. It helps to realise sustainable mobility. This, according to the Brundtland Report «Our Common Future» (1987, p. 43), means a development of the transport sector «that meets the needs of the present generation without compromising the ability of future generations to meet their own needs».

Literature

There exist no comprehensive books on the current Swiss transport policy. Contributions to this topic can be found in:

Jahrbuch der Schweizerischen Verkehrswirtschaft, ed. by SVWG Schweizerische Verkehrswissenschaftliche Gesellschaft (annually).

Reports of the National Research Programme No. 25 «City and Transport».

Reports of the National Research Programme No. 41 «Traffic and Environment – Interactions Switzerland/Europe».

Reports of federal government units (www.uvek.admin.ch)

- Federal Office of Transport (Bundesamt für Verkehr BAV)
- Swiss Federal Roads Authority (Bundesamt für Strassen ASTRA)
- Federal Office for Spatial Development (Bundesamt für Raumentwicklung ARE)
- Federal Office of Civil Aviation (Bundesamt für Zivilluftfahrt BAZL)
- Swiss Agency for the Environment, Forests and Landscape (Bundesamt für Umwelt, Wald und Landschaft BUWAL)

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