

The Backside of the Coin

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1 Introduction

The invention of modern transport modes, the railway, the car and the airplane was appreciated enthusiastically by the human society and also by all experts dealing with transport and economy. The magic of high speeds seemed to overcome the limits in time and space given by the limited speed of pedestrians, horses and sailing boats.

Everything was easier to reach, time savings were possible – firstly without any negative effects. The frontside of the coin was so impressive, that nobody thought that there must also be a backside. But if there is a big frontside, the backside has the same size. This paper describe, based on theoretical and empirical based research, the main systemic mistakes of the traditional “frontside view”, which has ignored structural and economic effects of the modern transport system. These effects explain the undesirable but inevitable negative effects of the transport system for some parts of our economy and for some regions in our countries and the continent. Much to much of the today political decisions in the transport and economic sector is still based on hopes and not on rational scientific based ground – they are still irrational.

2 Traditional view

Doubtless a good transport infrastructure is a precondition for a good economy and the economic development of a region. On the other side the modern transport system has also increasing adverse effects. Noise, air pollution and accidents are the main and best known negative direct effects of the mechanical transport system. These effects were not planned and also not taken into consideration in the decision process decades ago.

New transport infrastructure always raises the expectation of a winning situation on both ends of the road. Land use planners and regional economists propose a continual extension and development of the transport infrastructure which seems necessary to continue the economic growth.

One of the basic principles was and is the dogma of a better connection between peripheral regions with central structures in order to decrease the disparities between them. Unfortunately the disparities are increasing with the better transport system and not disappearing. The central regions are

Mechanical transport systems, driven by external energy, are a rather new invention of the human society, which was only familiar with the body energy driven pedestrians. Everybody was fascinated from the possibilities of these new modes of transport. “Mobility growth” and “increasing the speed to save time” seem to be possible. A scientific analysis shows us now much more from the “backside of the coin”. Car mobility is growing, but all other kinds of mobility are declining. The number of trips remained the same. There is also no time saving possible in the system. If speed is increased, the distances are proportional increasing. This had effects on built and economic structures. Increasing speed extinguish small units and support the big ones. This explains the miraculous exponential growth of big international corporations and the dying of villages, small shops etc. The transport system of today distort the “market conditions” totally. The “backside of the coin” can now support decisions with the necessary information to prevent mistakes.

becoming stronger and the peripheral regions are losing not only money but also structures and power. Motorways are built around cities, with the proposal to solve transport problems and to support the city economy. The effects are everywhere the same, the traffic problems are increasing after a short period of relaxation, congestion does not disappear but grow and instead of improving the cities economy, the remaining economic structures in the cities are dying faster while peripheral centralised shopping centres, with more or less no connection to the city are flourishing.

3 Four basic questions

This raises some questions: Is it true that each improvement of a transport infra-

structure improves the economic situation?

Are there just winners or also losers of a better transport system?

Who are the winners and who are the losers in the system?

What is a “good” transport infrastructure or a good transport system?

4 Scientific background

Before answering these questions it is necessary to specify the approach to the solutions.

The mechanical transport system is a rather new technical invention to the human society, which was familiar only with the pedestrian speed for thousands of years. The effects of this invention were not well understood by the society, the experts, the politicians and the engineers. The result was the creation of myths of the transport system and its effects. So the myth of “increasing mobility” was born, since it was observed that the number of car trips increased with the motorization. But it was not recognised that with the increase of car trips the number of trips with all other modes decreased. So there is no increase of mobility but only a shift of trips from one mode to another. The “Mobility” of people remained the same, the indicator “trip-rate” has not changed.

The second myth is that of “saving time due to increasing the speed of the transport system”. This experience can be proved in the single case but not in the transport system itself. In the transport system the duration – and distribution – of travel time is independent from the mode and constant. The qualified scientific community in the transport sector is using this

“Constancy of travel time”. There is no scientific evidence of any time savings in the system as the outcome of higher speeds. But there are countless empirical case studies about the constancy of travel time available.

Based on this empirical and theoretical sound base, we can now try to give answers to the questions.

Is it true that each improvement of the transport infrastructure improve the economic situation?

The basic relationship between transport infrastructure and economic effects can be drawn in a diagram (Fig. 1).

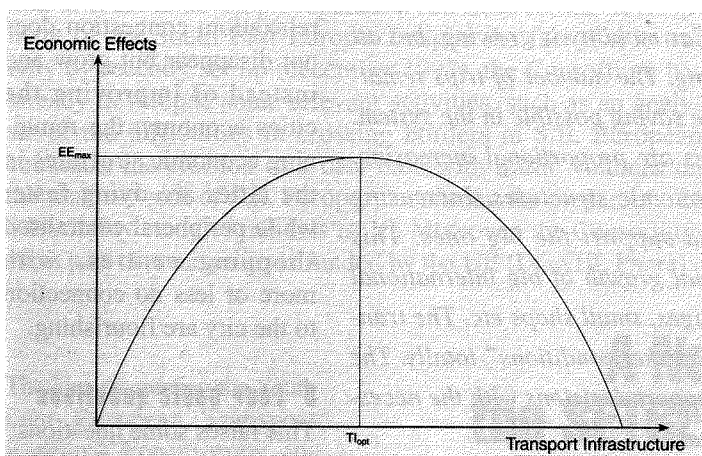


Fig. 1: Relationship between transport infrastructure and economic effects

If there is no infrastructure at all available, the first part of new built infrastructure will create rather big positive economic effects. With increasing density of the transport network the contribution to the economy will decrease and finally reach an optimum. If more infrastructure is built, the contribution becomes negative and finally the economy will collapse to zero. A motorway interchange is an area where no economic activities are possible, no exchange of goods or persons can take place, only subsidised use of resources is happening with negative environmental and social effects. A myth, widely in use, is to believe that everywhere in the world more transport infrastructure is necessary for a better economy. Especially in countries which have already passed the optimum. The old believers from the first part of the diagram with the positive relationship between transport infrastructure and economic growth can not realise that the system has passed the turning point already. The more the negative economic effects can not be neglected, the more they ask for more transport infrastructure. And they are supported by the winners of this system – the consultants and construction firms, making profit out of not only useless but also economic adverse infrastructures.

A transport infrastructure must be in balance with the local, regional and national economic situation and the economic structure. If this equilibrium is lost, negative effects are unavoidable. The problem is to find the right balance at the right time. Today most of the western European countries are

already far on the right side of the diagram and have passed the optimum years or decades ago, without recognising it, since car driving is still a fun, especially in an outsized motorway network.

But this infrastructure is now changing the economic structures more and more. High speeds in combination with low transport costs are influencing the competition between firms, or generally spoken, they distort the market. The relatively bigger units are subsidised and supported massively, the relatively smaller ones are discriminated fundamentally. Paradoxically the small economic units are often the driving force for bigger, faster and cheaper transport infrastructure, which is later on the tool that they are eaten up by bigger competitors. This tragedy shows how few the effects of modern transport systems are understood.

Our society is a market oriented competitive one and not a society of the Sermon on the Mount.

The second question, “Are there just winners or also losers as the result of a better transport infrastructure?”, and the third question “Who are the winners and who are the losers of the transport system?”, can be answered together.

First of all it is necessary to know what is meant in this context with “better”? The answer in the traditional view is simply: faster, cheaper, safer and environmental friendly. From experts and politicians every new transport infrastructure is sold with the promise, that everything will become “better”.

If we look back, only the last 50 years and analyse the development of the transport system, we have to take note of the following facts: area wide extinction of small economic activities, concentration processes everywhere, increasing unemployment, increasing congestion, growing environmental problems etc. etc. All these facts were not mentioned by the famous experts and the uninformed politicians. Their ideas must therefore have been wrong – a misconception. There are much more losers than winners in the system.

Winners were and are transport planning experts, the construction firms in this infrastructural sector, the international food industry, the car manufacturers and the big corporations. Losers are the farmers, the small workshops, the taxpayers, the social system, the culture, the local economy – and the basis of our life- the nature. But these facts are not in the mind of the people. The mind is influenced and “made” by another transport system – the media – transporting informations to the people. It is totally naive to assume media are reporting independently about facts. Behind the media we find always lobbies, interested to influence the public mind in their desired direction – to become the winners in the game. Some time these lobbies are political parties, much more often the money is controlled by international corporations, excellent organised to maximise their profits, by influencing political decisions and the public mind.

But why is it so? Is not a fast and cheap transport system good also for the small units? They can use it as well as the big ones. The answer is the effect of the “Economy of Scale”.

If products are produced in big numbers, the price per unit produce is lower due to rationalisation-effects, industrialisation, cheaper prices for raw materials, bought in bigger quantities etc. If the transport system does not reflect the real costs, instead of much to cheap ones, the bigger units can penetrate the market of the smaller ones and destroy their economic basis. When the small local units are destroyed the bigger ones grow faster, extend the borders, eat up more small units etc etc. The uncontrolled flow of money, goods and people with much to low prices is essential for this concentration processes, destroying the base of our society and „americanising the Europeans and the world“. European culture and the social system are the victims of this strategy beside the ecosystem. The overcapacity of the transport system is a key element in this strategy. The costs of the transport system have to be carried by the society, the profits of the big corporations are going abroad (free flow of money worldwide). This is only possible due to the lack of informations in the governments and in the society. So the control and misuse of informations play an important role in the system, beside the false physical transport infrastructure.

Congestion on the motorways is not a signal for to few capacity, but much more an indicator for a too strong positive irritation to the public and the economy to use the car or the truck – it is a clear signal for to much capacity and not to few, if there is still transport capacity available on the rail, the ship or for the pedestrians and cyclists.

The traditional concept of demand oriented infrastructure planning, using the Level of Service approach is not the solution of the problem but much more the cause of most of the transport problems of today (Knoflacher Sydney).

Recent research results show that in highly developed transport systems like in western countries, the economy along the corridors with motorway is growing relatively slower compared to districts having no contact to a motorway. These empirical findings are supporting the already available theory, which is based on science and not on hopes or believe.

If this is known, which is very difficult, since the system effects are against our hopes and our evolutionary developed sensorial equipment, we can prevent mistakes in the future. The expected winners will not become potential losers. This must be kept in mind, when transport networks are extended in the future to the east or south. It should be known who will become the real winners and who the real losers ant not the virtual winners or losers, before the decisions are made. If this is not done, the transport system will produce endless problems and conflicts as this is the case with the motorways in the alpine regions.

The fourth and last question: “What is a good transport infrastructure or a good transport system?”, is important.

It seems to be obvious that this question can not be answered from “inside the transport system”, the answer would be nonsense. But this is exactly the position of the today experts of nearly all disciplines dealing with transport. An answer from

this position must lead to an ego-boost of the transport system or a part of it. This was (and is) the basic mistake in demand driven transport planning for any mode, from road to air traffic. So we have to look in a wider horizon to find an answer. From an ecological point of view the transport system must not deteriorate the ecosystem as the basis of every life. The flow of resources and energy must not exceed the carrying capacity and the renewal rate of the globe. CO2 targets are one of the indicators already under discussion also on political level.

From an economic point of view it is necessary to know the goals of the society in this field. If ruthless material growth is the goal, the system will produce conflicts with the natural and social system, as it is the case already today. If local economy should be strengthened, the transport system has to fit exactly into the needs of this system. I there is some overcapacity adverse effects will occur inevitably. Since there are so strong interrelationships between the economy and the transport system, it is necessary to handle the transport system with much more care than today. Before any decisions are made in the transport sector, one must exactly know what kind of economical development is desired. When the infrastructure exists, more or less no influence is possible later on. If the politicians are in favour of motorways, they must be also in favour for international corporations and a centralised structure of economy, controlled by few, mostly international corporations. It is not possible to have successful local economic structures, acting independently in a system of high speeds and low transport costs. Who supports motorways and high speed rails must declare to extinguish small workshops and diversified local economic structures. We can not have both, an interesting, sustainable structure of local economic activities and at the same time high speeds, covering great areas of the land, not paying the right price.

Since the transport system is man made, it can be changed and there is no miracle in it any more. There is nothing like “growing motorization”, there is only “the man made conditions are producing this motorization – we can change the conditions and can change the behaviour of this man made system”. If we recognise that we are sitting in a train running into the wrong direction, we can reach our destination either by stopping the train and turning it into the right direction or by leaving it, to take another train, running into the right direction. What is hindering us? It is so convenient, we are so lazy, and all the other passengers do the same although most of them have already recognised that they are in the wrong train.

REFERENCES AND BACKGROUND LITERATURE

SAMUELSON PAUL A. NORDHAUS WILLIAM D. (1987) Volkswirtschaftslehre 1, *Bund Verlag*

KNOFLACHER HERMANN (1981) Human Energy Expenditure in Different Modes: Implication for Town Planning, *OECD, DOT International Symposium on Surface Transportation, System Performance, Washington*

KNOFLACHER H. (1982) Zum Problem der subjektiven Widerstände im Transportsystem, *Internationales Verkehrswesen 34, 6. Heft*

KNOFLACHER H. (1986) Kann man Straßenbauten mit Zeiteinsparungen begründen?, *Internationales Verkehrswesen 38, 6. Heft*

KNOFLACHER H. (1993) Zur Harmonie von Stadt und Verkehr, *Böhlau Verlag Wien-Berlin-Weimar*

KNOFLACHER H. (1997) Landschaft ohne Autobahnen, *Böhlau Verlag Wien-Berlin-Weimar*