Decoupling transport from economic growth (SVI 2001/524)

Entkoppelung von Verkehrswachstum und Wirtschaftsentwicklung

**Funding:** National (Switzerland)

**Duration:** Jan 2004 - Aug 2007

**Status:** Complete with results

**Objectives:**

This research project is an analysis of the thesis of decoupling for freight and passenger transport in Switzerland. This project primarily looks at decoupling of transport services and economic growth: decoupling of economic growth and growth of transport demand is being understood as splitting the parallel development of economic growth and transport activities including related impacts on resources and environment.

The main focus is placed on the analysis of the structural factors (less so on the technological potential) contributing to transport demand resp. to economic growth.

**Methodology:**

The concept developed for this project consists of the following elements:

- Three levels of decoupling and indicators: decoupling of economic growth and
  1. transport demand: indicator transport performance (passenger kilometres resp. tonne kilometres) in relation to Gross Domestic Product (GDP),
  2. transport supply: indicator mileage (vehicle resp. rail kilometre) in relation to GDP,
  3. environmental impact: indicator environmental impact of transport (such as CO₂, NOx, PM10-emissions) in relation to GDP.

Definitely the most interesting subject of analysis is the first level of decoupling (transport demand and economic growth), because the elements to analyse are of an economic structural nature.

- There are two approaches: absolute decoupling (increasing economic growth with decreased traffic) and relative decoupling (weaker growth of traffic in relation to economic growth).
- There are three levels for the definition of the indicators (national, industrial resp. sectoral), always related to freight and passenger transport.
- Five central groups of functional chains and influencing factors. They encompass a whole bundle of important functional chains and influencing factors. These factors influence the connection between economic and transport development:
  1. Passenger transport and economy: primary effects on transport-economy;
  2. freight transport and economy: primary effects on transport-economy;
  3. Transport and economy: reactions due to policy-response on liberalisation and globalisation;
  4. Income effect on transport: induced effects on passenger transport;
  5. Transport and space: induced effects on passenger transport and freight transport.

In order to measure the degree of decoupling, the availability of economic and transport statistics plays a vital role. Only if these statistics show the same disassociation of systems, the same concept can be implemented empirically. Normally, this is the case on a national (according to the territorial principle) as well as on business unit level. But with both levels the systems delimitation needs to be interpreted. Transnational developments, especially the structural transformation of the national economy may strongly influence the degree of (de)coupling. A purely national view on how to measure a decoupling indicator is therefore becoming more and more insuf

**Parent Programmes:**

SVI - Swiss Association of Transportation Engineers (various projects)

**Institute type:** Private foundation
Institute name: Association of Transportation Engineers
Funding type: Public (national/regional/local)

Partners:
Switzerland
Swiss Federal Roads Office
INFRAS

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Key Results:
This particular study identifies eight decoupling strategies:

- Implementation of polluter-pays-principle in the transport sector with the help of pricing instruments
- Practical use of information and communication technologies in order to reduce transport intensity (to generate less traffic)
- Dematerialisation of the economy
- Densification towards the interior and decentralised concentration
- Adaptation of production processes with regard to spatial aspects
- Information technologies for a better organisation of transport
- New kinds of mobility in passenger transport
- Activities for changing the human perspective on mobility and behaviour with transportation

These eight decoupling strategies have different decoupling potentials. The potentials are greatest, if transport volumes can be reduced and economic growth positively be influenced at the same time. This requires a strategy which connects to demand (Pull) as well as to supply (Push).

Combining an active pricing strategy and spatial planning policy (Pull) coupled with 'push'-measures in mobility management and for promoting innovative modes of transport will probably be the most successful, especially on a national level. The concept of decoupling therefore supports an agglomeration strategy (densification towards the interior) and a pricing strategy (demand-orientated measures such as management of parking space or road pricing) in order to implement cost transparency as well as strategies for the promotion of innovative modes of mobility. This strategy is one of the most important supporting measures for slowing down transport growth and for lowering environmental impact.

Five case studies illustrate how the developed decoupling concept can be substantiated for different sectors. The case studies give important insights regarding different elements of the decoupling concept and show what chances policy-approaches on the different levels have.

Case Study 1: Changes of flows of goods in the regional steel industry of Ticino
Case study 2: Logistics and transnational flows of goods
Case study 3: Business volume in the service sector
Case study 4: E-Commerce versus conventional buying pattern
Case study 5: Leisure transport to winter resorts

It can be concluded that:
- On the level of case studies it is quite difficult to state more precisely

Documents:
Final Report (Final report)

STRIA Roadmaps: Other specified
Transport mode: Road transport
Transport sectors: Passenger transport, Freight transport
Transport policies: Societal/Economic issues
Geo-spatial type: Other