PROJECT

Mode Split Functions for freight transport (SVI2004/081)

Modal Split Funktionen im Güterverkehr

Funding: National (Switzerland)
Duration: Feb 2006 - May 2009
Status: Complete with results

Background & policy context:
Analysis of actual modal split and evaluation of modal split approaches, planning and execution of a state preference inquiry, model estimation of MS-functions and application of MS-functions in case studies is urgent.

Objectives:
Development of modal split functions for the national freight transport model, which is sensitive to measures taken.

Methodology:
A telephone-based stated preference survey was carried out to obtain the data needed. The shippers / transporters questioned had to state the choice of transport mode under basic conditions changed in terms of transport time, transport price and punctuality. They were required to base their response on real life transport cases taken from their own company’s experience. These cases had to involve shipments of at least 5 tonnes transported over a distance of at least 50 km.
The model estimate was developed using the 'Limdep' software packet. The model approach was largely based on the multinomial logit model (MNL). Seven separate modal split functions were derived: four for internal traffic and one each for import traffic, export traffic and transit traffic. In all models, the estimated parameters have the right algebraic sign and all are significant to at least the 95% level.

Parent Programmes:
ARAMIS - ARAMIS information system

Institute type: Public institution
Institute name: Swiss Government: State Secretariat for Education and Research
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Partners:
Switzerland
Research organisation: Swiss Federal Roads Office
Road Networks division
Secretariat for road Research
Mühlestrasse 2, Ittigen
CH-3003 Bern
+41 (0)58 463 80 03 (Information)
astra.strassenforschuung@astra.admin.ch
www.astra.admin.ch/dienstleistungen/04844/
www.astra.admin.ch/
Involvement type Person / address
Contact person
dipl. Bau-Ing. ETH/SIA/SVI
Martin Ruesch
Rapp Trans AG
Max-Högger-Strasse 6
Key Results:

Of the decision-making factors considered, punctuality proves to be the most important in terms of choice of transport mode. The second most important factor is transport price. Transport time is less significant and only occurs as an explanatory variable in the modal split functions for internal traffic. These findings can be described as plausible.

We recommend that the modal split functions derived in this way be integrated into the national freight transport model and that they be regularly checked and updated. Additional surveys of transit traffic and of selected freight transport corridors could also be valuable. An isolated application of the modal split functions (that is, outside of the traffic model) should be treated with some caution, since in this case important demand-supply feedbacks (capacity etc.) would not be considered.

Technical Implications

In Switzerland, the existing truck models, especially the flexibility of approaches (Arendt, 2000), and other simple approaches (Ruesch et al., 2000) apply. This no longer correspond to the latest state of research and applications. Important basic work about the importance of decision factors in the choice of Güterver-mode operation was performed, the NPV 41 (Bolis et al., 1999), as part of the ASTRA research (IRE / Rapp Trans AG, 2004). On the basis of the said preferential approaches, were determined basic decision factors such as reliability, time, frequency and flexibility. However, these are formulated as MS-Access with the relevant network functions. However, these studies provide important methodological basic principles and experience.

Related Projects:

Research organisation: Federal Office of Transport
Project number 78 000 103 881
Project title (in German) Mitfinanzierung SVI 2004/081 MS-Funktionen im Güterverkehr
Project title (in English) Cofinancing Modal-Split Functions in Freight Transport

Documents:
- [Final report in German (Final report)]

STRIA Roadmaps: Network and traffic management systems
Transport mode: Multimodal transport
Transport sectors: Freight transport
Geo-spatial type: Other