



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Eidgenössisches Departement für Umwelt, Verkehr, Energie und Kommunikation UVEK
Département fédéral de l'environnement, des transports, de l'énergie et de la communication DETEC
Dipartimento federale dell'ambiente, dei trasporti, dell'energia e delle comunicazioni DATEC

Bundesamt für Strassen
Office fédéral des routes
Ufficio federale delle Strade

Messen des Nutzens von Massnahmen mit Auswirkungen auf den Langsamverkehr - Vorstudie

Evaluation des bénéfices de mesures ayant des impacts sur la mobilité douce

Assessment of benefits of measures having impact on non-motorized mobility

ProgTrans AG
Stephan Kritzing
Simon Rikus
Alex auf der Maur

HSLU
Helmut Schad
Dr. Martin Lutzenberger

ETH IVT
Prof. Dr. Kay W. Axhausen
Dr. Claude Weis

**Forschungsauftrag SVI 2010/004 auf Antrag der
Vereinigung Schweizerischer Verkehrsingenieure (SVI)**

Inhaltsverzeichnis

	Impressum	4
	Zusammenfassung	7
	Résumé	9
	Summary	11
1	Einleitung	13
1.1	Ausgangslage.....	13
1.2	Ziel der Untersuchung	14
1.3	Arbeitsprogramm.....	15
2	Methodik	17
2.1	Methodik zur Vorstudie	17
2.2	Abgrenzungen	17
3	Analysen zum Langsamverkehr	21
3.1	Literaturanalyse.....	21
3.2	Befragung.....	21
3.3	Ergebnisse	25
3.3.1	Massnahmen zur LV-Förderung	25
3.3.2	Nachfrageermittlung und verkehrliche Mengengerüste	27
3.3.3	Nutzen des Langsamverkehrs	30
3.3.4	Bewertung und Monetarisierung	34
3.3.5	Fazit.....	36
4	Statistische Analysen zum LV	37
4.1	Deskriptive Analyse.....	37
4.2	Modelle der Verkehrserzeugung	42
4.3	Modell der Verkehrsmittelwahl	46
4.4	Zwischenfazit.....	49
5	Massnahmen-Wirkungs-Modell	51
5.1	Grundlagen.....	51
5.2	Modell.....	54
5.2.1	Grundlagen.....	54
5.2.2	Massnahme-Wirkungs-Modell.....	55
6	Schlussfolgerungen	63
6.1	Offene Forschungsfragen	63
6.2	Ausblick zu Fallanalysen.....	64
6.2.1	Zielsetzung	64
6.2.2	Fussgänger- und Velosteg	64
6.2.3	Velostation.....	65
6.2.4	Gestaltungsmassnahmen zur Erhöhung der Aufenthaltsqualität.....	67
6.3	Erhebungsmethodik für eine Hauptstudie	70
6.4	Empfehlung zum weiteren Vorgehen	71
	Anhänge	73
	Abkürzungen	83
	Literaturverzeichnis	85
	Projektabschluss	99
	Verzeichnis der Berichte der Forschung im Strassenwesen	103
	SVI Publikationsliste	113

Summary

Apart from motorised car traffic and public transport, non-motorised transport (NMT) is the third pillar of passenger transportation. In urban traffic, it accounts for a high share of undertaken journeys as the Swiss household survey shows in respect of traffic behaviour. This pre-feasibility study provides an overview of traffic data and of the position of economic benefit measurement in NMT which is largely based on the evaluation of data (Household Survey 2010) and numerous surveys.

The current level of knowledge and research concerning the economic benefit measurement of non-motorised transport was acquired and analysed in a comprehensive study of literature. The theoretical part also comprises an evaluation of existing traffic demand data concerning non-motorised transport including generalised costs from the data set of the Household Survey 2010. Communal and cantonal specialised authorities were surveyed in relation to the determined and estimated traffic and non-traffic impact of NMT projects.

A substantial amount of traffic demand data is available. However, it is partly not possible to harmonise it and, therefore, it is suited to model-type mapping of NMT only in a limited fashion. The reasons to walk and cycle are more complex than for other means of transport. Modelling the traffic demand of NMT plays a minor role so far, both in theory and practice.

The survey yielded that predominantly specific NMT projects (e.g. bicycle parking facilities and bicycle lanes) are realised. The information from the cantonal and municipal planning offices corresponds to the insights gained from literature – in particular in relation to the implementation of individual types of projects and their traffic impacts. According to the opinion of the experts surveyed, the economic benefits may be best measured in large projects, however, also in those having a wider impact, e.g. street redevelopment.

The investigated literature provides proposals to determine the scope of NMT projects and to acquire their economic benefits. However, these approaches predominantly concern bicycle traffic and are often based on common economic evaluations for projects of motorised car traffic thus ignoring specific NMT aspects. An essential benefit of NMT is that it is part of a space-saving utilisation concept for high-density settlement areas in which it stands for simple, efficient and socially integrating mobility.

An impact assessment model could be developed which differentiates the impact for 12 pedestrian and 25 bicycle projects according to the categories of induced traffic, shifted traffic and route choice and which provides impact intensity magnitudes. The fairly concrete project assessments from literature and the survey can serve as rough indications for establishing and checking the plausibility of an impact assessment model to determine traffic impacts. The current level of knowledge permits sorting and allocating projects according to their impact, however, not according to their scope.

The pre-feasibility study has created delimitations and fundamentals for non-motorised transport which constitute an important step towards standardised impact chains of non-motorised transport projects. A proposal was also developed as to which benefits of the non-motorised transport are considered relevant and to which extent they are quantifiable or monetisable from the perspective of the researcher.

The stated preference surveys and case studies proposed for the main study are still required since the evaluation of literature, data and the expert interviews show that the currently available material is not sufficient for model assessments of non-motorised transport. The main study has to create the required empiric principles to enable the measurement of the benefits of non-motorised transport.



News

Share 541 Tweet 316 Share 12

Recent studies show investing in cycling pays off around the globe

[Back to News](#)

European Funding, 18.07.2014

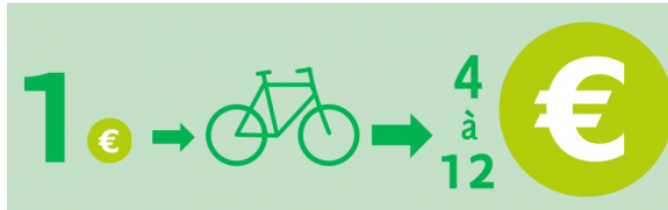


Image courtesy of [Pro Velo R&D](#)

Investing in cycling does not only make cities more liveable, it also pays off economically. Returns can be up to 24 times higher than the initial investment. Three recently published studies from three different continents show this.

From New Zealand: Research confirms cycling's high returns on investment



In **New Zealand**, researchers from the University of Auckland studied the societal costs and benefits of commuter bicycling in their city. Using 'system dynamics' modelling and building on knowledge from the local community, policy-makers and academics, they found that a best-practice cycling policy would deliver returns 24 times higher than the initial investments, while also saving 4 000 years of life in between 2012 and 2051 and halving green house gas emissions. The study took into account costs and rates of injuries, health effects of air pollution and physical inactivity, green house gas emissions, and fuel cost savings.

[Click on image for full journal article.](#)

From Belgium: Cycling's positive impact on the local economy



A similar study analyzing direct and indirect effects of investments in cycling has been carried out for the Brussels region in **Belgium** by the region's transport authority. Looking at the situation in 2002 and 2012 and projecting the results into the near future (2020), the study found that investments in cycling yielded returns that were 5 to 9 times higher than the original investments already under current conditions. An ambitious cycling policy would lead to societal gains in Brussels of around €300 to 550 million, which would be 8 to 19 times the original investment. Furthermore, 500 additional jobs linked to cycling could be created until 2020. Against this background, the investments in cycling announced in the recent coalition agreement for the Brussels regional government are a first step in the right direction, provided they will actually be implemented.

[Click on image for full report \(in French\).](#)

From the US: Pilot programme on active mobility hailed a success



Cycling investments in the **United States** have also proven to pay off. In 2005, the US Federal Highway Administration started a pilot programme to support active mobility in four communities (Non-motorised Transportation Pilot Program, NTPP). The follow-up report now published shows that with investments of \$88.5 million, **85.1 million vehicle miles (137 million km) were avoided between 2009 and 2013**. The number of walking trips increased by 22.8%, while the number of bicycle trips increased by an even more impressive **48.3%**. Despite these increases, a 20% decline in pedestrian fatalities and a decline of 28.6% in cyclist fatalities could be noted. Reduced economic costs of mortality from bicycling alone were at \$46.3 million in 2013. Petrol savings were estimated at 3.6 million gallons (ca. 13.6 million liters) between 2009 and 2013 and CO2 emissions averted at almost 35,000 tons during the same period. Air pollution was also significantly decreased.

[Click on image for full report.](#)

The Bottom Line

What all these studies show is that money invested in cycling is money well spent, since benefits clearly outweigh costs. At European level, ECF therefore calls for a tenfold increase in cycling investment, from €600 million in the financial framework 2007 to 2013 to €6 billion in the current framework from 2014 to 2020. This is also one of the ten recommendations submitted to the incoming European Parliament for the next legislature.

[Click here to read more about our 6bn campaign](#) and [click here for our European manifesto](#).

Newsletter

Use the box below to subscribe to the ECF newsletter or this [link](#) for press releases.

Email*

Contact the ECF Communications Officer

Rue Franklin, 28
1000 Brussels, Belgium
Phone: +32 2 880 92 74
Fax: +32 2 880 92 75
Elina Baltatzi
e.baltatzi@ecf.com

Licence to republish

We license our articles under Creative Commons attribution, no derivatives.



ECF gratefully acknowledges financial support from the European Commission. Holger Haubold is ECF's Risk and Economic Policy Officer. Prior to joining ECF, he worked at the Council of the European Union and did a Master in European Studies and economics at ULB Brussels.



loading

2 Comments European Cyclists' Federation

1 Login

Sort by Best

Share Favorite



Join the discussion...



Jan van der Horst · a month ago

If investing in cycling proves so beneficial in money units, one could ask why the investment rate is so lagging behind f.i. compared with car and public transportation. One of the causes seems to be that the investor sees only the costs and may only calculate, not see, the benefits. Furthermore, the benefits are only calculated in very wide ranges, which does not enhance the credibility of the outcome. Thirdly, investing in cycling infrastructure might be very cheap per unity of surface, but the needed effort is nevertheless tremendous because so many kms of cycling routes per sq. surface are needed or endangered. Hence, any investment program still seems to be insufficient. In spite of those hindrances, improvements in the cycling network are nowadays obvious, so there is hope for the future. I wish the ecf all the best!

Reply Share



EuropeanCyclistsFederation (Mod) Jan van der Horst · a month ago

Hi Jan,

Thank you for your comment and your good wishes. I absolutely agree that the wider economic and societal benefits of investments in cycling infrastructure have not always been fully taken into account in the past when making investment decisions. Also, research on how to measure and monetize them. is still ongoing. At ECF, we aspire to take up the results of this research and to inform policy-makers and society as a whole about the benefits of cycling in order to make the case for more investments and improved cycling infrastructure.

Kind regards,

Holger Haubold at ECF

Reply Share

Subscribe

Add Disqus to your site

DISQUS

Last Updated July 18, 2014



News

News

 Share 4
  Tweet 5
  Share 1

Cycling and health – Obviously a winning team

[Back to News](#)

Health and environment, 28.08.2014



A study published recently in the **British Medical Journal** has proven once more what committed cycle commuters have known for a long time: **Taking your bike to get to work makes you fitter!** Using a large, nationally-representative dataset, the authors of the paper found that using an active mode of transport for commuting is correlated with a significantly lower Body Mass Index and body fat percentage than using passive modes like cars or motorbikes.

Even using public transport proved to be more beneficial for general fitness than private motorised transport, probably because of the walking to and from stations and stops.

This paper is just the most recent one of numerous studies which have proven the positive health effects of active transport in general – and cycling in particular. But how can these effects be measured and assessed from an economic perspective? For this purpose, the World Health Organisation (WHO) developed the HEAT tool (Health Economic Assessment Tool) for walking and cycling. Published for the first time in 2011, the tool has now been updated. Changes with regard to the previous version include:

- updated relative risk functions for walking and cycling;
- new Values of Statistical Life (VSL) with averages and country-specific values (based on a methodology developed by the OECD);
- updated and more detailed mortality rates for European countries;
- new section of frequently asked questions (FAQ); and
- several bug fixes.

The tool as well as further explications can be found [here](#). Sprechen Sie Deutsch? Der Spiegel published a news article on this topic, which you can find [here](#).

The full text of the study can be found [here](#).

Newsletter

Use the box below to subscribe to the ECF newsletter or this [link](#) for press releases.

Email*

Contact the ECF Communications

Officer

Rue Franklin, 28
1000 Brussels, Belgium
Phone: +32 2 880 92 74
Fax: +32 2 880 92 75
Elina Baltatzi
e.baltatzi@ecf.com

Licence to republish

We license our articles under Creative Commons attribution, no derivatives.