

Summary:

Health effects of increased cycling for transport in selected small cities in Norway

Increased cycling for transport in Cycling Cities and other cities

In 2010, the Institute of Transport Economics (TØI) carried out a survey of cycling as a travel mode in the “Cycling Cities” Kongsberg, Sandefjord, Notodden, Grimstad, Mandal, together with the control city of Larvik. The results of this survey were compared with results from a survey completed by the Norwegian Public Roads Administration, Region South, in 2006. TØI's survey showed a general increase in the share travelling by bicycle, as well as the number of trips and distance per trip. The estimated increase in passenger kilometres of cycling per capita in the cities, from 2006 to 2010, ranged from about 70 to more than 300%. The increase was approximately equal in the control city as in the Cycling Cities. A low response rate (ca 17% in 2010) makes the estimated increase somewhat uncertain (Loftsgarden and Fyhri 2010).

In this project, the purpose is to calculate the health effects of the above-mentioned increase in bicycle use from 2006 to 2010, for each of the cities that participated in the bicycle survey in 2006 and the follow-up survey in 2010. Health effects are calculated in monetary terms based on existing official valuation of the positive health effects of physically active transport, given in Handbook 140 Impact Analysis, from the Norwegian Public Roads Administration (NPRA 2006).

Valuation of increased bicycle traffic from 2006 to 2010

Based on valuation of health effects following the official guidelines (NPRA 2006), we estimate health gains, from 2006 to 2010, ranging from NOK 30-40 million in the smallest cities (Mandal and Notodden) to more than 100 million kroner in the larger cities (Sandefjord and Larvik). The annual value varies between 10 and 40 million kroner in the six cities. This economic valuation is based on an expected decline in serious illness and in short-term sick leave (Sælensminde 2002). Table S1 displays the (rounded) valuation estimates.

Table S1. Health gains in monetary terms of increased cycling for transport, from 2006 to 2010, official valuation of positive health effects

	Cycling Cities					Control city
	Kongsberg	Sandefjord	Notodden	Grimstad	Mandal	Larvik
Valuation of positive health gains from increased person km cycled (NOK)	61 mill	127 mill	35 mill	67 mill	41 mill	156 mill
Annuity – health effect (NOK)	15 mill	32 mill	9 mill	17 mill	10 mill	39 mill
Primarily public sector reduction of expenses, annually (NOK)	9 mill	20 mill	5 mill	10 mill	6 mill	24 mill

Sources: Statistics Norway (<http://www.ssb.no/folkemengde/>), Loftsgarden and Fyhri (2010), Statens vegvesen (2006). Own calculations.

Approximately 62% of the health gains in monetary terms is assumed to comprise primarily public sector reduction of expenses; in the health sector and the social security system, related to reduced expenses on treatment of serious illnesses and reduced expenses on short-term sick leave. The remaining 28% represents the valuation of the increased well-being for (some of) the new cyclists due to reduced morbidity risk. This can be considered a consumer surplus, which cannot be traced in public sector accounts, but still constitutes an economic value (Veisten et al. 2010a, 2010b).

We also show alternative ways of calculating monetized health gains, based on new proposals for the valuation of positive health effects in transport in Norway (Veisten et al. 2010a) and another approach based on a spreadsheet model developed by researchers affiliated with the WHO (Cavill et al. 2008). Both alternative calculations yield lower estimates than the estimate based on the existing official guidelines.

In order to apply the monetized health gains as benefit estimates in cost-benefit analysis of the Network of Cycling Cities, it would be necessary to show that this project constituted the cause of the increase in bicycling (the share cycling, number of trips and trip length). However, as the increase in bicycling from 2006 to 2010 is not found to be larger in the Cycling Cities than in the control city of Larvik (Loftsgarden and Fyhri 2010), one cannot directly assign the monetized value of health gains to the Cycling Cities project, a benefit potentially to be compared with the costs of the Cycling Cities project.

It is crucial for economic analysis of all kinds of public measures or campaigns that any change is correctly attributed to either the measure/campaign or to some other external effect (Vaa et al. 2004). The inclusion of the control city of Larvik indicated no particular effect of the Cycling Cities project, since the changes were just as large in Larvik as in the five Cycling Cities. This does not eliminate, however, the positive health effects of the increased bicycling traffic, neither with regard to reduced morbidity/mortality risk nor with regard to monetary values. It is expected from our analysis that the health sector will obtain reductions in costs and that the cyclists will obtain increases in well-being (“consumer surplus”).