



**TØI report
370/1997**

Attitudes Towards Walking and Cycling instead of Using a Car

Ingunn Stangeby

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Summary:

This report is written as a part of the EU project WALCYNG. The topic is attitudes towards walking and cycling instead of using a car in different countries in Europe. The report is based on data from interview surveys in Norway, Finland, Austria, Italy and Spain. Health aspects are important benefits of walking as well as of cycling. All trips are not suitable for walking and cycling, and in many areas the conditions for walking and cycling are not satisfactory. Walkers as well as drivers find infrastructural as well as political measures as the most important to improve walking and cycling conditions.

Tittel: Holdninger til å erstatte korte bilturer med gange eller sykkel

Forfatter: *Ingunn Stangeby*

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Sammendrag:

Rapporten er laget i forbindelse med EU-prosjektet WALCYNG og tar opp folks holdninger til å erstatte korte bilturer med gange eller sykkel. Rapporten oppsummerer intervjuundersøkelser i Norge, Finland, Østerrike, Italia og Spania. Mulighetene for forbedret helse er en av de viktigste fordelene ved å gå og sykle. Mange bilturer kan erstattes med gange eller sykkel, men mange steder er forholdene lagt dårlig til rette for en slik overgang. Trafikanter flest mener at forbedret infrastruktur og politiske tiltak kan gjøre forholdene bedre for fotgjengere og syklistene.

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Preface

This report is written as part of the project WALCYNG - How to enhance WALKing and CYcliNG instead of shorter car trips, and to make these modes safer - a project in the programme package Urban Sector, DG VII Transport RTD Programme in EU's Fourth Framework Programme.

WALCYNG is divided into 13 different work packages (WP). This report is a summary of WP6: *Interviews, attitude analyses, stated preferences*.

The objectives of WP6 are to obtain information on people's attitudes towards walking and cycling instead of using a car, by interviewing people. Institute of Transport Economics has been in charge of WP6.

Partners from five different countries have taken part in WP6:

- University of Helsinki, Department of Psychology, Finland
- University of Valencia, INTRAS, Spain
- FACTUM, Austria
- Franco Gnavi and Carlo Bonanni, Italy
- Institute of Transport Economics, Norway.

The report is written by Senior Research Sociologist Ingunn Stangeby. The data and the analyses of the attitude studies in Finland, Austria, Italy and Spain was arranged by Research Assistant Ulla Jutila, University of Helsinki. The Norwegian Marketing/SP-data and analyses was arranged by Chief Research Officer Bård Norheim at the Institute of Transport Economics. WALCYNG Coordinator Christer Hydén, Coordinating Secretary Annika Nilsson, Director Ralf Risser, FACTUM, Head of Department Marika Kolbenstvedt and Senior Research Psychologist Ronny Klæboe, both at the Institute of Transport Economics, have given valuable comments. Secretary Kari Tangen is responsible for layout and final editorial work.

Oslo, October 1997

INSTITUTE OF TRANSPORT ECONOMICS

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Managing Director

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Head of Department

WALCYNG

WALCYNG - How to enhance WALking and CYcliNG instead of shorter car trips, and to make these modes safer - is a project in the programme package Urban Sector, DG VII Transport RTD Programme in EU's Fourth Framework Programme.

The use of and the dependence on cars in everyday life is increasing. Even for short trips, the use of a car is the most usual way to travel. A number of short trips by car can be replaced by modes like walking and cycling. The purpose of WALCYNG is to identify conditions and measures that may be used to encourage the replacement of short car trips with pedestrian and bicycle traffic. WALCYNG applies a Marketing Model. The goal is to show how short car trips could be replaced by walking and cycling with the help of marketing instruments.

WALCYNG is divided into 13 different work packages (WP). Each of the work packages will present the different parts of WALCYNG, such as a description of the conditions for walking and cycling in different countries, the main problems for pedestrians and cyclists, identification of measures and incentives to improve the conditions for walking and cycling, communication strategies and campaigns for implementing these measures, information about the main advantages and the obstacles connected to walking and cycling. WALCYNG will also illustrate the safety problems of pedestrians and cyclists and identify relevant solutions.

Partners from eight different countries are involved in WALCYNG:

- Coordinator: Department of Traffic Planning and Engineering, Lund Institute of Technology, University of Lund, Christer Hydén, Annika Nilsson, Sweden
- FACTUM, Ralf Risser, Karin Ausserer, Austria
- Franco Gnani and Carlo Bonanni, Italy
- City Planning Office, City of Helsinki, Eero Pasanen, Finland
- Institute of Transport Economics, Ingunn Stangeby, Norway
- Department of Psychology, University of Helsinki, Liisa Hakamies-Blomqvist, Finland
- INTRAS, University of Valencia, Enrique J. Carbonell Vayá, Beatriz Martín, Spain
- TransportTechnologie-Consult Karlsruhe GmbH, Verkehrs-Consult Karlsruhe, Rainer Schneider, Germany
- De Voetgangersvereniging, Willem Vermeulen, The Netherlands
- Road and Traffic Planning Department, Chalmers University of Technology AB, Olof Gunnarsson, Sweden

Summary

The purpose of WP6

This work report is a summary of WP6 in WALCYNG: *Interviews, attitude analyses, stated preferences*. The objective of WP6 is to obtain information on people's attitudes to walking and cycling instead of using a car, by interviewing people. Important interview objectives were to let people:

- inform about their habits with respect to short car trips, walking and cycling and describe/assess the situation for pedestrians and cyclists.
- tell what are the strongest practical attractors for walking and cycling, and what are the most severe barriers
- make suggestions for modifications and solutions for pedestrians and cyclists.

The study focuses on short trips, i.e. trips up to 5 km.

Methods

To achieve the goal of WP6 we have utilised two different approaches:

1. Qualitative approach using data from in-depth interviews in Finland, Austria, Italy and Spain focused on target groups' attractions and barriers for walking and cycling and suggested measures to improve conditions for pedestrians and cyclists. In this report we call these interviews "qualitative interviews" or "attitude studies".
2. Quantitative approach using data from interviews carried out in Norway, based on commuters' actual travel behaviour, preferences and attitudes. The Norwegian data is collected through a Marketing Survey. Stated Preferences techniques were among the methods used. In this report the study is called "Marketing/SP-survey".

The attitude surveys made in Finland, Austria, Italy and Spain are based on interviews with two groups of respondents; walkers and car drivers. A car driver is a person who uses car as the main traffic mode and drives even short distances by car. A walker is a person who walks or cycles certain distances at least three times a week, does not use public transport solely, and does not use car as the main traffic mode.

198 people were interviewed in the attitude surveys, respectively 50 from Finland, Austria and Italy and 48 from Spain. The attitude surveys may tell us about the range, the depth and the width of attitudes to walking and cycling present among the interviewees. However, the results from the qualitative studies cannot be generalised to the distribution of attitudes within the whole population. On the other hand, the results

are of general interest as examples of attitudes towards walking and cycling for groups of people in Finland, Austria, Italy and Spain. They also indicate which advantages and obstacles people see as the most important to walking and cycling.

In the Norwegian Marketing/SP-survey we have analysed commuters' possibilities to replace car use with walking and cycling. 392 people who have a real choice between driving a car, walk or use a bicycle to work were interviewed. The method of collecting data was based on a combination of Stated Preferences techniques and observations of existing behaviour (revealed preferences). The sample was drawn by an established statistical method and should be representative for the target population. We should therefore be able to draw general conclusions from our sample with respect to our target population in Oslo.

Respondent sociodemographics

People's attitudes towards walking and cycling vary with sociodemographic characteristics; such as age, gender, level of education and income.

In the attitude surveys half of the respondents are walkers and half are drivers, with about the same number of men and women in each group. Young people walk and use a bicycle more often than the middle aged, who drive their car on most trips. The number of trips on foot is rather high among the elderly, too. WALCYNG has defined vulnerable road users as target groups, for whom it is important to improve walking and cycling conditions. Among vulnerable road users we find a high share of young and elderly people. This is why a relatively high number of people under the age of 25 and older than 60 is interviewed in the attitude surveys.

The respondents in the Norwegian survey are mainly middle aged people with a high level of education and high household income. Almost the same number of men and woman are interviewed. The distribution of age of the Marketing/SP-respondents is similar to the distribution of age among the recruitment group.

Access to transport and use of modes

Travel behaviour surveys all over the world indicate that access to transport is the most important factor influencing mode choice. Transport resources like a driving licence and access to car are usually associated with the respondent's age and income. Even if the larger share of the population aged 18 years and older have a driving licence and access to a car today, there are groups among the elderly and people with low income without these resource.

In the attitude surveys there are large differences in transport resources available to walkers and drivers. All drivers have a licence and most of them have always access to a car, while less than 60 per cent of the walkers have a driving licence and only 30 per cent of them have access to a car most of the time.

Most drivers use a car on short trips 5 times a week or more, while walcers with a driving licence use cars for short distance trips rarely once a week. As expected, walcers choose to make the trip on foot more often than drivers, and most drivers feel they should walk more often than currently. Only in Finland cycling seems to be a transport mode used by all the respondents. In Austria, Italy and Spain most of the respondents, walcers as drivers, never or rarely use a bike, even if they enjoy cycling.

All Marketing/SP-respondents have a driving licence and access to a car. Having a driving license and a car in the household does not mean that you can use the car whenever you want. In most European households there are still more people with a driving licence than cars, and many people have to share the car with at least one person. 54 per cent of the Norwegian respondents have a car of their own, but 46 per cent have to share the car with one or more persons.

Living close to where you work may increase the share of commuters' walking or cycling, but not always. Many commuters drive their car to work, even when they live less than 5 km from work. 40 per cent of the Norwegian respondents use their car to work every day and almost 50 per cent used their car last day at work. 25 per cent cycle every day in the summer season, and 23 per cent cycle at least once a week.

There is a potential for changing commuters' mode choice in the summer season. The potential is found among those who sometimes walk or cycle to work. Nearly 30 per cent of the commuters walk or cycle to work once a week or once a month. Improved conditions for walking and cycling may lead to a change in mode choice among these commuters.

The benefits of walking and cycling

The majority of respondents in Finland, Austria, Italy and Spain, drivers as well as walcers, like walking and cycling. Especially walking seems to be a popular activity, while cycling is almost, but not quite as popular.

There are a lot of benefits associated with walking and cycling: Health aspects are important benefits of walking as well as of cycling. For walking environmental aspects and getting fresh air are additional important benefits.

Surprisingly, environmental aspects are not mentioned as positive aspects of cycling very often. Cycling is fun, gives you good exercise and is very convenient.

There are small differences in the attractions mentioned by walcers and drivers, but the differences indicate that drivers use their bike for leisure activities, while walcers walk or use their bike as modes of transport.

The most important reason for walking and cycling to work among Norwegian commuters is to get some "exercise". This reason is mentioned by almost 30 per cent of the respondents who walked as well as those who cycled to work. Other important

reasons are: getting fresh air, walking and cycling is easy, cheap and environmentally friendly.

Benefits of	
Walking	Cycling
Health aspects: Improving physical and mental health, relaxing, stressing down, good exercise	
Convenience: Independent, flexible, easy, reliable, pleasant	
Environmental aspects: Getting fresh air, being out in the nature	Other aspects: Economically efficient, cheap

Barriers for walking and cycling

Even though there are many benefits involved in walking and cycling, walcers meet a lot of barriers or obstacles. Walking and cycling conditions are not satisfactory and many trips are not suitable for walking and cycling.

Inconvenience is most often mentioned as a barrier to walking and cycling. Among the inconvenience aspects mentioned are: Walking and cycling take too much time and are not useful for longer travels. Walcers are more aware of the inconvenience aspects of walking and cycling than drivers, even if drivers are more concerned with the time aspects.

Lack of ability to transport heavy things is among other important barriers of walking.

Environmental and geographical barriers, like the town is hilly, the weather is bad, the air is polluted etc. are important negative aspects of cycling. Also infrastructural barriers such as insufficient road cycle network, unsafe crossings, parked cars on the pavements and high curb stones are important negative aspects of cycling. Drivers mention infrastructural barriers for cycling more often than walcers.

One of the most important reasons for commuters to drive their car to work is to reduce the travel time.

Barriers for	
Walking	Cycling
Inconvenience: Takes too much time	
Physical barriers: Cannot carry heavy things	Infrastructural barriers: Insufficient road cycle network, unsafe crossings
	Environmental and geographical barriers: Hilly, bad weather, polluted air

Measures to improve walking and cycling conditions

In the last 10 years use of financial measures in order to reduce car driving, like road pricing, high fees on car parking etc., have been common. In some European countries, mainly in the North, people has to pay quite a lot for day time parking. The Marketing/SP-study shows that the effect of a parking fee on mode choice increases with the sum of money you have to pay, even though the parking fees are not very high.

Both the Marketing/SP-study and the qualitative studies indicate that other conditions for pedestrians and cyclists have to be improved if more people should walk or cycle instead of driving their cars on short trips.

Walcers as well as drivers find infrastructural and political measures, i.e., laws, prices, regulations, control, etc. as the most important to improve walking and cycling conditions. Walcers are more than drivers interested in giving advantages to people who walk and cycle.

The most important infrastructural measures are:

- more footpaths and cycling lanes
- wider pavements
- improved pedestrian subways and crossings
- smoother road surface.

The most important political measures are:

- prohibit cycling on pavements
- city centres free of cars
- priority for walcers at crossing
- different measures to reduce car traffic, like increased gasoline prices, fees for parking spaces, restrictions on car driving etc.

These measures indicate conflicts between walkers, cyclists and car drivers. Lack of bicycle networks leads to cycling on the pavement. This is unpleasant for pedestrians. Because of heavy traffic and high speed the cyclists fear using the same road space as cars and busses.

Other measures wanted to improve the conditions for walcers are:

- facilities for showering at work
- burglary-proof bicycle sheds.

Is it possible to change short trip mode choice?

An important question to improve conditions for walking and cycling is what measures have best effects in replacing short car trips with walking and cycling, and what groups of road users show a potential for mode choice changes.

There are factors in favour of investing to improve walking and cycling conditions. The majority of the respondents in the attitude surveys assume that a decrease in the number of people driving a car would improve the preconditions for walking and cycling considerably.

The Norwegian/SP-study indicates that the trips to work and to sports and exercise are easiest replaceable by bicycle. Respectively, 22 per cent and 20 per cent of the commuters interviewed would easily replace these short car trips with bicycle. Grocery shopping trips could most easily be replaced by walking. Short trips by car for delivering or fetching someone, like children to kindergarten, are very difficult to replace by walking or cycling.

Commuters who usually drive their car and never cycle to work have the highest resistance for changing from car to bike. The parking fee has to be of nearly NOK 30 a day to motivate a change in travel behaviour. Respondents with a company car are willing to pay a parking fee of NOK 18 a day before they choose to cycle rather than to drive their car to work.

Respondents with the highest probability for choosing bicycle in stead of driving a car are students and people with a mountain bike.

Physical and environmental conditions also have an effect on people's mode choice. The probability for using a bicycle is reduced by steep inclines or hilly surroundings, unsafe traffic conditions and rainy weather.

Commuters with the highest resistance to shifting from car use to walking are people with a company car. They are willing to pay a parking fee of NOK 36 per day before leaving the car at home. Parking restrictions, like a reduction in the number of parking places and increased parking fees, may have a large effect on mode choice. Commuters with an indoor parking place are willing to pay a parking fee of NOK 17 per day before they go to work on foot.

Walking and cycling are often regarded as taking too much time to be a relevant alternative to driving a car on the journey to work.

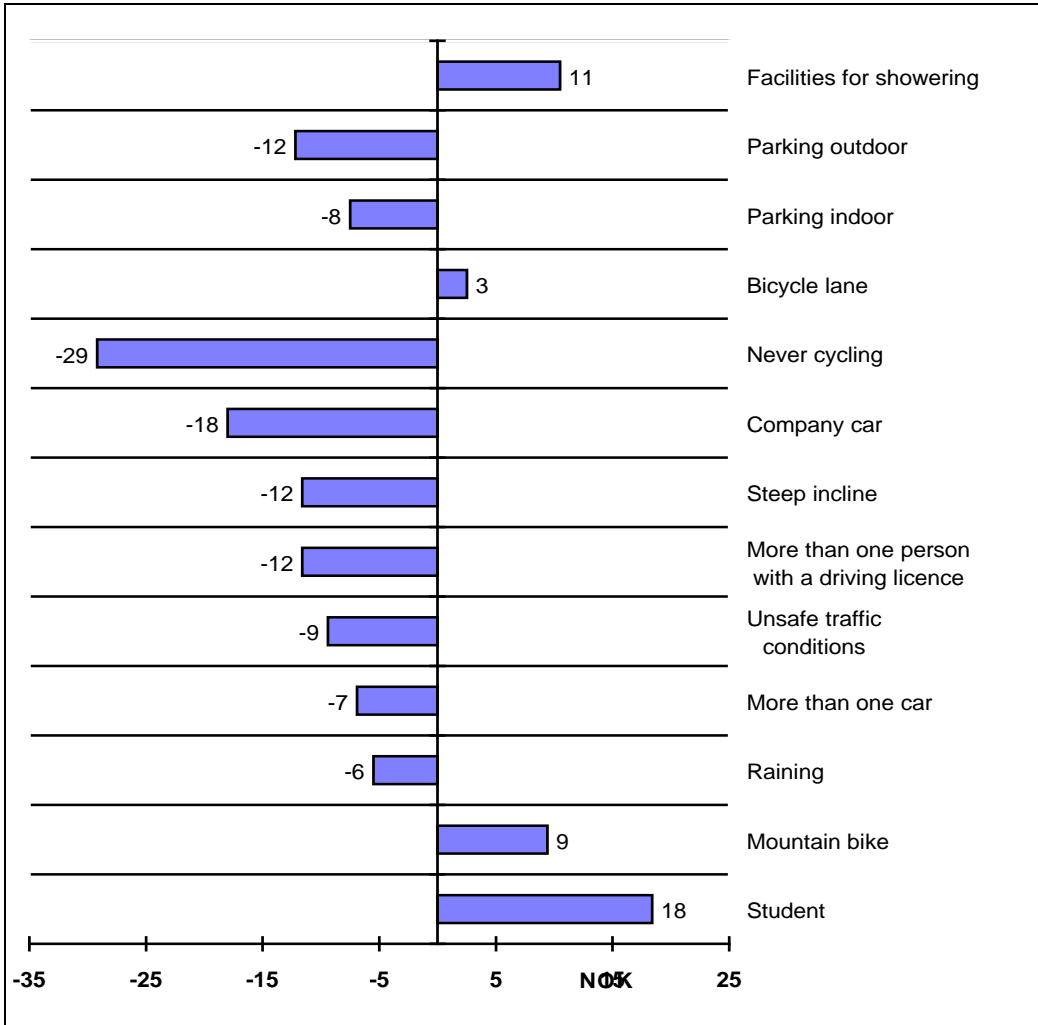


Figure 1 Average parking fee per day for changing mode from driving a car to go by bicycle on the journey to work. NOK/day. The Norwegian Marketing/SP-survey

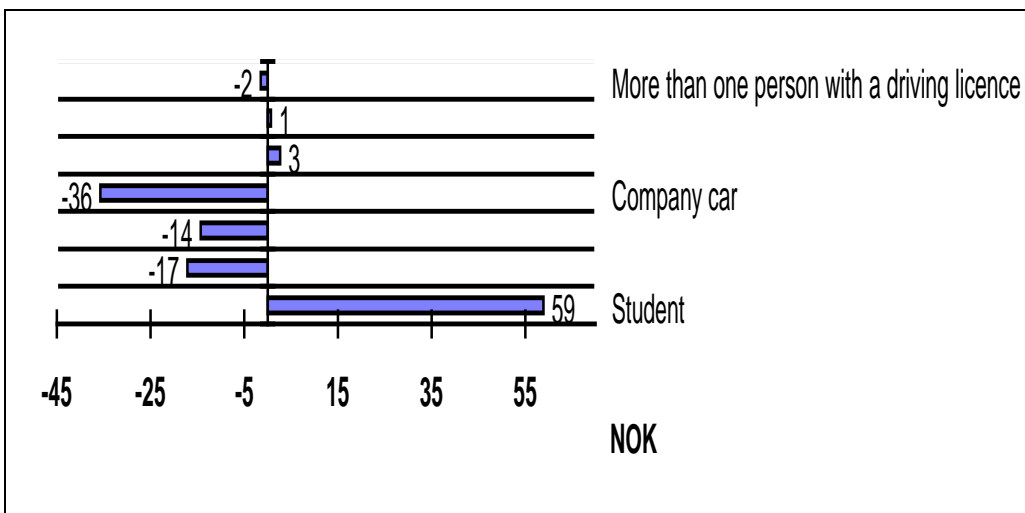


Figure 2 Average parking fee per day necessary for changing from driving a car to walking to work. NOK/day. The Norwegian Marketing/SP-survey

Sammendrag:

Holdninger til å erstatte korte bilturer med gange eller sykkel

Formålet med rapporten

Formålet med EU-prosjektet WALCYNG er å finne fram til forhold og tiltak som gjør det mulig å erstatte korte bilturer med gange eller sykkel. WALCYNG har 13 ulike delprosjekter med hvert sitt delformål. Rapporten oppsummerer delprosjektet WP6 som tar opp folks holdninger til å erstatte korte bilturer med gange eller sykkel.

Formålet med rapporten er å oppsummere informasjon vi fikk gjennom intervjuundersøkelser i Norge, Finland, Østerrike, Italia og Spania. Intervjuene tok opp følgende temaer:

- folks reisevaner på korte turer
- forhold for fotgjengere og syklister
- fordeler og ulemper ved å gå og sykle
- tiltak for å bedre forholdene for fotgjengere og syklister.

Metode

I datainnsamlingen og -analysen har vi tatt i bruk to ulike tilnæringsmåter:

1. Kvalitativ tilnærming med dybdeintervjuer i Finland, Østerrike, Italia og Spania hvor vi fokuserte på fordeler og ulemper ved å gå og sykle og hvilke tiltak folk ønsket for å bedre forholdene for fotgjengere og syklister. Disse undersøkelsene har vi kalt holdningsundersøkelser.
2. Kvantitativ tilnærming hvor vi intervjuet folk i Norge om deres faktiske reisevaner og holdninger til å erstatte korte bilturer med gange eller sykkel. Undersøkelsen ble gjerennomført som en markedsundersøkelse hvor vi også brukte stated preferences-metoder.

I holdningsundersøkelsene i Finland, Østerrike, Italia og Spania intervjuet vi to grupper av befolkningen; gang/sykelbrukere og bilbrukere. En bilbruker er en person som har bilen som sitt viktigste transportmiddel og som kjører bil på korte turer. En gang/sykelbruker har vi kalt folk som går eller sykler minst tre ganger i uka og som sjelden kjører bil.

I holdningsundersøkelsene intervjuet vi 198 personer, henholdsvis 50 fra Finland, Østerrike og Italia og 48 fra Spania. Selv om resultatene vanskelig kan generaliseres til befolkningen som helhet, gir undersøkelsene viktig informasjon om hvilke fordeler og ulemper folk opplever ved å gå og sykle og dybden og bredden i folks holdninger.

I den norske markedsundersøkelsen har vi sett på folks muligheter til å erstatte korte bilreiser til arbeid med gange eller sykkel. 392 yrkesaktive og studenter i Oslo, som hadde mulighet til å velge mellom å gå, sykle eller kjøre bil til arbeid/skole, ble intervjuet om sine faktiske reisevaner til arbeid og om hypotetiske valg av transportmiddel under skiftende rammebetingelser. Resultatene fra markedsundersøkelsen kan generaliseres da utvalget er representativt for målgruppen. Utvalget er imidlertid ikke representativt for hele den yrkesaktive befolkningen i Oslo.

Hvilke grupper som er intervjuet

Folks holdninger til å gå og sykle har sammenheng med hvilke grupper de tilhører. Viktige variable i denne sammenheng er alder, kjønn, utdanning og inntekt.

I holdningsundersøkelsene er halvparten av de intervjuede gang/sykelbrukere og halvparten bilbrukere. Det er like mange kvinner og menn i hver gruppe. En viktig målgruppe for WALCYNG er «sårbare trafikanter», dvs trafikanter som er mer avhengig av å gå eller sykle enn andre. De unge går og sykler mer enn middelaldrende, som kjører bil på de fleste reisene. Men også eldre foretar relativt mange gangturer. I holdningsundersøkelsene har vi derfor intervjuet en overvekt av disse trafikantene.

I markedsundersøkelsen har vi intervjuet omtrent like mange kvinner som menn. Blant respondentene er det også en overvekt av middelaldrende med høy utdanning og inntekt.

Transportmiddelbruk og tilgang til bil

Reisevaneundersøkelser viser at tilgangen til transport er en viktig faktor for valg av reisemiddel. Transportressurser som førerkort og tilgang til bil har sammenheng med folks alder og inntektsnivå. Selv om en stor andel av befolkningen over 18 år har førerkort og tilgang til bil, mangler fremdeles en stor del av de eldre og de med lave inntekter disse ressursene.

Holdningsundersøkelsene viser store forskjeller i transportressurser mellom gang/sykelbrukere og bilbrukere. Alle bilbrukerne har førerkort og de fleste har god tilgang til bil, mens under 60 prosent av gang/sykelbrukerne har førerkort og bare 30 prosent har god tilgang til bil.

De fleste bilbrukere kjører bil på korte turer minst 5 ganger i uka, mens gang/sykkelp brukere med førerkort kjører bil på korte turer sjeldnere enn en gang pr uke. Gang/sykkelp brukere går mye, mens bilbrukerne synes de burde gå mer enn de gjør. I Finland er sykkel et mye brukt transportmiddel blant begge grupper, mens de intervjuede i Østerrike, Italia og Spania sykler sjelden.

Alle respondentene i markedsundersøkelsen har førerkort og tilgang til bil. Selv om folk har tilgang til bil kan de ikke nødvendigvis bruke den til enhver tid. I den norske undersøkelsen har 54 prosent bil som de disponerer selv, mens 46 prosent deler bilen med andre husstandsmedlemmer.

Mange som bor i nærheten av skole- eller arbeidssted kjører bil til jobben. 40 prosent av respondentene i den norske undersøkelsen kjører bil til jobben, selv om avstanden ikke er lenger enn 5 km. 50 prosent kjørte bil siste uke. 25 prosent sykler til jobb hver dag i sommerhalvåret, mens 23 prosent sykler minst en gang i uka.

Det er et potensiale for å endre folks bilbruk til arbeid. Størst potensiale finner vi blant dem som veksler mellom å kjøre bil eller å gå/sykle. Nesten 30 prosent av de intervjuede går eller sykler til jobben av og til. Bedre forhold for fotgjengere og syklister kan få flere av dem til å sette bilen hjemme.

Fordelene ved å gå og sykle

I holdningsundersøkelsene opplyser de fleste at de liker å gå og sykle. Dette gjelder både gang/sykkelp brukere og bilbrukere. Gangturer synes å være særlig populært, mens mange også setter stor pris på sykkelturet.

Det er mange fordeler ved å gå og sykle. Forbedret helse er blant de viktigste. Miljøaspekter og å få frisk luft er positive sider ved gangturer.

Overraskende nok nevnes ikke miljøaspekter i særlig grad som en positiv side ved sykling. Men folk opplever at det er moro å sykle, de får god trening og det er bekvemmelig.

Både gang/sykkelp brukere og bilbrukere nevner mange av de samme fordelene ved å gå og sykle. Men forskjellene mellom gruppene kan tyde på at bilbrukerne stort sett sykler i fritida, mens gang/sykkelp brukerne mer ser på gange og sykkel som transportmidler.

30 prosent av de yrkesaktive i markedsundersøkelsen sier at det mest positive ved å gå eller sykle til jobben er å få god trening. Andre fordeler er at de får frisk luft, det er enkelt, billig og miljøvennlig.

Figur 1: Fordeler ved å gå og sykle. Holdningsundersøkelser i Finland, Østerrike, Spania og Italia. 1996

Fordeler ved	
Gange	Sykling
Helse forhold: Forbedrer fysisk og mental helse, avslappende, avstressende, god trening	
Bekvent: Uavhengig, fleksibelt, enkelt, pålitelig, hyggelig	
Miljø forhold: Får frisk luft, er ute i naturen	Andre forhold: Økonomisk, billig

Barrierer mot å gå og sykle

Selv om det finnes mange positive sider ved å gå og sykle, møter fotgjengere og syklister også barrierer og hindringer. En av de viktigste ulempene ved å sykle er at det er ubekvent: Det tar for lang tid og det er grenser for hvor langt man kan gå eller sykle. Gang/sykelbrukere er mer bevisst disse ulempene enn bilbrukere, selv om bilbrukere generelt er mer bevisst tidsbruken. Andre viktige ulemper er at man ikke kan ta med seg store eller tunge ting.

Figur 2: Barrierer ved å gå og sykle. Holdningsundersøkelser i Finland, Østerrike, Spania og Italia. 1996

Barrierer ved	
Gange	Sykling
Tid: Tar for lang tid	
Fysiske forhold: Vanskelig å ta med seg store og tunge ting	Infrastruktur forhold: Dårlig utbygd og sammenhengende sykkelvegnett, vanskelige kryssinger
	Miljøforhold og geografi: Bakkete, dårlig vær, forurensninger

Miljømessige og geografiske barrierer, slik som bratte bakker, dårlig vær, forurenset luft etc, nevnes også som viktige negative sider ved å sykle. Andre barrierer er dårlig utbygd sykkelvegnett, farlige kryss, parkerte biler og høye fortauskanter. Det ser ut til at bilbrukere er mer opptatt av det dårlig utbygde sykkelvegnettet enn gang/sykelbrukerne.

Tiltak som kan bedre forholdene for fotgjengere og syklister

De siste 10 år har en tatt i bruk økonomiske virkemidler for å redusere bilbruken, slik som bompenger, parkeringsavgifter etc. I flere nordeuropeiske land koster det dyrt å parkere i sentrale strøk på dagtid. Markedsundersøkelsen viser at færre kjører bil til jobben når parkeringsavgiftene øker.

Viktige virkemidler for å få flere til å gå eller sykle er forbedringer av infrastrukturen og politiske tiltak, slik som lover, regler, kontroll- og prismekanismer.

De viktigste forbedringene av infrastrukturen er:

- utbygging av gang-/sykkelvegnettet
- brede fortau
- bedre kryssmuligheter; under/overganger for fotgjengere og syklist
- jevnere vegdekke.

De viktigste politiske tiltakene er:

- forbud mot sykling på fortau
- bilfrie bysentra
- prioritet for forgjengere og syklist ved kryss
- ulike tiltak for å redusere trafikken; høyere besinpriser, parkeringsavgifter og ulike former for restriksjoner på bilbruk.

Tiltakene over kan tyde på konflikter mellom fotgjengere, syklist og bilførere. Mye trafikk, høye hastigheter og dårlig utbygd sykkelvegnett får syklistene opp på fortauet. Dette misliker mange fotgjengere.

Andre tiltak som kan bedre forholdene for syklist er:

- muligheter for å skifte og dusje på jobben
- et trygt sted å parkere sykkelen.

Er det mulig å endre folks transportmiddelvalg på korte turer?

Det er viktig å klargjøre hvilke tiltak som har best effekt og hvilke trafikanter som har størst potensiale for å erstatte korte bilreiser med gange eller sykkel.

Holdningsundersøkelsene viser at en reduksjon i biltrafikken ville ha stor betydning for å nå dette målet.

Markedsundersøkelsen viser at enkelte korte bilturer er lettere å erstatte med gange eller sykkel enn andre. Arbeidsreiser og sport- og fritidsreiser lar seg erstatte med sykkel. Henholdsvis 22 og 20 prosent av de yrkesaktive sier at de gjerne kunne sykle til jobben. Bilreiser for å handle dagligvarer kan erstattes av gangturer. De bilreisene det er vanskeligst å overføre til gange eller sykkel er reiser der en følger, henter eller bringer andre, slik som barn til og fra barnehage.

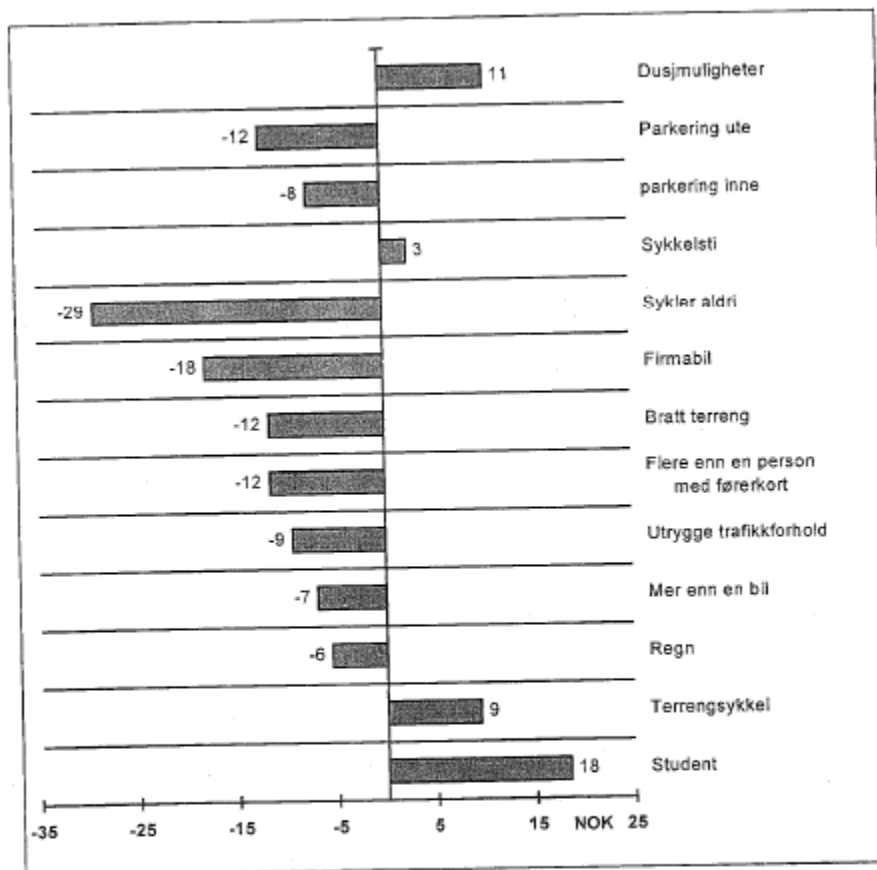
Vi har vi brukt stated preferences- metoder for å se hvor mye folk er villige til å betale for parkering før de bytter ut bilen med gange eller sykkel. De som vanligvis kjører bil til jobben er minst villige til å bytte transportmiddel. De ville

betale nesten 30 kroner pr dag i parkeringsavgift for å «slippe» og sykle til jobben. De som har firmabil er villige til å betale 18 kroner pr dag i parkeringavgift. Sannsynligheten for å sykle i stedet for å kjøre bil til jobben er størst blant studenter og folk som har terrengsykkel.

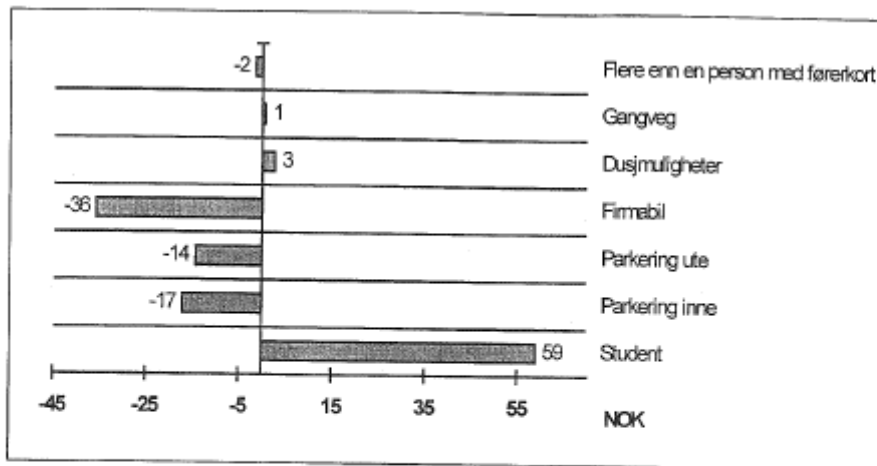
Geografiske og miljømessige forhold spiller også en viss rolle for folks transportmiddelvalg: Sannsynligheten for at folk sykler til jobben er mindre dersom det er bratte bakker, utrygge trafikkforhold og regnvær.

De som har firmabil er villige til å betale 36 kroner pr dag i parkeringsavgift før de lot bilen stå hjemme og i stedet gikk til jobben, mens de som har innendørs parkering på arbeidsstedet kunne tenke seg å betale 17 kroner pr dag i parkeringsavgift.

Mange opplever at det tar for lang tid å gå eller sykle til jobben til at dette er gode alternativer til bilbruk.



Figur 1 Gjennomsnittlig parkeringsavgiftsom skal til for å få folk til å gå over til å sykle i stedet for å kjøre bil til arbeid. Kroner pr dag. Den norske Markeds-/SP-undersøkelsen



Figur 2 Gjennomsnittlig parkeringsavgiftsom skal til for å få folk til å gå over til å gå eller sykle i stedet for å kjøre bil til arbeid. Kroner pr dag. Den norske Markeds-/SP-undersøkelsen

1 Introduction

1.1 The purpose of WP6

The objective of WP6 is to interview people to give answers to questions that are structured according to their attitudes towards walking and cycling instead of using a car. Important interview objectives are to let people:

- inform about their habits with respect to short car trips, walking and cycling and describe/assess the situation for pedestrians and cyclists.
- tell what are the strongest practical attractors for walking and cycling, and what are the most severe barriers.
- make suggestions for modifications and for solutions for pedestrians and cyclists.

To achieve this goal we have utilised two different approaches:

1. Qualitative approach using data from in-depth interviews in Finland, Austria, Italy and Spain focused on target groups' attractions and barriers for walking and cycling and suggested measures to improve conditions for pedestrians and cyclists. In this report we call these interviews «qualitative interviews» or «attitude studies»¹.
2. Quantitative approach using data from interviews carried out in Norway, based on commuters' actual travel behaviour, preferences and attitudes. The Norwegian data is collected through a Marketing Survey. Stated Preferences techniques were among the methods used. In this report the study is called «Marketing/SP-survey».

The two ways of collecting data are described in the following paragraphs.

1.2 Qualitative data from in-depth interviews

The attitude surveys made in Finland, Austria, Italy and Spain are based on in-depth interviews. The questionnaire contained partly open and partly structured questions. The use of open questions leaves to the respondents to describe their answers. The point was

¹We are well aware that this is not an approach comparable to "attitude studies" in a more formal sense. However, our goal is to find out about aspects, including norms and the motivation to comply with them, values, etc., that should reflect, how attractive - or not - a certain behaviour is considered by people. Thus, conceptually we are talking about attitudes.

to catch the richness and nuances in people's attitudes. The disadvantage was that many respondents - especially elderly people - had problems in wording their expressions.

1.2.1 Target groups and definitions of walcers and drivers

In WALCYNG vulnerable road users are defined as target groups. Among vulnerable road users we find many young and old people. The majority of the respondents in the attitude surveys are found among the target groups.

Two groups of respondents were interviewed; walcers and drivers. The definitions of a walcer and a driver used in the interviews are the following:

- *Car driver*: A person who uses the car as main traffic mode and drives even short distances by car.
- *Walcer*: A person who walks or cycles certain distances at least three times a week, does not use public transport solely, and does not use a car as main traffic mode.

When we use walcer and driver as categories in tables and figures they are labelled «modal category». In the WALCYNG project and in this report we often use the word «walcyng» as a common description of walking and cycling.

1.2.2 The sample

In Finland 50 interviews were carried through in the city of Hämeenlinna, a small town about 100 km north of Helsinki. Half of the respondents were drivers and half of them were walcers. All the subjects were contacted and interviewed at the marketplace and the parking lot next to it.

In Austria 25 drivers and 25 walcers in Vienna were interviewed from the beginning of August till the beginning of September. Subjects were found in public places, mainly in pedestrian zones, where people relaxed on park benches. In general, people were friendly and willing to answer all questions. It was more effort to find car drivers than walcers, though. Car drivers rarely permitted to be interviewed, when they got off or in their car.

In Italy 25 drivers and 25 walcers were interviewed in the three big cities, Rome, Torino and Naples from the second half of July to the first half of October. 50 per cent of the interviews took place in Rome, 30 per cent in Torino and 20 per cent in Naples. Most of the interviews were conducted in the respondents' home.

In Spain 23 drivers and 25 walcers were interviewed in Valencia. The subjects were collected in the streets of Valencia, in different parts of the city.

1.2.3 Range, depth and breadth of attitudes

In the qualitative studies the sample is not collected by means of established statistical procedure, but from characteristics in the travel behaviour of the respondents. These studies may tell us about the range, the depth and the breadth of attitudes to walking and cycling present among the interviewees. On the other hand the results from the qualitative studies cannot be generalised to the distribution of attitudes within the whole population. However, the results are of general interest as examples of attitudes towards walking and cycling for groups of people in Finland, Austria, Italy and Spain, as they show advantages and obstacles people see as important to walking and cycling.

1.2.4 Specification of results

We want to make comparative analyses of walkers and drivers and find possible differences between respondents in Finland, Austria, Italy and Spain. Given the small sample, distributing walkers and drivers on countries and other variables gives just a few respondents in each cell. Because of this we do not calculate percentages. Results are instead expressed by specifying in which categories we find the highest number of respondents. The small samples do not permit a statistical comparison between the countries, but it was important to include several countries in order not to overlook something important that may not be present in all countries.

1.3 Quantitative data from the Norwegian Marketing/SP-survey

The Norwegian Marketing/SP-survey was carried through in the city of Oslo from August 20th to September 13th 1996 by a market research institute, Norsk Gallup Institutt A/S. 392 people were interviewed at home.

We used a structured questionnaire and collected information about the respondents' actual travel behaviour on trips to work and their attitudes and preferences towards measures to improve the conditions for walking and cycling.

The method of collecting data was based on a combination of Stated Preferences techniques (see paragraph 1.3.3) and observations of existing behaviour (revealed preferences). The questionnaire was available on a floppy disk on a lap top computer. The questionnaire had a customised design and was organised in a way that made each interview specially suited for the respondent.

1.3.1 *The sample*

We decided to interview people who belonged to one of the target groups defined in WALCYNG's WP1 to WP5. We chose to look at commuters' possibility to replace car use with walking and cycling. We also wanted to interview people who had a real choice between driving a car, walk or use a bicycle to work. Thus, all the interviewees had to fulfill the following characteristics:

- They are currently employed or students.
- They are at the age 18 to 67 years.
- Their work/school location is not more than 5 km away from home, but not at home.
- They have a driving license and access to a car.
- They are physically able walk or cycle at least 5 km.

To draw a sample of 392 people fulfilling these criteria 3706 people were drawn randomly from a telephone directory. 2602 of these did not satisfy the criteria, while 493 denied to take part in the survey, mainly because they did not have time available, they were not interested in the object, or they did not take part in telephone interviews in general.

1.3.2 *Generalisations and specification of results*

The sample is drawn as a random sample by an established statistical method from the universe of all persons satisfying the specified criteria and living in Oslo not too far from the city centre. The sample should be representative for our target population in Oslo.

We should therefore be able to draw general conclusions from our sample concerning the target population. However, our target population differs from the general population in Oslo, and we have to be careful with generalisations to the whole population of students and employed people in Oslo.

Results are mainly given in percentages. We only comment on statistically significant results.

1.3.3 *Using Stated Preference techniques*

Parts of the Norwegian survey are based on Stated Preference (SP) techniques. SP-techniques is a common label for a number of different approaches, all of which built on people's statements of how they would respond to different hypothetical situations (Bradley 1991, Norheim and Hanssen 1990). The distinguishing feature of SP-techniques is their use of experimental designs to construct a series of alternative

imaginary situations that people have to respond to. People are responding as if these situations faced them in reality, that is, state their preferences towards the choices offered. Use of SP-techniques makes it possible to analyse which factors are the most important for the hypothetical choice made. This is one of the reasons why Stated Preference techniques have been ubiquitous in transport research the last ten years.

Using SP-techniques, the respondents have to make a series of hypothetical choices. Hypothetical choices are usually associated to several types of biases affecting reliability. To reduce these biases, the respondent's journey to work or to school was established as the setting for all the choices made. The respondents travel to work or school almost every day, and we suppose they know this journey quite well. The respondents were asked to choose among several packages containing a specific mix of different factors at different levels meant to affect the choice between walking/cycling or driving a car to work or school. The following factors were used in the packages:

- travel time to work/school
- parking possibilities for cars at work/school
- car parking fees
- footpaths and separate lanes for cycling
- facilities for taking a shower and change clothes at work/school.

One factor - travel time, was used in all the packages. This makes it possible to relate the effects of all the other factors to the effects of travel time.

The factors used in the packages are quantitative factors that may influence people's mode choice. The factors used in the packages are of course not a complete list of influencing factors, but a selection of factors familiar to many of people's choices.

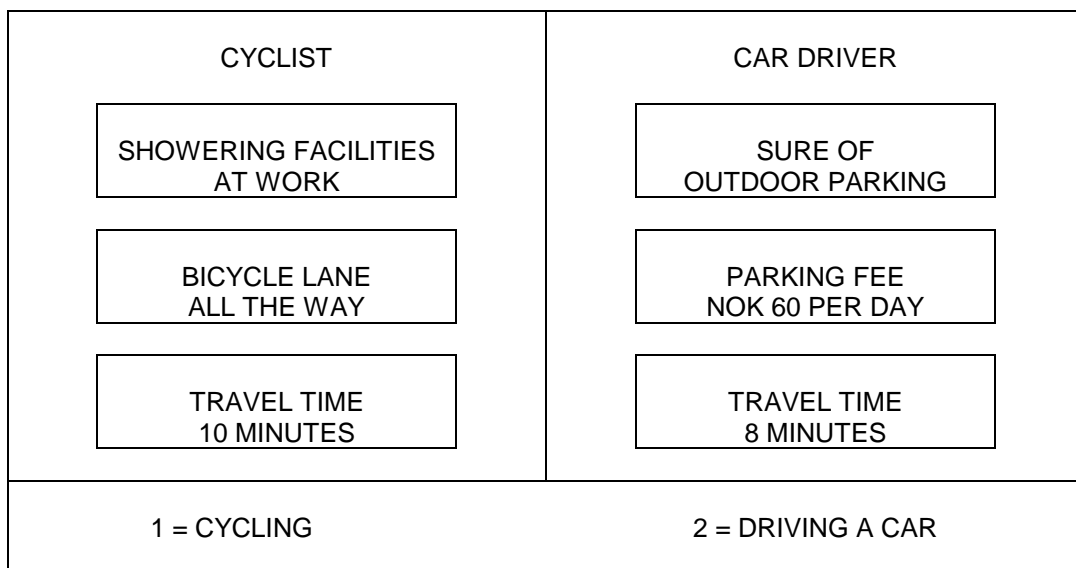


Figure 1-1 Example of two packages containing a specific mix of factors at different levels from which the respondents have to choose. The Norwegian Marketing/SP-survey

1.4 The walking and cycling conditions in the survey areas

1.4.1 Finland

The Finnish interviews were carried through in Hämeenlinna. In Hämeenlinna there are no high hills and the bicycle network is rather good.

1.4.2 Austria

The interviews in Austria were made in Vienna. Vienna has about 1,7 Mio. inhabitants. The share of cyclists amounts to 3 per cent, the share of pedestrians up to 28 per cent (Brög 1993).

The topography is not really hilly; depending on the district you have to go a little bit up and down.

The cycle network is rather incomplete. In Vienna there exist about 500 km cycle paths. The quality is often not too good. The cyclists quite often have to share their path with pedestrians or parked cars. They are not allowed to use the pavements.

Almost all roads have pavements, at least on one side. The pavements are relatively narrow. It happens at many regulated crossings that pedestrians have to wait quite a long time for the sign to go. In the town centre there are a few pedestrian areas, shopping streets, which are very popular. Thus the car traffic is restricted to a certain extent in the city centre.

1.4.3 Italy

The interviews in Italy were carried out in three cities; Rome, Torino and Naples. Rome is characterised by the «seven hills». The traffic is heavy and chaotic and the conditions for pedestrians and bikers are difficult. In Naples the traffic conditions are at least as bad as in Rome. In Torino the topography is rather flat. In the city centre the streets have continuous arcades which separate pedestrians from car traffic. In contrast to Rome and Naples, biking is a mode of transport often used in Torino.

1.4.4 Spain

The interviews from Spain were carried out in Valencia. The topography of Valencia is very flat, without any zones containing topographical ups and downs. Valencia is located at the seaside and the nearest mountains are 15 kilometres away. The

infrastructure for bicycles is incomplete. There are only a few kilometres of bicycle lanes in the city centre. Cyclists are not physically separated from pedestrians and there is no supervised parking for bicycles. The maintenance of bike lanes is minimal.

The infrastructure for pedestrians is adequate and is constantly improving. All the areas of new construction include wide pavements and the renovations in the old areas of the city contemplate the improvement of pedestrian area. In the commercial and historic centre of the city, there are pedestrian-only areas with motor vehicle access restricted to residents and loading-unloading of the businesses in the area and special traffic lights that give priority to pedestrians. The intention is to double the number of pedestrian-only areas in the next five years.

1.4.5 Norway

The interviews in Norway were made in Oslo. Oslo is located at the seaside and the city is surrounded by hills up to 500 meters high. The majority of the inhabitants do not live further up than 200-300 meters.

The cycle network is incomplete. Only a few kilometres of roads have special cycle lanes. The cyclists have to share the road with cars, trams and buses. When not inconveniencing the pedestrians, cyclists in Norway are allowed to use the pavements.

Except for smaller roads in the residential areas, all the roads have pavements. The pavements are usually relatively narrow. There is a lack of footpaths and subways for pedestrians.

In the city centre car use is restricted in the most popular shopping areas, but there are no biking restrictions.

2 Respondent sociodemographics

People's attitudes towards walking and cycling vary with sociodemographic characteristics; such as age, gender, level of education and income.

In the attitude surveys half of the respondents were walkers and half were drivers, with about the same number of men and women in each group. Young and old people walk or use a bike more often than the middle aged. WALCYNG has defined vulnerable road users as target groups, for whom it is important to improve walking and cycling conditions. Among these we find many young and elderly people. The proportion of young and elderly people in the attitude survey is therefore higher than in the population in general.

While the attitude surveys have sacrificed the possibility of generalisation of results in order to concentrate on the target population, results from the Marketing/SP-survey can be generalised to the defined universe of commuters in Norway. The distribution of age and gender of the Marketing/SP-respondents is similar to the recruitment group. The respondents in the Norwegian survey are mainly middle-aged people with a high level of education and high household income.

The respondents' age, gender, education, social and demographic situation influence their answers to the questions asked. This chapter gives a brief view on the respondents' sociodemographic characteristics. This will give us a better understanding of the answers in the surveys.

2.1 Age and gender

198 people were interviewed in the attitude surveys, respectively 50 from Finland, Austria and Italy and 48 from Spain (tables 2-1-2-4 in Appendix). In all the countries half of the respondents were walkers and half were drivers and about the same number of men and women interviewed were walkers and drivers. Also in the Norwegian Marketing/SP-survey there was an equal share of men and women (table 2-5 in Appendix).

The distribution of age among the respondents in the attitude surveys is about 1/3 under the age of 25, 1/3 at the age of 25 to 60 and 1/3 older than 60. In WALCYNG's WP1 we found that young people walk and use a bicycle more often than the middle-aged, who drive their car on most trips, and that the number of trips on foot is rather high among

the elderly. WALCYNG's WP1 to WP5 define vulnerable road users as target groups for whom it is important to improve walking and cycling conditions. Among vulnerable road users we find many young and old people. Therefore, a relatively large number of people under the age of 25 and older than 60 were interviewed in the attitude surveys.

The respondents in the Marketing/SP-survey are mainly middle-aged. About 90 per cent are 26-60 years of age. Only 5 per cent are 18 to 25 years old and 4 per cent more than 60 years (up to the age of 67). The distribution of age of the Marketing/SP-respondents is similar to the distribution of age in the recruitment group.

The distribution of age is very different in the attitude surveys and the Marketing/SP-survey. These differences will have effects on the respondents' transport resources and attitudes to mode choice.

2.2 Education and income

Table 2-6 in Appendix shows the level of education of the respondents in the attitude surveys.

In the Italian attitude survey there are more people with higher education (academic degree) and fewer with lower education (junior high school) than in the other three countries. Among the Austrians there are more people with lower education and among the Finnish respondents there are fewer with higher education. The differences between the samples in the four countries are due to the different forms of sampling applied. These differences may have effects on the respondents' attitudes towards walking and cycling.

The level of education among the respondents of the Norwegian Marketing/SP-survey is rather high as compared with the respondents in the attitude surveys (table 2-7 in Appendix). This may be due to the different age groups interviewed in the attitude surveys and the Marketing/SP-survey. The selection criteria for the Norwegian respondents; like having a driving license and access to a car may also explain the high level of education of these respondents.

It is often difficult to get information on people's income. In some countries questions about income are not considered as appropriate. Respondents who answer questions about their income do not always tell the truth. They fear that the information can be utilised for other purposes.

In the attitude surveys the question of income was not asked in Italy. The Austrian data on income was very poor. For that reason we do not comment on income differences between the countries in the attitude surveys.

The gross household income of the Norwegian respondents is rather high (table 2-8 in Appendix). About half of the respondents has a household income of NOK 400.000 and more. The high incomes among the Norwegian respondents are connected to the respondents' age. Most of the respondents are in age groups who usually have a high income.

3 Access to transport and use of modes

In the attitude surveys there are large differences in the transport resources available to walcers and drivers. All drivers have a licence and most of them have always access to a car, while less than 60 per cent of the walcers have a driving licence and only 30 per cent of them have access to a car most of the time.

Most drivers use a car on short trips 5 times a week or more, while walcers with a driving licence use cars for short distance trips rarely than once a week. As expected, walcers choose to make short trips on foot more often than drivers, but most drivers feel they should walk more often than currently. Only in Finland cycling seems to be a transport mode used by both groups of respondents. In Austria, Italy and Spain most of the respondents, walcers as drivers, never or rarely use a bike.

All Marketing/SP-respondents have a driving licence and access to a car, but they do not have complete access to a car all the time. Almost half of them must share the car with one person or more.

Many commuters drive their car to work, even when they live less than 5 km from work. 40 per cent of the SP-respondents use their car to work every day and almost 50 per cent used their car to work last day. However, even if they have a licence and access to a car, 25 per cent of the respondents cycle to work every day in the summer season, and 23 per cent cycle at least once a week.

There is a potential for changing commuters' mode choice in the summer season. The potential is found among those who sometimes walk or cycle to work. Nearly 30 per cent of the commuters walk or cycle to work once a week or once a month. Improved conditions for walking and cycling may lead to a change in mode choice among these commuters.

Travel behaviour surveys all over the world indicate that the access to transport is the most important factor influencing mode choice. To drive a car - even on short distances - you have to have access to a car, and you must have a driving licence as well. You cannot walk or ride a bike if you are not physiological able to do it. Access to public transport depends on the transport service from/to where you want to travel.

Other factors that are important for mode choice are the trip purpose, prices for travelling, where people travel, whether or not the trip is a part of a trip chain, travelling alone or in company with others, luggage, the time of day, car parking possibilities,

attitudes towards travelling and towards different modes, etc. In this chapter we will take a look at the respondents' transport resources and how often they use different modes of transport.

3.1 Car drivers must have a driving licence

Having a driving licence and access to a car are transport resources that make it possible to travel almost anywhere and whenever you want. The access to transport resources varies between population groups and countries. Transport resources like a driving licence and access to a car are usually associated with age and income. Even if the major share of the population 18 years and older have a driving licence today, there are groups among the elderly and people with low income without these resources.

All the respondents in the Norwegian Marketing/SP-study have a driving licence. Having a driving licence was one of the sampling criteria. In the attitude studies all drivers and about 3 out of 5 walcers have a driving licence. The percentages were respectively 60 per cent in Italy and Spain and 56 per cent in Finland and Austria.

Having a driving licence and a car in the household does not mean that you can use the car whenever you want. In European households there are still more people with a driving licence than cars.

Even if the major shares of the walcers in the attitude studies have a driving licence, there are big differences between walcers and drivers regarding car availability (table 3-1 in Appendix). While almost all the drivers interviewed in Finland, Austria, Italy and Spain always or most of the time have a car available, this is true for less than 30 per cent of the walcers. About half of the walcers have no licence. The attitude surveys indicate big differences in transport resources between the interviewed walcers and drivers. However, there are small differences between the countries.

Even if all the respondents in the Marketing/SP-survey have a driving licence and access to a car, they cannot use the car whenever they want. Almost 80 per cent live in a household with only one car (compared to about 60 per cent of the car owner households in the Oslo area). More than 60 per cent live in a household where at least two people have a driving licence (table 3-2). This means that they have to share the car with at least one other person. 54 per cent of the respondents have a car of their own, while 46 per cent have to share the car with one or more others (table 3-3).

Table 3-2 The share of respondents with different numbers of people holding a driving license and different numbers of cars respectively. Per cent. The Norwegian Marketing/SP-survey

Number	People in the household with a driving licence Per cent	Cars in the household Per cent
1	37	78
2	57	19
3 or more	5	2
Sum	99	99
Number of persons	388	388

Table 3-3 Numbers of cars for every driving licence in the household. Per cent. The Norwegian Marketing/SP-survey

Number of cars in the household for every driving licence	Per cent
< 1	46
≥ 1	54
Sum	100
Average	0.78
Number of persons	388

3.2 Use of transport on short trips in Finland, Austria, Italy and Spain

The big differences in transport resources between the interviewed walcers and drivers in the attitude surveys appear in their use of transport on short trips. While most of the drivers use a car on short trips (less than 6 km) 5 times or more a week, most of the walcers cannot drive because they do not have a driving licence (table 3-4 in Appendix). However, walcers with a licence use a car more seldom than once a week for short trips.

The walcers' mode of transport on short trips is mainly walking (table 3-5 in Appendix). The majority of the interviewed walcers in Finland, Austria, Italy and Spain make a trip on foot more than 6 times a week, or at least one or more trips on foot every day. The interviewed drivers make trips on foot too, but not as often as the walcers. In Finland and in Spain drivers usually make a trip on foot 2-5 times a week, while they seldom walk more often than once a week in Austria and Italy.

Only in Finland cycling seems to be a transport mode used by all the respondents interviewed (table 3-6 in Appendix). Most of the interviewed Finnish walcers use their bike 6 times or more a week, while most of the Finnish drivers use their bike at least once a week. In Austria, Italy and Spain, most of the respondents, walcers as drivers, do not use their bike that often, if they have one.

It seems that the interviewed walcers in Finland walk as well as use a bicycle, while the walcers in Austria, Italy and Spain walk, but do not often use a bike.

From WP1 we know that cycling is a mode of transport for young people, while the elderly walk relatively more than other age groups. Even if we have not distributed the attitude respondents' use of transport after age groups, this is probably true for the population interviewed. People under the age of 25 use their bike, while elderly people 60 years and older mainly walk. Many elderly people are not physically able to cycle and they are often afraid of car traffic.

3.3 Drivers feel they should walk more often

Respondents in the attitude survey were asked whether or not they ought to walk/cycle more often than they currently do. Almost all the interviewed drivers in Finland, Austria, Italy and Spain agreed, fully or slightly, in that they ought to walk more (table 3-7 in Appendix). The answers may indicate that drivers feel they should walk more often than they currently do.

The interviewed drivers do not share the same enthusiasm for using their bike more often (table 3-8 in Appendix). This may be due to bad cycling conditions. Many drivers might not even own a bike. In Finland and Spain the majority of the drivers fully or slightly agree they should cycle more than currently, while in Austria the drivers are not in favour of cycling more. In Italy the drivers are in complete disagreement. Many car drivers said they disliked cyclists and had problems to identify themselves as cyclists. This makes it difficult for car drivers to change their mode of transport, even on short trips.

The interviewed walkers do not seem to feel that they should walk or cycle more than currently (table 3-7 and table 3-8 in Appendix): In Finland and Austria most walkers did not agree at all with the statement that they should walk more often, which is more than 10 times a week. In Spain most of the walkers agreed to walk more, even if they already walk more than 10 times a week. Italian walkers rather agree to do more walking. In all the countries the walkers do not agree to cycle more than currently.

3.4 Most commuters drive their car to work

Living close to work may have an effect on work trip mode choice. All the respondents in the Norwegian Marketing/SP-survey lived within 5 km from work. 40 per cent were driving a car to work every day during the summer season and 31 per cent at least once a week (table 3-9). Only 6 per cent of the respondents walked to work every day during the summer, while 56 per cent never walked. 25 per cent cycled every day in the summer season, while 32 per cent never cycled to work. Almost half of the commuters travelled by car on the same day they were interviewed, and almost 80 per cent had used car to work during the last week (table 3-10). Living close to where you work may increase the share of commuters walking or cycling, but not always.

Table 3-9 How often commuters walked, biked or drove to work/school. Per cent. The Norwegian Marketing/SP-survey

How often	Walking	Cycling	Driving a car
Every day	6	25	40
Once a week	13	23	31
Once a month	11	7	21
Less often than once a month	15	12	5
Never	56	32	2
Sum	101	99	99
Number	283	310	391

Table 3-10 Time of last car use occurrence to work/school. Per cent. The Norwegian Marketing/SP-survey

Last time driving a car to work/school	Per cent
To day	49
Last week	29
Last 2 weeks	6
Last month	7
More than 1 month ago	9
Do not know	0
Sum	100
Number	381

Most commuters drive their car in the summer time, even when the trip distance is 5 km or less, in spite of having alternative modes of transport available. They do not have to drive a car. In the summer season 44 per cent would cycle if they were unable to use their car, while 34 per cent would choose public transport. 16 per cent said they would walk. Only 2 per cent said they have no other alternatives available (table 3-11).

The Norwegian data indicate there is a potential among commuters to change their mode choice in the summer season. The potential is found among commuters who sometimes walk or cycle to work. Among commuters with cycling as their alternative to driving a car 30 per cent cycle once a week or once a month, while 24 per cent with walking as their alternative go to work on foot once a week or once a month.

Improved conditions for walking and cycling may lead to a change in mode choice among these commuters.

Table 3-11 Alternatives to the use of car for trips to work/school. Per cent. The Norwegian Marketing/SP-survey

Alternative mode to use of car	Per cent
Cycling	44
On foot	16
Public transport	34
Other modes	5
Not any alternatives to car	2
Sum	101
Number	380

The distribution of transport resources and mode choice in the Marketing/SP-survey and the attitude surveys differ significantly, reflecting the different sample criteria used. While we find that the Marketing/SP-respondents alternate between different modes, the respondents in the attitude surveys are typical drivers and walkers.

Information from both surveys complements earlier knowledge of the connection between transport resources and use of modes.

4 The benefits of walking and cycling

The majority of respondents in Finland, Austria, Italy and Spain, drivers as well as walcers, like walking and cycling. Especially walking seems to be a popular activity, while cycling is almost, but not quite as popular.

There are a lot of benefits associated with walking and cycling: Health aspects are important benefits of walking as well as of cycling. For walking environmental aspects and getting fresh air are important additional benefits.

Surprisingly, environmental aspects are not mentioned as positive aspects of cycling very often. Cycling is fun, gives you good exercise and is very convenient.

There are small differences in the attractions mentioned by walcers and drivers, but the differences indicate that drivers use their bike for leisure activities, while walcers walk or use their bike as modes of transport.

The most important reason for walking and cycling to work is to get some «exercise». This reason is mentioned by almost 30 per cent of the respondents who walked as well as those who cycled to work. Other important reasons are: getting fresh air, walking and cycling is easy, cheap and environmental friendly.

4.1 Almost everybody likes to walk and bike

The increased use of car has had a detrimental effect on all other modes, among them walking and cycling. Car usage is still increasing all over Europe. This applies to both short trips and long trips. In Chapter 3 we found that drivers in Finland, Austria, Italy and Spain did not walk or cycle very often (paragraph 3.2) and many commuters in Norway drove their cars even on short trips (paragraph 3.4).

However, the majority of respondents in Finland, Austria, Italy and Spain, drivers as well as walcers, like walking and cycling (tables 4-1 and 4-2 in Appendix). Especially walking seems to be a popular activity, while cycling is almost, but not quite as popular.

Surprisingly, there are hardly any differences in these attitudes among walcers and drivers (table 4-3).

Table 4-3 Answers to the question «Do you like walking/cycling?». Number of respondents after modal category. The attitude surveys

Answer	Walking		Cycling	
	Driver	Walcer	Driver	Walcer
Yes	85	89	76	81
No	13	11	22	19
Sum	98	100	98	100

Cycling seems to be more popular in Finland than in the other three countries. In Austria and Italy about 1/3 of the drivers do not like cycling.

The differences between the countries may be due to better traffic conditions for cyclists in Finland than in Spain, Austria and Italy, different barriers (see chapter 5) and cultural differences.

Except for the Finnish respondents the attitudes towards cycling differ from the respondents' actual cycling behaviour. Most respondents in Austria, Italy and Spain do not cycle very often, but they like cycling. These results could indicate they want to do more cycling. On the other hand, they do not think that they should cycle more often because of barriers like heavy traffic, insufficient cycle network etc. (see chapter 5).

4.2 Walking and cycling have important health benefits

There are a lot of benefits associated with walking and cycling. In an open ended question the respondents in the attitude surveys were asked about their reasons for liking to walk and bike. The advantages of walking and cycling mentioned were divided into five categories:

- environmental aspects; like environmental friendly, fresh air etc.
- health aspects; improving your health
- social aspects; being together with other people
- convenience; such as easy, pleasant, reliable etc.
- other aspects.

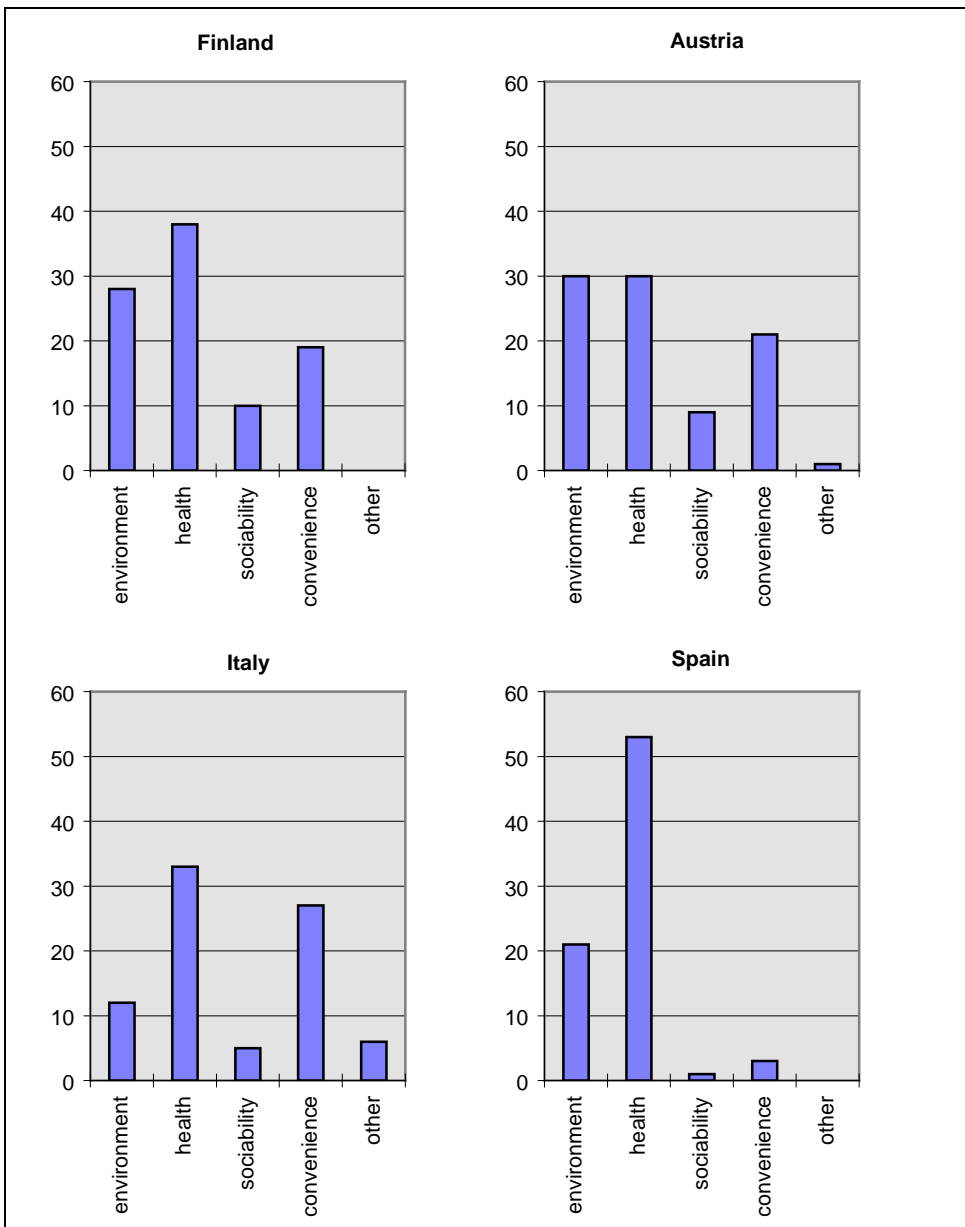
Health aspects are mentioned most often as an advantage to walking, but get a high score as an advantage to cycling, too (figures 4-1 - 4-4 and figures 4-5 - 4-8). Some people stated explicitly how their physical and mental health had been improved by walking and cycling, by strengthening their lungs, legs and back. Walking and cycling also helped them relaxing and stressing down. Some of them added that walking and cycling was not so healthy in the towns as out in the country. Other mentioned that walking and cycling was good for their health and helped them «stay younger» and «lose weight».

Environmental aspects were also mentioned as positive aspects of walking, especially in Finland and Austria. Surprisingly, environmental aspects are not mentioned as positive aspects of cycling, very often. Getting fresh air, being out in the nature where you are better able to enjoy the environment were among the positive environmental aspects. In this situation walking and cycling were connected to leisure time activities, not that much with means of transport.

Sociability as a positive aspect of walking and cycling is not mentioned very often, and most seldom as a positive aspect of cycling. But a few interviewees said they liked to go walking while talking and making fun with their children, do window shopping with friends and meet other people.

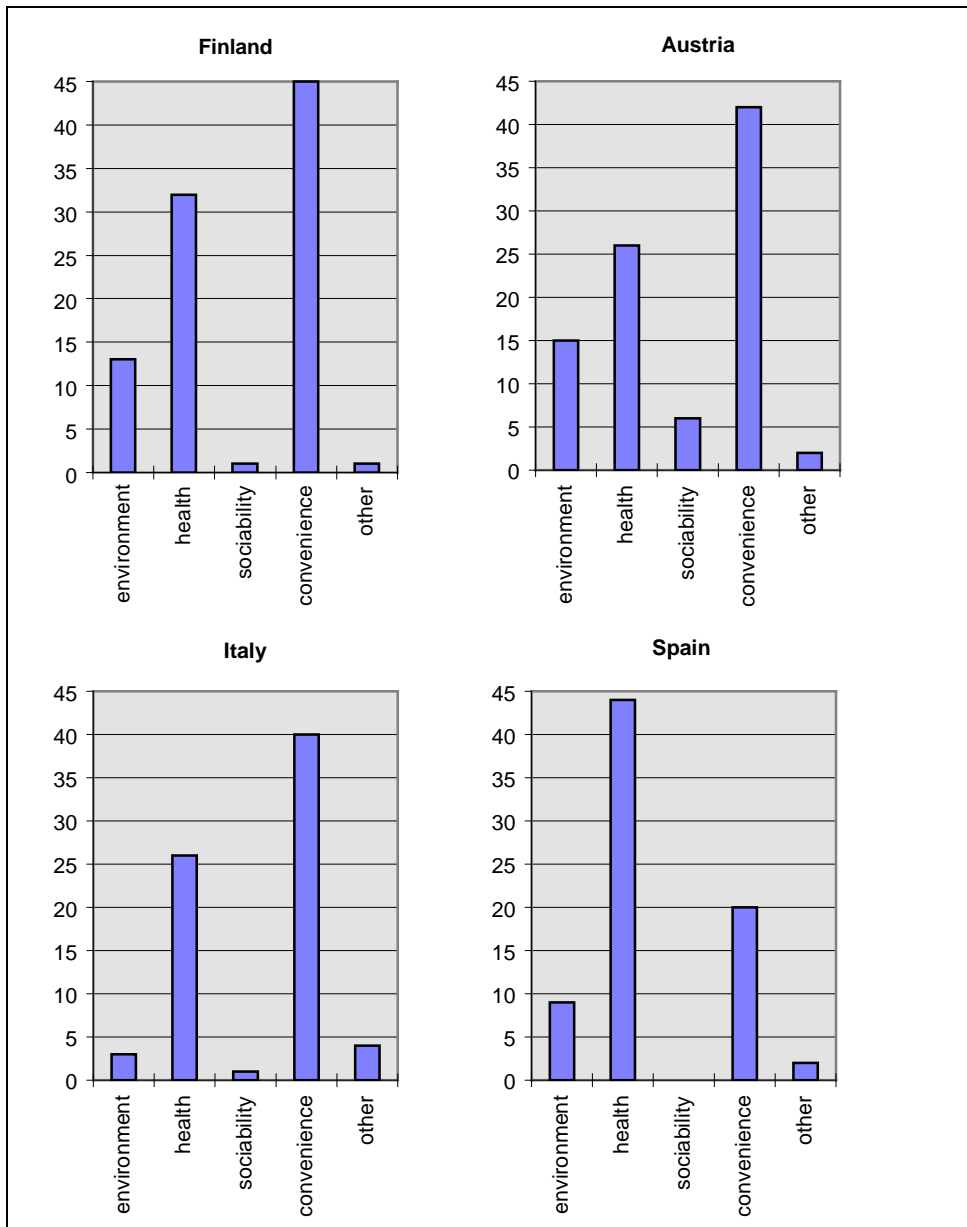
High convenience seems to present an important advantage of cycling, but are also mentioned rather often as a positive aspects of walking. Convenience aspects get a higher score in Finland, Austria and Italy than in Spain.

As examples of the convenience aspects many people said they felt independent and flexible, especially when they are cycling. You can bike wherever you want, stop wherever you want, decide the speed yourself, you do not need a parking space, a ticket etc. Cycling is considered to be an efficient mode of transport where you can carry smaller goods.



Figures 4-1 - 4-4 Positive aspects of walking in Finland, Austria, Italy and Spain. Sums of answers in different categories. The attitude surveys

There are some differences in the answers given in the four countries. Some of these differences are cultural differences. An example: People in Finland and Austria seem to be more worried about the environment than people in Italy and Spain. However, the tendencies are the same: Health aspects are mentioned as positive aspects of walking as well as of cycling. Environmental aspects are positive aspects of walking and convenience, in the sense of easy, pleasant, reliable, are positive aspects of cycling.



Figures 4-5 - 4-8 Positive aspects of cycling in Finland, Austria, Italy and Spain. Sums of answers in different categories. The attitude surveys

There is a surprisingly agreement in the answers given by walcers and drivers: Walcers as well as drivers mention health aspects most often as positive aspects of walking (figures 4-9 and 4-10). Environmental aspects get a high score, too. Drivers seem to be more concerned with convenience as positive aspects of walking than walcers.

When it comes to cycling, both walcers and drivers often mention health aspects. However, drivers emphasise the convenience aspects of cycling far more than walcers. About half of the positive aspects mentioned by drivers are categorised as convenience. This result is very interesting related to the fact that drivers do not use their bike very often. If convenience are important positive aspects of cycling, why do not drivers cycle more often? Or do they drive their car in lack of other alternatives?

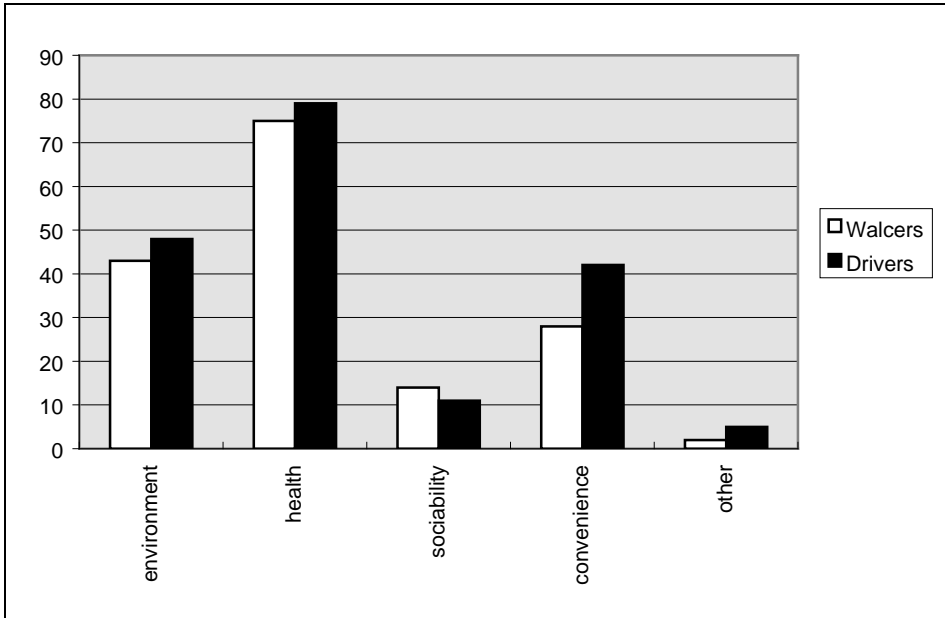


Figure 4-9 Positive aspects of walking after modal category. Sums of answers in different categories. The attitude surveys

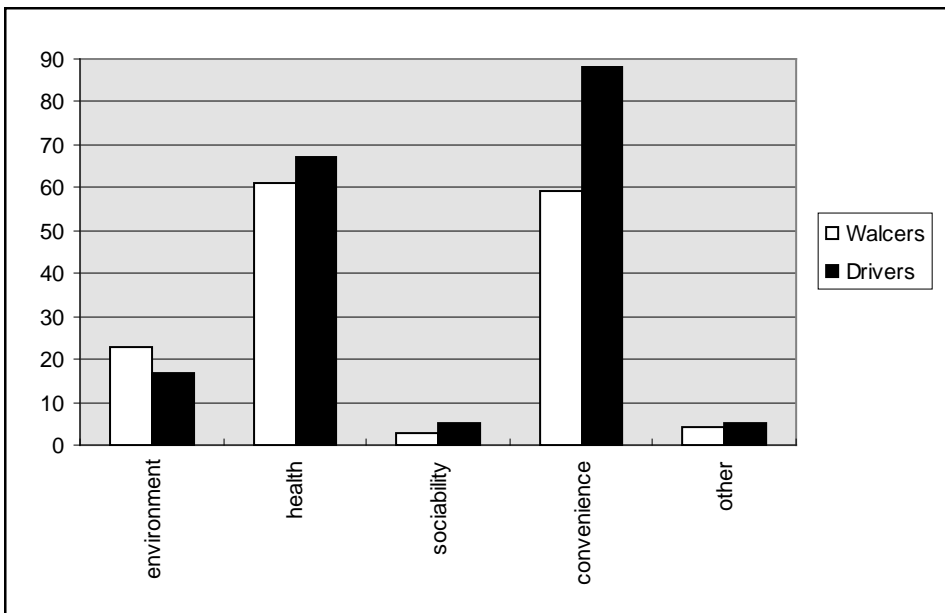
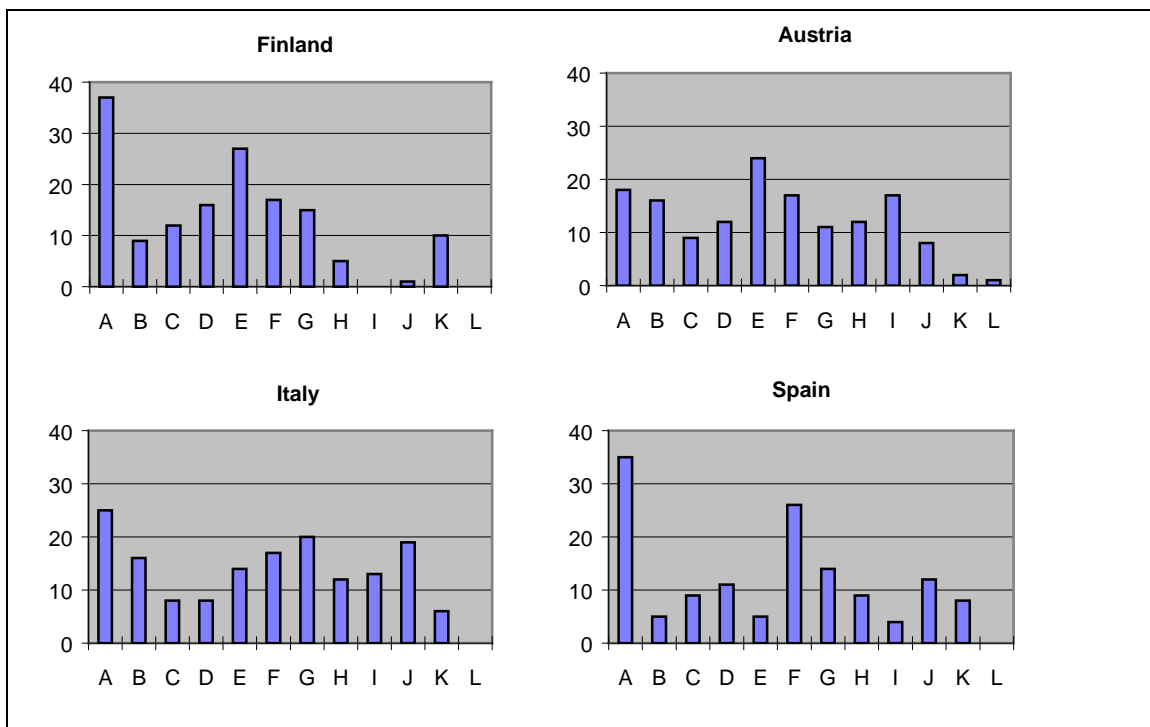


Figure 4-10 Positive aspects of cycling after modal category. Sums of answers in different categories. The attitude surveys

4.3 Walking is healthy

Later in the interview the respondents were asked to choose the 3 most important attractions of walking and cycling out of a list with several possible positive aspects. As above, health came out as an important benefit of walking in all the countries. Also «enjoyable exercise/relaxation» was an alternative often chosen in all the four countries. In the Northern countries, Finland and Austria, «getting fresh air and sunshine» got a high score. «Easiness», like no car parking or car repair problems, time table restrictions on the availability of public transport etc., are also important attractions for walking (figures 4-11 - 4-14).

Answers concerning the environment, like «environmental friendly» and «experience the environment» are mentioned rather often in some countries, while «flexibility» and «reliability» also are important attractions for walking.

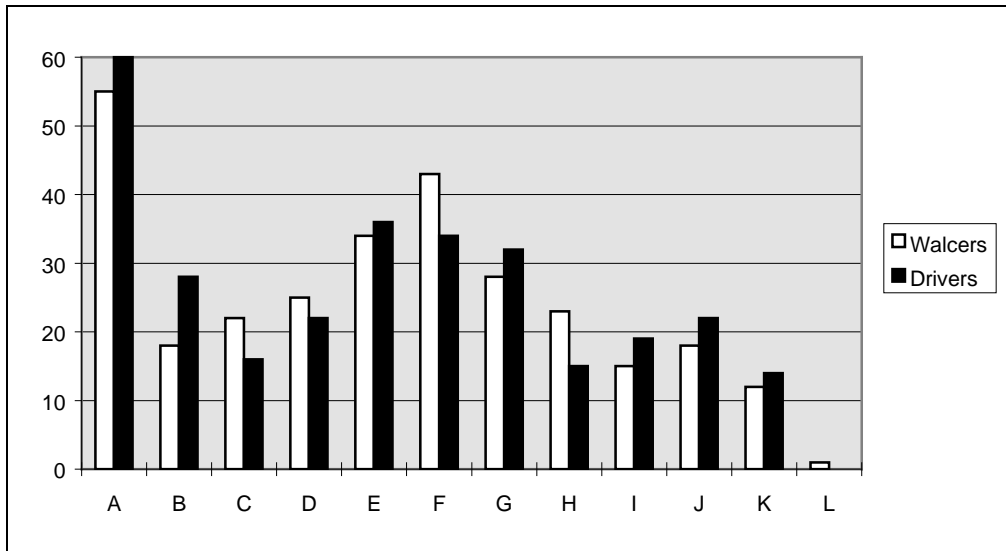


- A = healthy
- B = environmental friendly
- C = a way of socialising with others
- D = a way to experience the environment
- E = getting fresh air, sunshine
- F = enjoyable exercise, relaxation
- G = easiness (no parking problems, car repairs, time tables etc.)
- H = independence
- I = flexibility/liberty to move
- J = reliability
- K = economically efficient
- L = other

Figures 4-11 - 4-14 Attractions for walking in Finland, Austria, Italy and Spain. The attitude surveys

The differences in the answers between walkers and drivers are rather small (figure 4-15). For both groups, health is the most important attraction of walking. However, walkers seem to emphasise «enjoyable exercise/relaxation» and «independence» more

than drivers. Surprisingly, drivers mention that walking is «environmental friendly» more often than walcers.



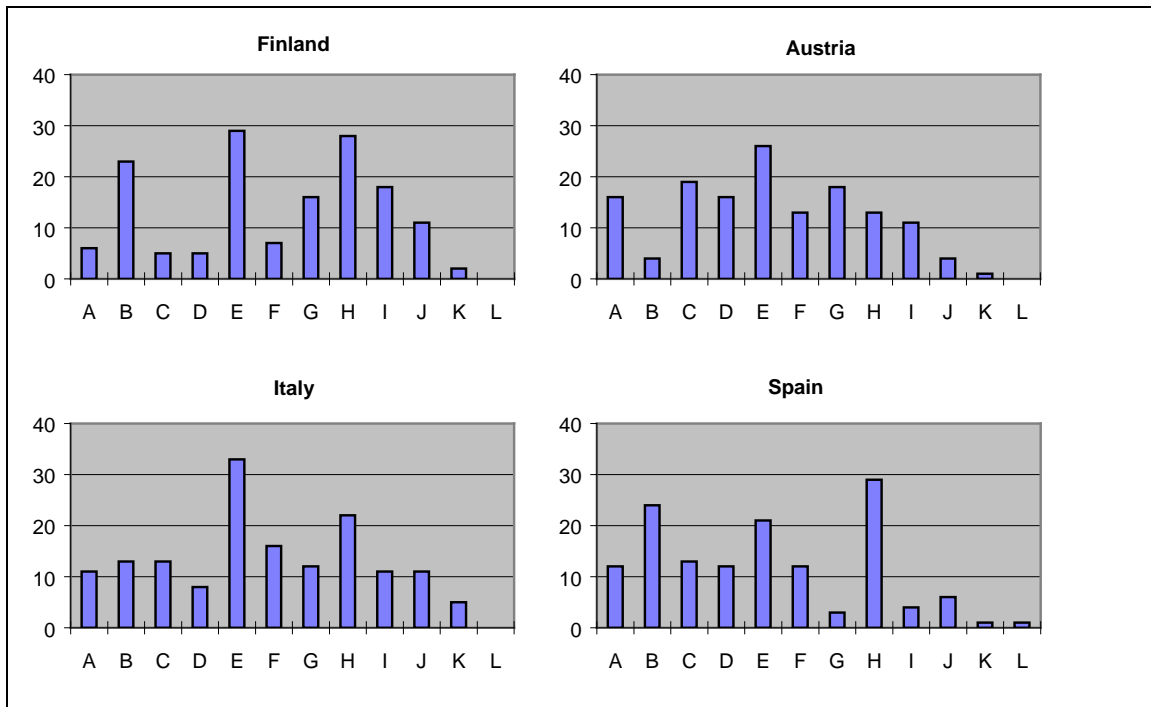
- | | |
|---|---|
| A = healthy | G = easiness (no parking problems, car repairs, time tables etc.) |
| B = environmental friendly | H = independence |
| C = a way of socialising with others | I = flexibility/liberty to move |
| D = a way to experience the environment | J = reliability |
| E = getting fresh air, sunshine | K = economically efficient |
| F = enjoyable exercise, relaxation | L = other |

Figure 4-15 Attractions for walking after modal category. The attitude surveys

4.4 Cycling is fun and healthy

The most important attractions for cycling are «fun, enjoying the exercise» and that cycling is considered as «healthy». The answers indicate that cycling is often considered as leisure time activity. Other answers often mentioned are «economically efficient», «easiness», «independence» and «environmental friendly» (figures 4-16 - 4-19).

As for walking, «getting fresh air and sunshine» was mentioned as an attraction for cycling in the North. The «flexibility» of cycling and possibilities for «saving time» are also attractions for cycling valued by the respondents.



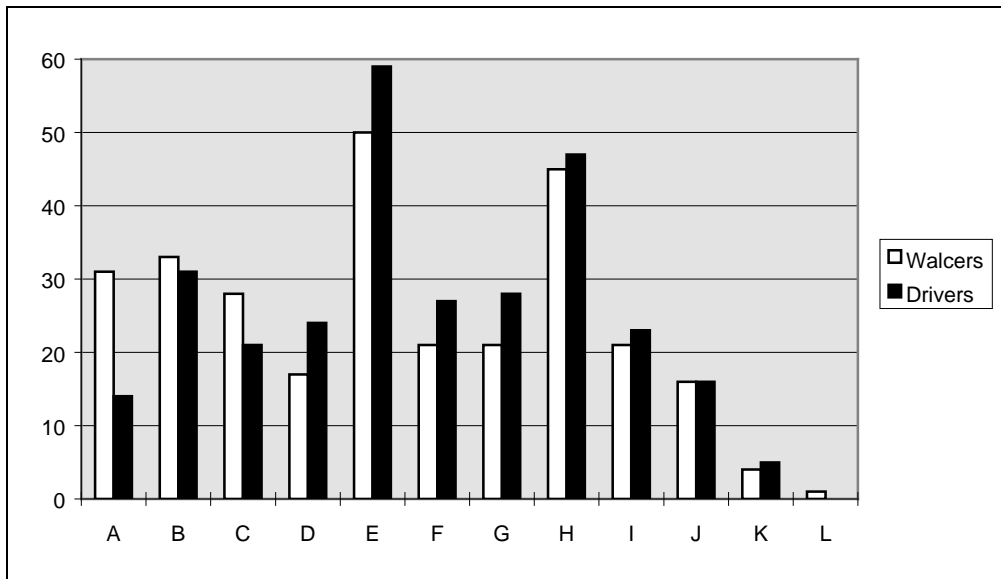
- A = saving of time
- B = economically efficient
- C = independence
- D = flexibility/liberty to move
- E = fun, enjoying the exercise
- F = easiness
- G = environmental friendly
- H = healthy
- I = getting fresh air, sunshine
- J = a way of experiencing the environment
- K = a way of socialising with others
- L = other

Figures 4-16 - 4-19 Attractions for cycling in Finland, Austria, Italy and Spain. The attitude surveys

As for walking, there are rather small differences between walcers and drivers in what attractions they regard as the main benefits to be obtained by cycling. The attraction with the most clear difference is «saving of time», which walcers mention more often than drivers (figure 4-20). In addition walcers seems to emphasise the independence of cycling slightly more than drivers.

On the other hand, drivers seems to be more concerned with the flexibility of cycling, the fun and the exercise they get, that cycling is easy and environmental friendly.

The differences between the groups indicate that drivers use their bike for leisure activities, while walcers use their bike as a mode of transport. However, most of the differences between the groups are rather small.



- | | |
|---------------------------------|---|
| A = saving of time | G = environmental friendly |
| B = economically efficient | H = healthy |
| C = independence | I = getting fresh air, sunshine |
| D = flexibility/liberty to move | J = a way of experiencing the environment |
| E = fun, enjoying the exercise | K = a way of socialising with others |
| F = easiness | L = other |

Figure 4-20 Attractions for cycling after modal category. The attitude surveys

4.5 Commuters walking and cycling get good exercise

In the Norwegian Marketing/SP-study commuters walking and cycling were asked «What are the three most important reasons why you walk/cycle to work?». The respondents were given a list of alternative reasons, but could add other alternatives as well. The most important reason for walking and cycling to work was to get some «exercise» (table 4-4). This reason was mentioned by almost 30 per cent of the respondents who walked as well as by those who cycled to work. Other reasons mentioned by several persons were:

- fresh air
- easy
- cheap
- environmental friendly.

The most important factors for walking and cycling to work in the Norwegian Marketing/SP-survey are very similar to the attractions mentioned in the attitude

surveys. Health was not an explicit category in the Norwegian survey, but the categories «exercise» and «fresh air» are supposed to cover health aspects as well.

Even though we have to be careful with generalisations we find many similarities between countries and surveys. Differences may be due to different ways of asking, to cultural differences or to the differences between the groups interviewed in the attitude surveys and the Marketing/SP-survey.

Table 4-4 Reasons for walking and cycling to work/school mentioned by people who walk or cycle. Per cent. The Norwegian Marketing/SP-survey

Reasons for walking and cycling	Walking. Per cent	Cycling. Per cent
Exercise	27	28
Fresh air	17	13
Easiness	12	16
Cheapness	10	12
Environmental friendly	7	14
Lack of public transport	4	3
Problems with car parking	2	2
No special reason	5	2
Other reasons	17	10
Sum	101	100
Number of persons	125	210

5 Barriers for walking and cycling

Even though there are many benefits involved in walking and cycling, walcers meet a lot of barriers or obstacles. Walking and cycling conditions are not satisfactory and many trips are not suitable for walking and cycling.

Inconveniences are the barriers to walking and cycling most often mentioned. Among the inconvenience aspects mentioned are: Walking and cycling takes too much time and are not useful for longer travels. Walcers are more aware of the inconvenience aspects of walking and cycling than drivers, even if drivers are more concerned with the time aspects.

Lack of ability to transport heavy things are among other important barriers of walking.

Environmental and geographical barriers, like the town is hilly, the weather is bad, the air is polluted etc. are important negative aspects of cycling. Also infrastructural barriers such as insufficient road cycle network, unsafe crossings, parked cars on the pavements and high curb stones are important negative aspects of cycling . Drivers mention infrastructural barriers for cycling more often than walcers.

One of the most important reasons for commuters to drive their car to work is reducing travel time.

5.1 The walking and cycling conditions are not satisfactory

Even though there are many benefits involved in walking and cycling, walcers meet a lot of barriers or obstacles. Walcers and even drivers more or less agree with the statements:

- Facilities and preconditions for walking are not satisfactory
- Facilities and preconditions for cycling are not satisfactory.

There are no big differences in the attitudes between walcers and drivers in these questions.

Table 5-1 Agreement to the statements «Facilities and preconditions for walking/cycling are not satisfactory» after modal category. Number of respondents. The attitude surveys

Agreement	Walking		Cycling	
	Driver	Walcer	Driver	Walcer
Fully agree	21	20	25	22
Slightly agree	30	25	17	26
Rather agree	13	15	16	12
Less agree	19	23	18	19
Do not agree at all	15	17	22	21
Sum	98	100	98	100

In Finland and Italy the majority of walcers as well as drivers fully or slightly agree to the lack of walking opportunities. In Austria the majority slightly or rather agree, while the Spanish respondents rather or less agree (table 5-2 in Appendix).

In Finland most of the respondents do not agree at all that opportunities for cycling are not satisfactory, while most of the Italians do. The majority of Austrians slightly or rather agree, while most of the Spanish respondents less agree (table 5-3 in Appendix). These attitudes correspond to some degree with the respondents cycling behaviour and the physical conditions for cycling, which probably are better in Finland than in Italy.

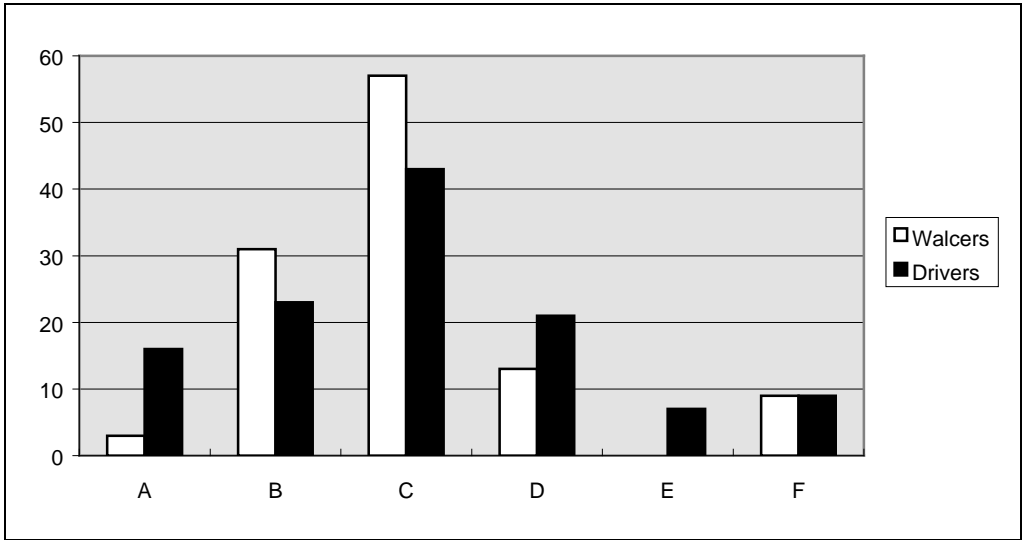
Even if we cannot generalise the results, the differences between the countries illustrate the importance of different walking and cycling conditions.

5.2 Barriers and inconveniences reduce the amount of walking and biking

Not all short trips can be replaced by walking and biking. Among many barriers that make walking and cycling uncomfortable or inconvenient are:

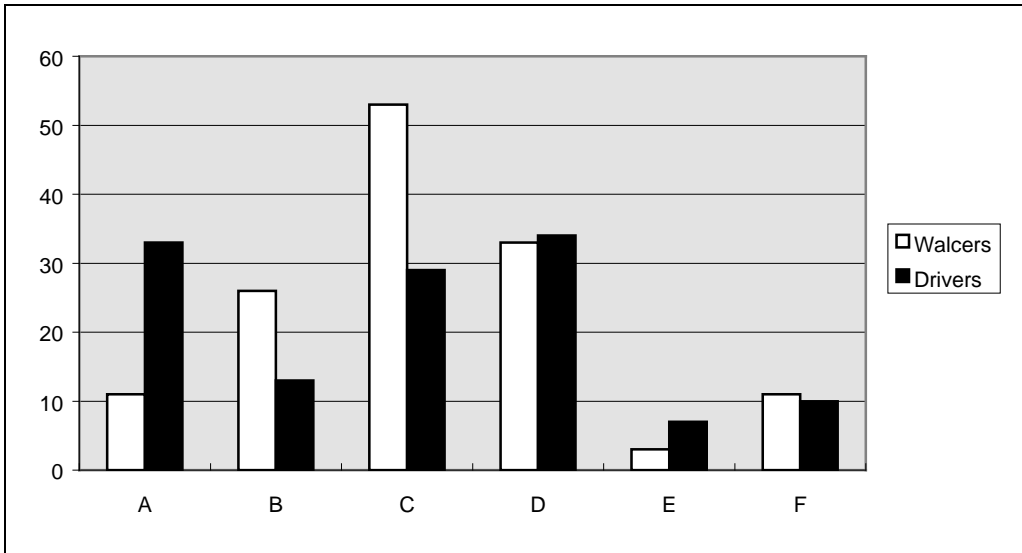
- environmental/geographical barriers; like the town is hilly, the weather is bad, the air is polluted, etc.
- physical barriers; such as you cannot carry heavy things
- infrastructural barriers; waiting at traffic lights etc.

These factors are among the disadvantages of walking and cycling mentioned in the attitude studies (figures 5-1 and 5-2).



- A = infrastructural barriers
- B = physical barriers
- C = inconvenience
- D = environmental barriers
- E = unequity
- F = other aspects

Figure 5-1 Negative aspects of walking after modal category. Sums of answers. The attitude surveys.



- A = infrastructural barriers
- B = physical barriers
- C = inconvenience
- D = environmental barriers
- E = unequity
- F = other aspects

Figure 5-2 Negative aspects of cycling after modal category. Sums of answers. The attitude surveys.

However, the barriers for walking and cycling most often mentioned are «inconveniences», which is a general expression of a mixture of several barriers.

This is rather surprising, since convenience was often mentioned as positive aspects of cycling. This antagonism may be due to the cycling context. Positive aspects of cycling often refers to leisure time activities, while barriers for cycling are often connected to cycling as a transport mode. However, the convenience of walking and cycling short trips is dependent on trip purpose. Not all purposes are fit for walking or cycling, not even when the distance is short.

Among the inconvenience aspects mentioned are: Walking and cycling as modes of transport often takes too much time and are not useful for longer travels. Others said they felt unsafe as cyclists or pedestrians, while some were afraid of theft of bicycles.

Barriers referred to as «inconvenience» are often similar to barriers mentioned in the other three categories. Many respondents may experience environmental and geographical barriers like polluted air, hilly distances as inconvenient. The same is possible for physical barriers, like problems with carrying heavy things, and barriers mentioned as infrastructural barriers. The barriers categorised as «inconveniences» must therefore be understood in a wide context.

Walcers are far more aware of the inconvenience aspects of walking and cycling than drivers. Walcers have a lot of experiences of walking and cycling as modes of transport, not only as leisure time activities. Walking and driving are more often inconvenient as modes of transport than as leisure time activities.

Environmental/geographical barriers are important negative aspects of cycling, but are not mentioned that often as negative aspects for walking. Among the environmental/-geographical barriers mentioned are polluted or bad air, noise from car traffic, rainy weather and slippery road surface.

While there are no differences between walcers and drivers emphasising environmental barriers for cycling, drivers mention environmental barriers for walking more often than walcers.

Physical barriers, like problems with carrying heavy things and physically unable to ride a bike, are more of a disadvantage for walking than for cycling. Walcers seem to be more aware of these barriers than drivers. Especially seem physical barriers to be a problem for cycling walcers.

Infrastructural barriers like insufficient road cycle network, unsafe crossings, parked cars on the pavements and high curb stones are more often mentioned as barriers for cycling than for walking. However, there are big differences in walcers and drivers emphasising infrastructural barriers. Drivers mention these barriers far more often than walcers.

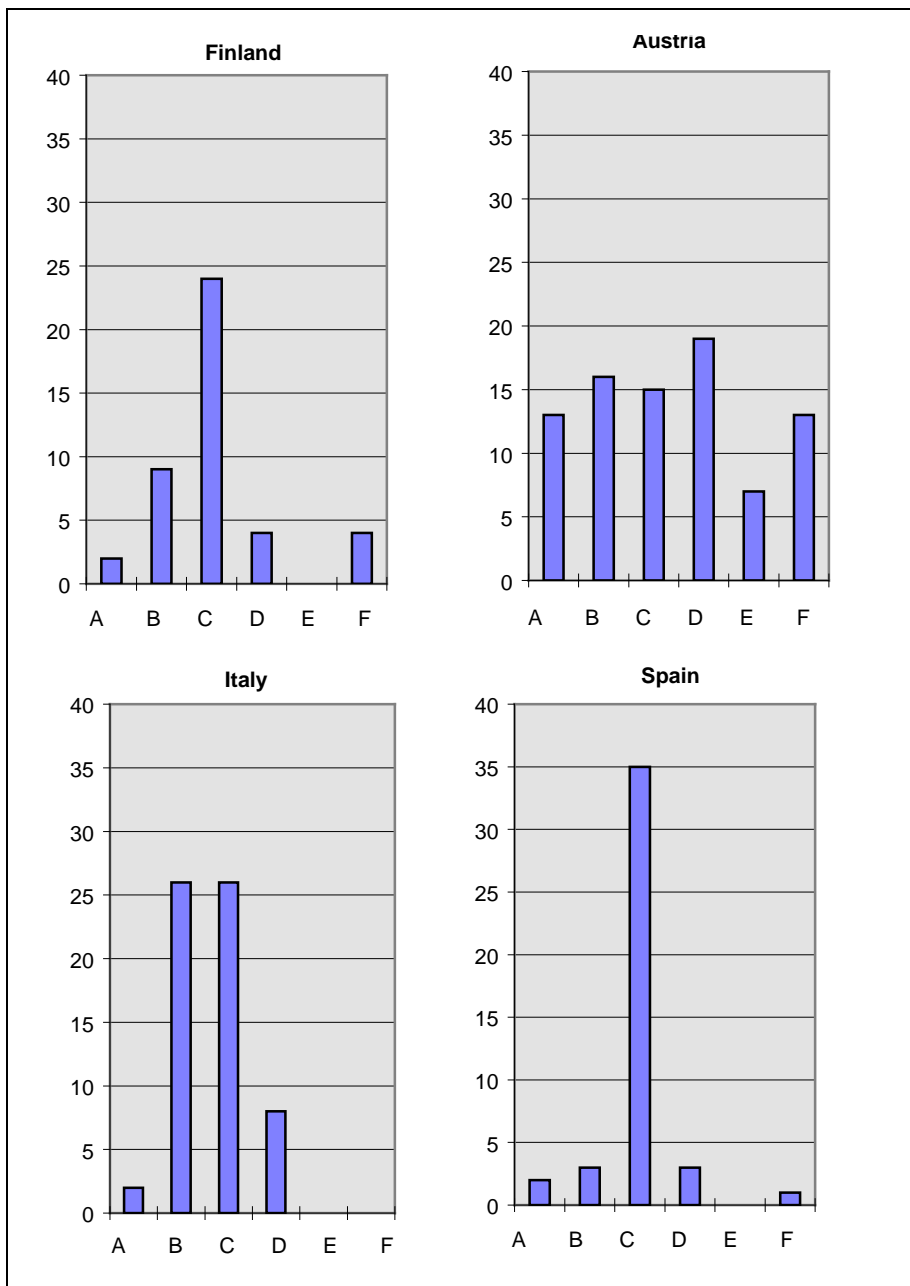
There are also interesting differences between the countries in what barriers are mentioned as most important for walking and cycling (figures 5-3 - 5-6 and 5-7 - 5-10). «Inconveniences» are mentioned as barriers for walking and cycling in all four countries, but the Spanish respondents really underline inconvenience as an important barrier for walking.

Environmental barriers for walking are more often mentioned in Austria than in the other countries, while physical barriers prevent walking in Italy.

When it comes to cycling infrastructural barriers seems to be very important in Austria and Italy, while environmental barriers are mentioned in all the four countries.

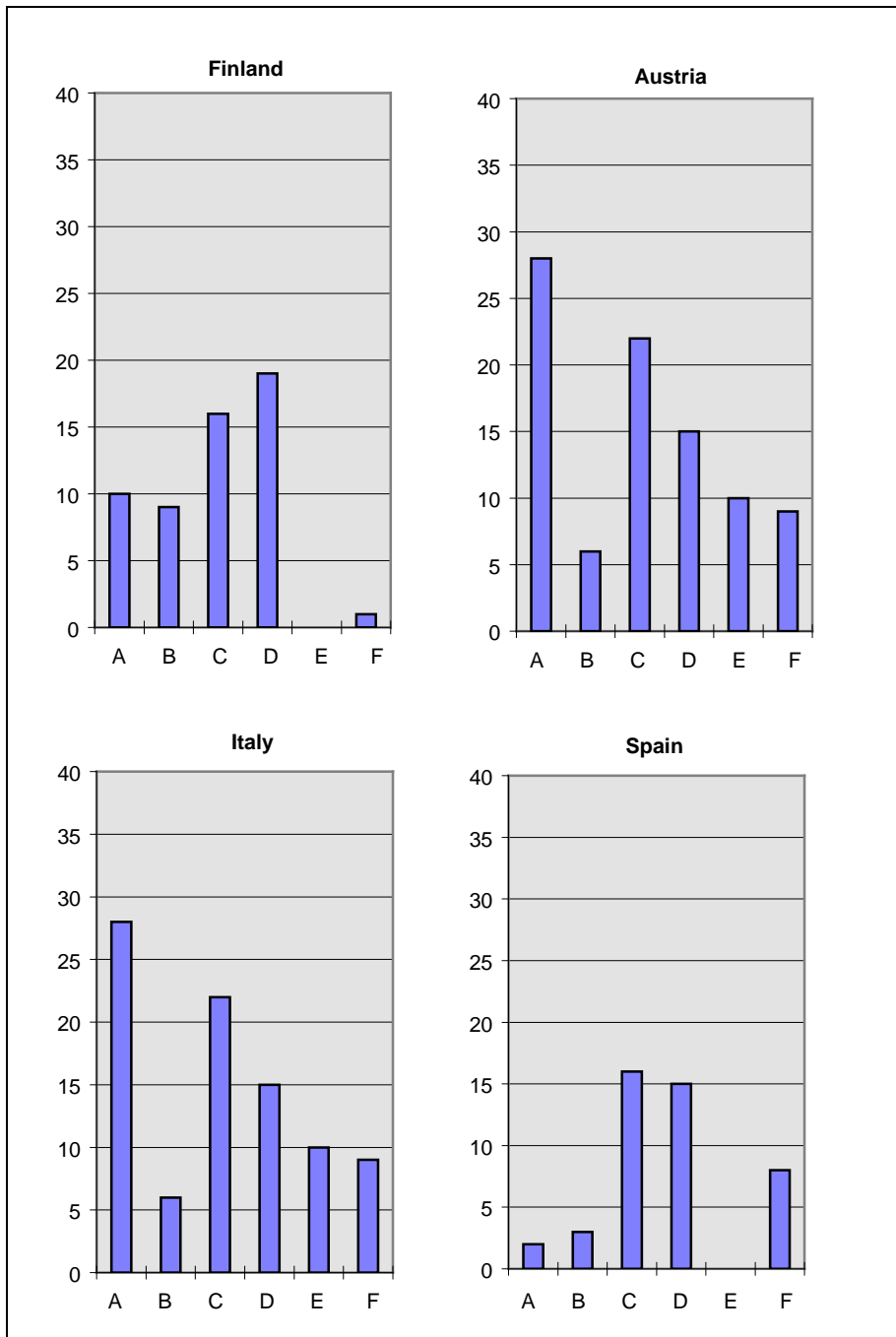
Only in Austria people feel unequity as a barrier of walking and cycling. Unequity as a barrier appears in situations where car drivers have more rights, they are ruthless, etc.

The figures give the impression that there exist more barriers for cycling than for walking. An explanation is that people are not aware of the problems they meet, while walking. They are used to the conditions for walking. People only get aware of barriers if they are temporarily handicapped. Problems of cycling are more in people's mind, as there are organisations which make politicians, the media, etc. aware of cyclists' interests.



- A = infrastructural barriers
- B = physical barriers
- C = inconvenience
- D = environmental barriers
- E = unequity
- F = other aspects

Figures 5-3 - 5-6 Negative aspects of walking Finland, Austria, Italy and Spain. Sums of answers in different categories. The attitude surveys



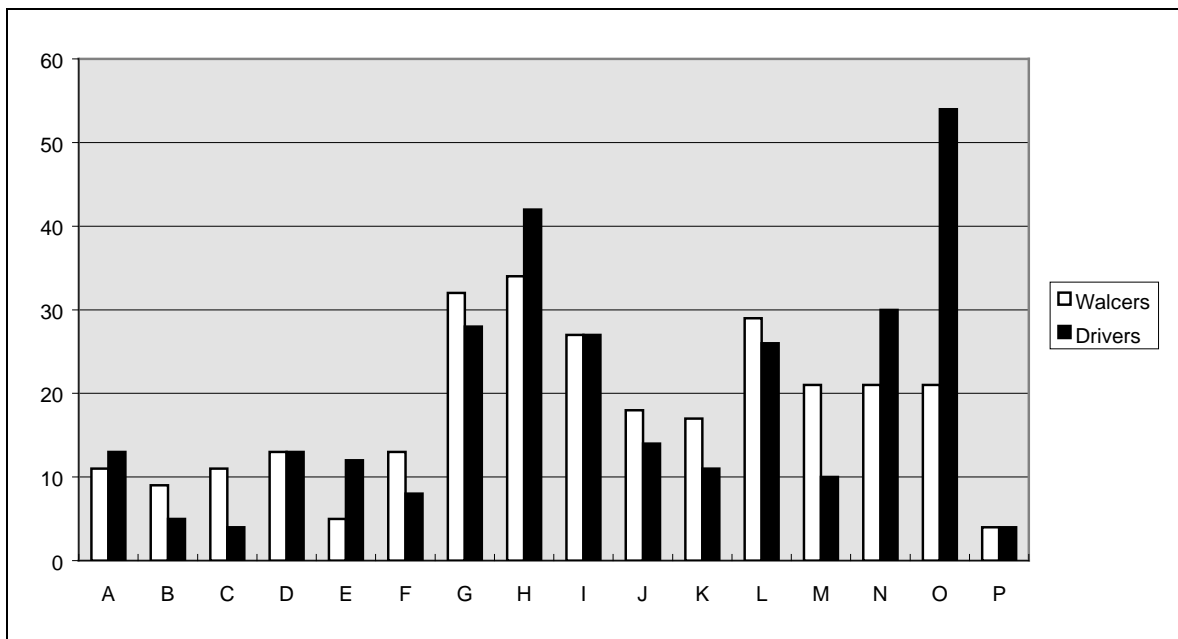
- A = infrastructural barriers
- B = physical barriers
- C = inconvenience
- D = environmental barriers
- E = unequity
- F = other aspects

Figures 5-7 - 5-10 Disadvantages of cycling in Finland, Austria, Italy and Spain. Sums of answers in different categories. The attitude surveys

5.3 Walking takes a lot of time and makes it difficult to carry heavy things

The respondents in the attitude surveys were asked to choose the three most important factors keeping them from walking and cycling from a list of many possible obstacles. For walking the most important barriers were «walking takes a lot of time» and «lack of ability to transport heavy things», but also the «feeling of insecurity at night time due to badly lit up paths», «car noise and pollution», bad weather and «laziness» were mentioned rather often (figure 5 11).

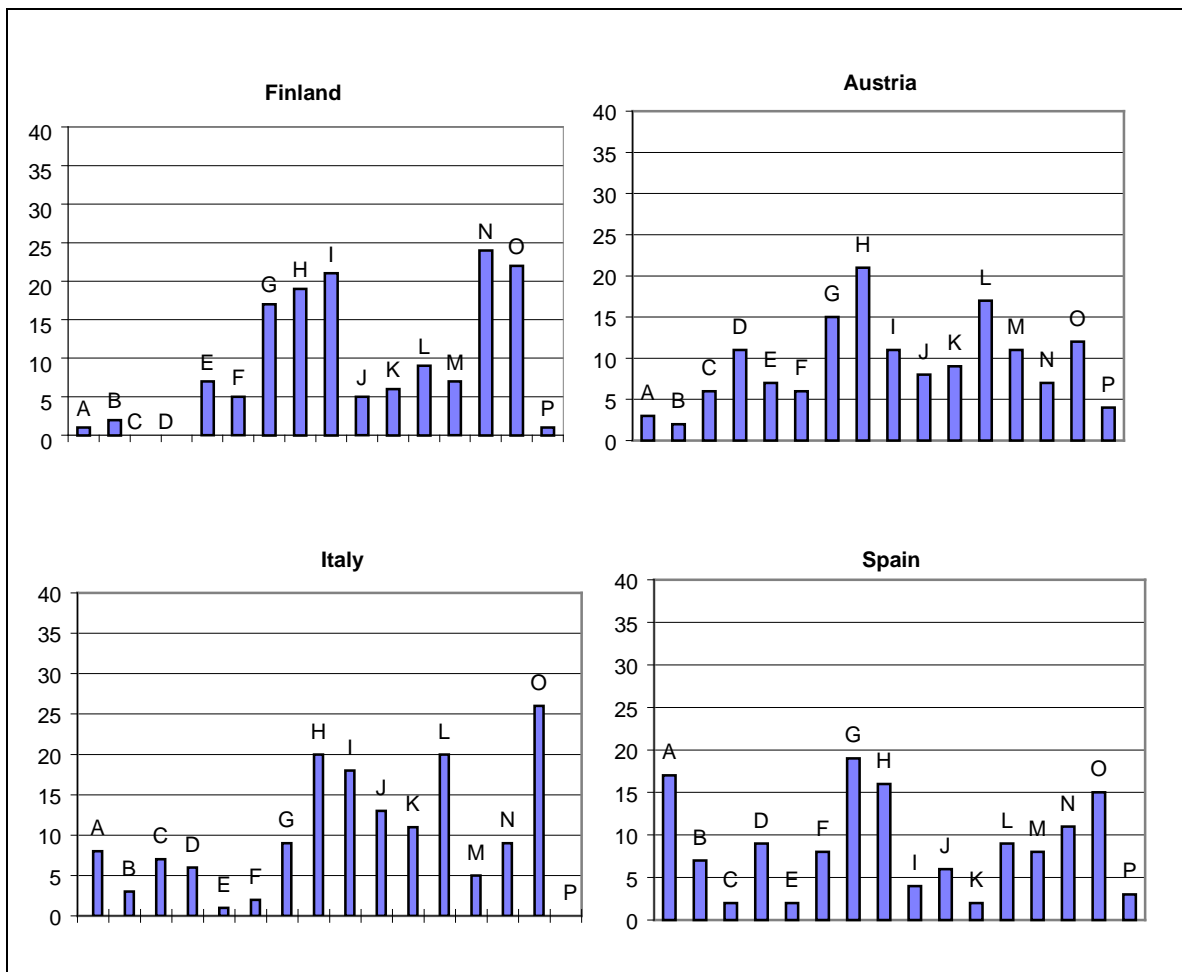
The differences in barriers mentioned by walcers and drivers are surprisingly small. However, time aspects are definitively more important for drivers. Driving a car takes less time than walking, and is usually an important factor for peoples’ mode choice. In addition, drivers seem to emphasise the ability to carry heavy things more than walcers. Drivers also admit they are too lazy to walk.



- A = bad upkeep of pedestrian ways
- B = lack of pedestrian ways
- C = subways
- D = long detours
- E = cyclists on pavement
- F = badly designed traffic lights
- G = feeling of insecurity at night time due to badly lit up paths
- H = non-ability of transporting heavy things
- I = weather
- J = high speed of traffic
- K = unattractive surroundings
- L = car noise and pollution
- M = ruthlessness of car drivers
- N = laziness
- O = walking takes a lot of time
- P = other

Figure 5-11 Barriers for walking after modal category. The attitude surveys

The differences in the answers between the countries vary more than the differences between walcers and drivers (figures 5-12 - 5-15).



- | | |
|---|---------------------------------|
| A = bad upkeep of pedestrian ways | I = weather |
| B = lack of pedestrian ways | J = high speed of traffic |
| C = subways | K = unattractive surroundings |
| D = long detours | L = car noise and pollution |
| E = cyclists on pavement | M = ruthlessness of car drivers |
| F = badly designed traffic lights | N = laziness |
| G = feeling of insecurity at night time due to badly lit up paths | O = walking takes a lot of time |
| H = non-ability of transporting heavy things | P = other |

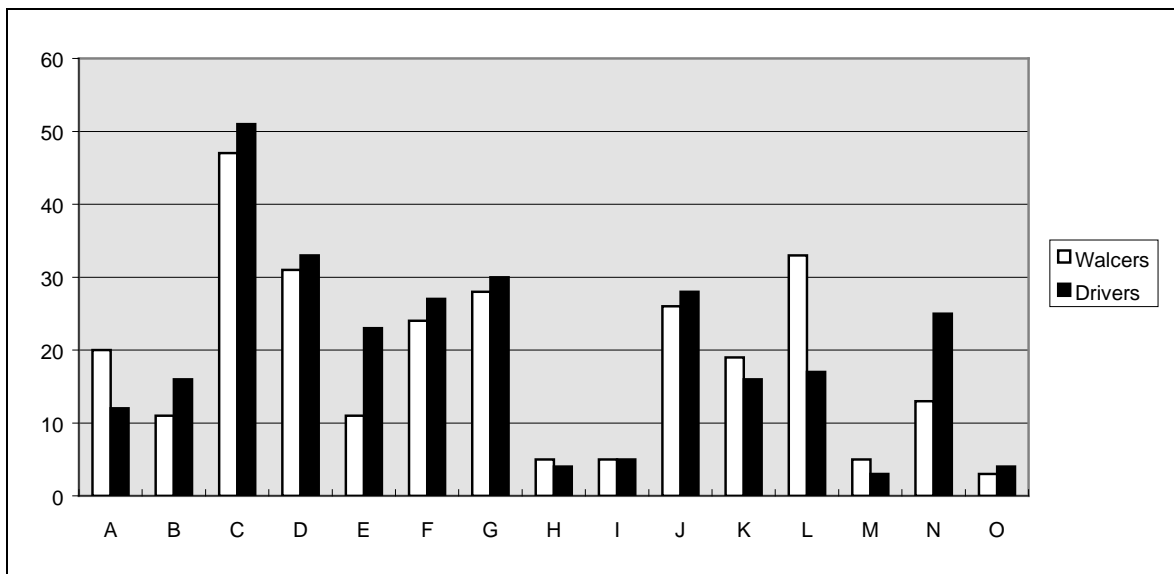
Figures 5-12 - 5-15 Barriers for walking in Finland, Austria, Italy and Spain. The attitude surveys

In addition to time aspects and the difficulties to transport heavy things, Finnish respondents often mentioned «laziness» as a barrier for walking. The «feeling of insecurity at night time due to badly lit up paths» was seen as an obstacle for walking for respondents in Finland, Austria and Spain, while «weather» got a high score in Finland and Italy. The Italians and the Austrians mentioned «car noise and pollution» as barriers for walking, while the Spanish respondents mentioned «bad upkeep of pedestrian ways» as a problem.

5.4 Insufficient cycle road network prevents biking

The most important barrier for cycling is the inadequacy of the cycle road network. Answers like «ruthlessness of car drivers», «high speed of car traffic», «car noise and pollution» and «feeling of unsafety» all indicate deterrents experienced by cyclists when they have to share road space with cars. Weather is also mentioned rather often as a barrier for cycling.

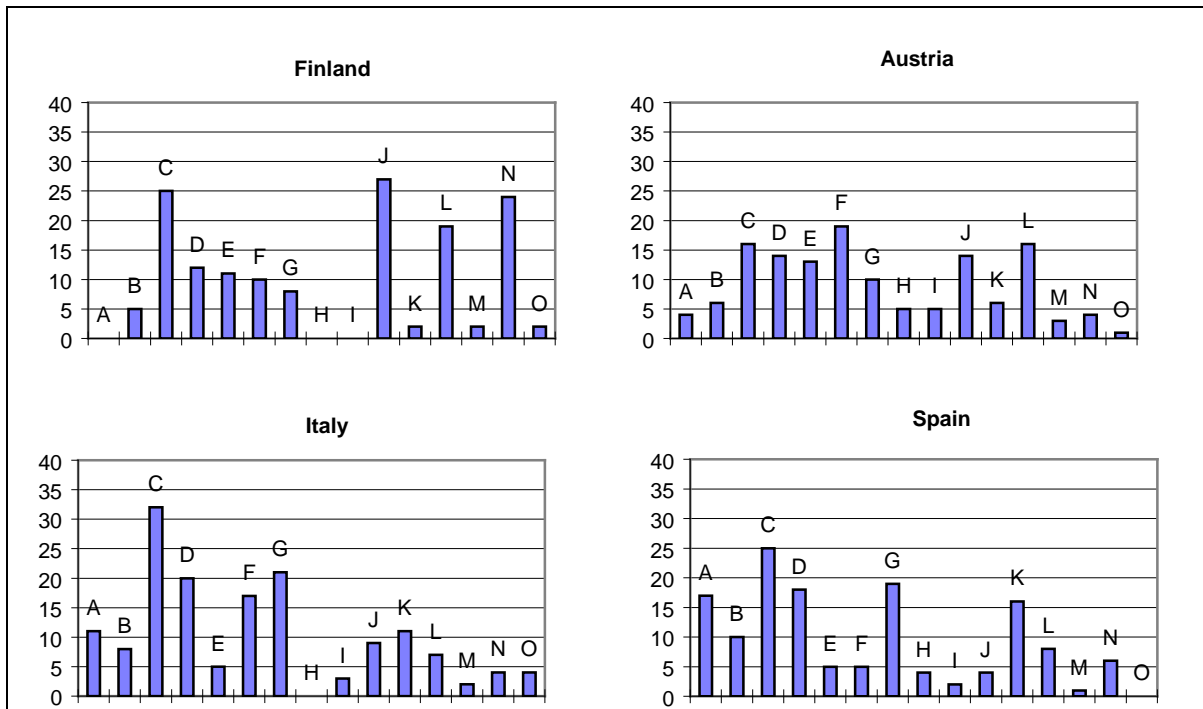
As for the barriers for walking, the differences between walkers and drivers are small (figure 5-16) . More walkers than drivers mention «ruthlessness of car drivers» and «bad signing of cycle routes», while drivers mention «lack of ability to carry heavy things» and «laziness» more often than walkers.



- | | |
|--|--|
| A = bad signing of cycle routes | I = unattractive surroundings |
| B = bad upkeep of cycle paths | J = weather |
| C = insufficient cycle road network | K = fear of theft, lack of secure parking |
| D = high speed of car traffic | L = ruthlessness of car drivers |
| E = non-ability of transporting heavy things | M = badly constructed traffic lights, long waiting times |
| F = car noise and pollution | N = laziness |
| G = feeling of unsafety | O = other |
| H = pedestrians on the way | |

Figure 5-16 Barriers for cycling after modal category. The attitude surveys

The differences between the countries are bigger than the differences between walcers and drivers. In Finland the respondents thought that «laziness» and the «weather» ranked as high a barrier to cycling as the insufficient cycle road network. «Ruthlessness of car drivers» were important in Finland and Austria, while the Italian and Spanish respondents mentioned «high speed of car traffic» and «feeling of unsafety». «Bad signing of cycle routes» and «fear of theft, lack of secure parking» are barriers to cycling in Spain.



- | | |
|--|--|
| A = bad signing of cycle routes | I = unattractive surroundings |
| B = bad upkeep of cycle paths | J = weather |
| C = insufficient cycle road network | K = fear of theft, lack of secure parking |
| D = high speed of car traffic | L = ruthlessness of car drivers |
| E = non-ability of transporting heavy things | M = badly constructed traffic lights, long waiting times |
| F = car noise and pollution | N = laziness |
| G = feeling of unsafety | O = other |
| H = pedestrians on the way | |

Figures 5-17 - 5-20 Barriers for cycling in Finland, Austria, Italy and Spain. The attitude surveys

5.5 Commuting by car takes less time

Barriers or obstacles for walking and cycling are often reasons for driving a car. Commuters in the Norwegian Marketing/SP-study were asked for the most important reason for driving a car. The answers given are a good supplement to the barriers of walking and cycling mentioned in the attitude surveys.

The four most important reasons mentioned for driving a car to work were:

- car takes less time than walking and cycling
- taking children to kindergarten/school or taking other passengers
- private errands or shopping within the day
- need the car at work.

These reasons were mentioned by 2 out of 3 respondents (table 5-4).

Table 5-4 The most important reason for using car to work/school. Per cent. The Norwegian Marketing/SP-survey

Reason for using car	Per cent
Using a car takes less time	20
Taking children/others	16
Private errands/shopping	16
Need the car at work	15
Bad weather	5
Luggage	4
Time of travel	3
Exhausting/hilly	2
Unfit clothing	1
Other reasons	18
Sum	100
Number of persons	352

Table 5-5 Assessment of the incline/hilly road on the road to work/school for walkers and cyclists. Per cent. The Norwegian Marketing/SP-survey

Incline/hilly road ¹	Walking	Cycling	All
Steep	20	28	26
Some incline	43	38	39
Little incline	29	28	28
Lever/no incline	8	6	7
Sum	100	100	100
Number	86	261	347

¹ The respondent's subjective experience of the incline

Just a few people mentioned exhausting or hilly environment as the most important factor for driving a car. This is rather surprising since 1 out of 4 commuters, who walk or cycle reported the that their route was steep and hilly (table 5-5) and 1 out of 3 regarded the traffic conditions as unsafe (table 5-6). These factors are not mentioned as important reasons for using a car. It may arise from the fact that drivers get an other perspective on barriers than walcers. Important barriers for walcers do not have to be important for drivers and vice versa. It is interesting to notice that the drivers' opinion about barriers for walking and cycling is not in harmony with their reasons for using a car:

Problems with carrying heavy things, and bad weather were mentioned at the attitude survey as barriers for walking and cycling, but these barriers are not really considered as important reasons for using the car.

In the Marketing/SP-survey the respondents were asked for only one - the most - important reason for driving a car to work. We do not get information of other important reasons, some of which may be almost as important as the most important reason.

Table 5-6 Traffic conditions on the road to work/school for walkers and cyclists. Per cent. The Norwegian Marketing/SP-survey

Traffic conditions ¹	Walking	Cycling	All
Very safe	9	6	7
Safe	76	52	58
Unsafe	15	36	31
Very unsafe	0	6	4
Sum	100	100	100
Number	86	261	347

¹ The respondent's subjective experience of the traffic conditions

6 Measures to improve walking and cycling conditions

Walcers as well as drivers see infrastructural and political measures as most important to reduce barriers and improve walking and cycling conditions. Walcers more than drivers are interested in giving advantages to people walking and cycling. Important infrastructural measures are:

- **more footpaths and cycling lanes**
- **wider pavements**
- **subways and crossings**
- **smoother road surface.**

The most important political measures are:

- **prohibit cycling on pavements**
- **city centres free of cars**
- **priority for walcers at crossings**
- **different measures to reduce car traffic, like increased gasoline prices, fees for parking spaces, restrictions on car driving etc.**

Other measures wanted to improve the conditions for walcers are:

- **facilities for showering at work**
- **burglary proof bicycle shed.**

The conditions for pedestrians and cyclists have to be improved if more people should walk or cycle instead of driving their cars on short trips. A lot of measures is possible to implement. The advantages and the barriers presented in chapter 4 and 5 give some indications of measures. In this chapter we will have a look at what measures the respondents think are necessary to promote walking and cycling.

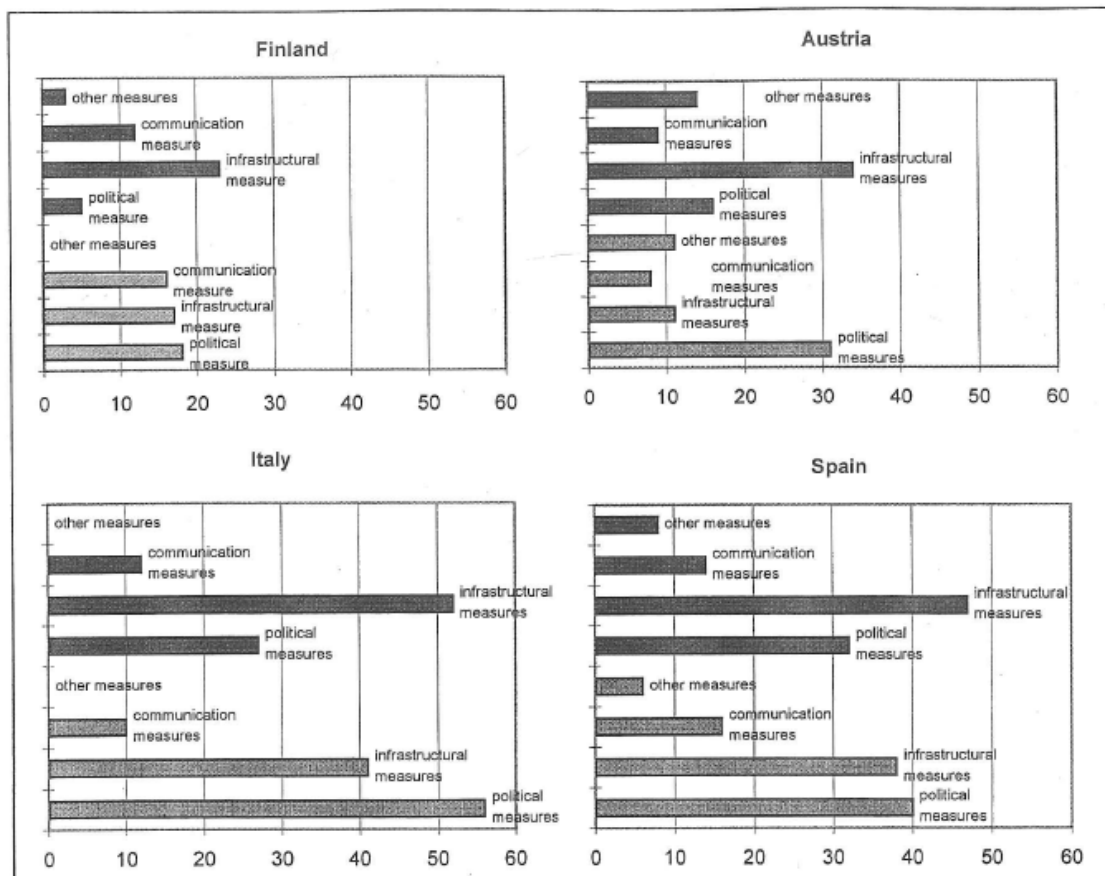
6.1 Infrastructural and political measures are necessary to promote walking and cycling

In the attitude surveys the respondents were asked in an open ended question what solutions should be found to make car drivers walk or cycle short trips more often. The measures given were divided into 4 categories (figures 6-1 - 6-4 and 6-5 - 6-6):

- communication measures; like better information, information campaigns, PR work, advertising, increasing awareness of walking and cycling
- infrastructural measures; such as improving the bicycle network, constructing more pedestrian and bicycle roads, safe crossings like pedestrian bridges and subways, lightening etc.
- political measures; like laws, 30 or 40 km/h zones, increasing gasoline prices, restricting hours for car driving, car free city centres, police control of the traffic
- other measures.

In general the respondents had difficulties to suggest measures to improve the conditions for walking and cycling in an open ended question. Most of them needed helping hints or time to think of possible measures. Especially the older interviewees expressed they did not know what to do. Other people were pessimistic about changing people's travel behaviour, while a few thought you have to start in early childhood to socialise people to do more walking and cycling.

Even if most people walk or cycle almost every day, walking and cycling are connected to a lower status than driving a car. Compared to drivers, pedestrians and cyclists are not supported by powerful groups to claim their rights. Questions asking for measures to improve the conditions for walking and cycling may be difficult to answer if the respondents are not thoroughly aware of their rights and needs.



Figures 6-1 - 6-4 Suggested measures to promote walking and cycling in Finland, Austria, Italy and Spain. Dark colour = walking. Light colour = cycling. The attitude surveys

In all the four countries infrastructural measures are mentioned most often to promote walking. In Austria, Italy and Spain political measures get a relatively high score to improve conditions for pedestrians, too.

Walcers and drivers seems to have the same opinion of what measures are important to improve the conditions for walking (figure 6-5).

Measures mentioned most often to promote cycling are political measures. This may indicate the respondents believe in their political systems. In Finland, Italy and Spain infrastructural measures are mentioned almost as often as political measures.

To improve the conditions for cycling, walcers more often than drivers mention infrastructural measures as improvements (figure 6-6). This is closely connected to the fact that walcers emphasised the insufficient road cycle network as an important barrier to cycling.

Communication measures were mostly mentioned in Finland and Spain. But these measures were not very exact. Some respondents said you have to make more campaigns for walking and cycling, without further elaboration of what kind of campaigns that were needed.

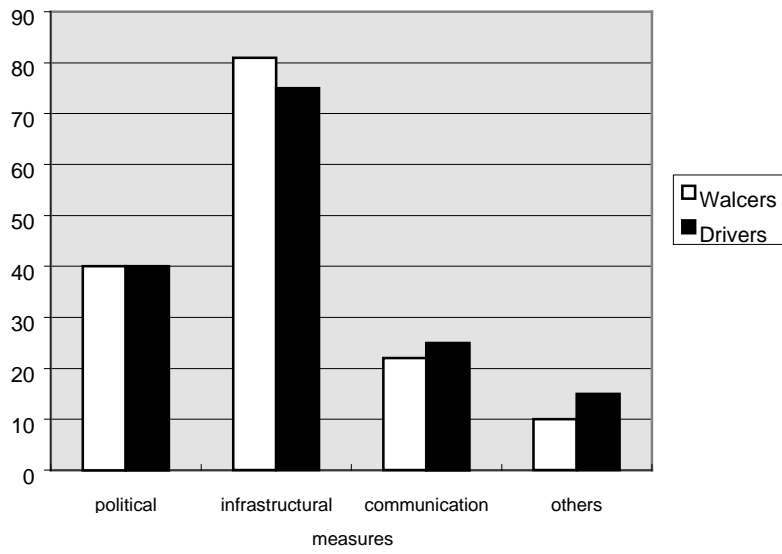


Figure 6-5 Suggested measures to promote walking after modal category. The attitude surveys

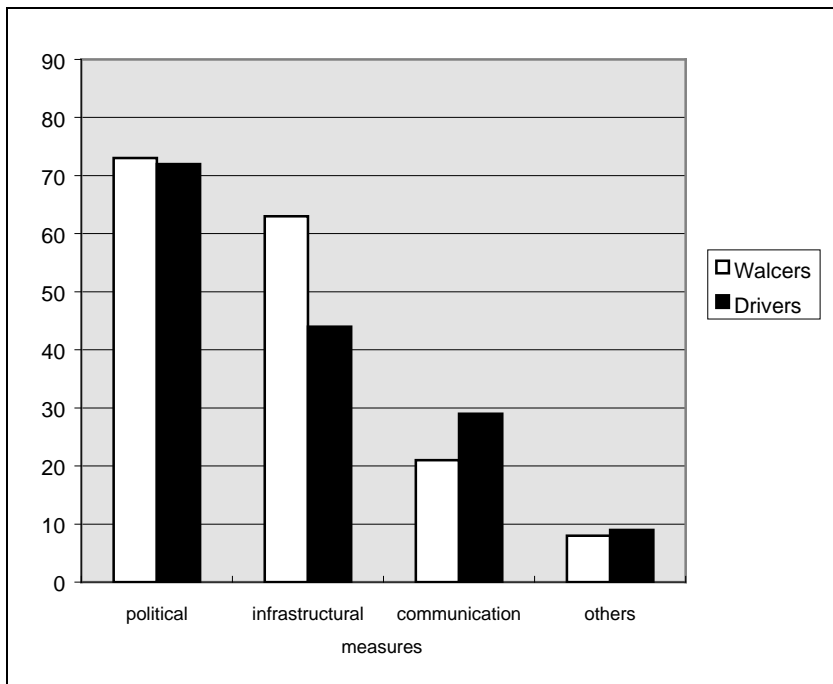


Figure 6-6 Suggested measures to promote cycling after modal category. The attitude surveys

6.2 Measures should reduce barriers

Important measures to improve walking and cycling conditions are to reduce barriers and obstacles mentioned in chapter 5. Infrastructural measures may remove or reduce the detrimental effect of having an inadequate cycle network, lack of signs demarcating the cycle lanes and the poorly lit pedestrian paths. Political measures may reduce car noise, traffic related air pollution and the high speed of traffic that currently are effective deterrents towards the increased use of walking and cycling.

Some barriers to walking and cycling are difficult to eliminate, such as bad weather and hilly surroundings. Somewhere these barriers could be reduced by building bicycle lanes with low inclines and shelters that give pedestrians and cyclists protection from bad weather. In Norway there has even been a trial with a hill escalator for bicycles. However, not even traffic planners are able to change the weather. But it might be possible to change people's attitudes about the weather as a problem for walking and cycling.

6.3 Cycling lanes and prohibiting cycling on pavements

The Norwegian Marketing/SP-survey gives information about the most important improvements in order to make commuters walk and cycle.

Almost 3 out of 4 commuters walking gave one of the following answers:

- prohibit cycling on the pavements
- more footpaths
- build/improve pedestrian crossings
- wider pavements.

All these measures deal with the pedestrians' comfort on the pavement or the footpath.

The most important measures wanted to improve conditions for cycling are:

- more cycling lanes
- better road surfaces, smoother road surface and lower kerbs
- take measures to reduce car traffic
- secure bicycle parking.

As in the attitude surveys, the Norwegian respondents want both infrastructural and political measures to improve walking and cycling conditions.

The different measures to improve walking and cycling express conflicts between walkers, cyclists and car drivers. Lack of bicycle networks leads to cycling on the pavement. This is unpleasant for pedestrians. Because of heavy traffic and high speed the cyclists fear using the same road space as cars and busses. The only way to solve these conflicts is to improve the conditions for walkers and reduce car traffic.

Table 6-1 The most important improvement to make people walk. Per cent. The Norwegian Marketing/SP-survey

Improvement	Per cent
Prohibit cycling on pavements	26
More footpaths	20
More pedestrian subways/crossings	14
Less car traffic	14
Wider pavements	13
Other improvements	13
Sum	100
Number of persons	86

Table 6-2 The most important improvements that can make people start using a bike. Per cent. The Norwegian Marketing/SP-survey

Improvement	Per cent
More cycling lanes	30
Less car traffic	17
Secure bicycle parking	13
Smoother road surface	11
Lower kerbs	11
Subways/crossings	8
Traffic lights at crossings	4
Better road signs and markings	1
Other improvements	6
Sum	101
Number of persons	261

6.4 Cyclists want bicycle lanes and a locked bicycle shed

The Norwegian commuters were also asked about the importance of some specific factors affecting their decision to walk or cycle. Facilities for taking a shower at work and bicycle lanes were more important for the decision to use a bicycle than for the decision to walk. This is not surprising: Almost all the roads used by walkers have pavements and the average distance walked is not so very far that one starts sweating! More than 2 out of 3 respondents said that facilities for showering had no or minor importance for their decision to walk or cycle a distance of 5 km.

Almost 2 out of 3 cyclists said that bicycle lanes were of great importance for their decision, and about 1 of 2 said that a locked burglary proof bicycle shed was of great importance.

Table 6-3 Importance of facilities for showering/changing for the decision to walk/cycle. Per cent. The Norwegian Marketing/SP-survey

Facilities for showering/changing	Walk	Cycle	All
Great importance	15	34	29
Minor importance	35	36	35
No importance	50	30	35
Sum	100	100	99
Number of persons	86	261	347

Table 6-4 Importance of footpath/bicycle lane for the decision to walk/cycle. Per cent. The Norwegian Marketing/SP-survey

Footpath/bicycle lane	Walk	Cycle	All
Great importance	41	65	59
Minor importance	35	23	26
No importance	23	12	14
Sum	99	100	99
Number of persons	86	261	347

Table 6-5 Importance of a locked and burglary proof bicycle shed for the decision to cycle. Per cent. The Norwegian Marketing/SP-survey

Locked/burglary-proof bicycle shed	Cycle
Great importance	48
Minor importance	27
No importance	24
Sum	99
Number of persons	261

In the last 10 years use of financial measures in order to reduce car driving, like road pricing, high fees on car parking etc., have become more common. In most cities you have to pay quite a lot for day time parking. The effect of a parking fee on mode choice increases with the sum of money you have to pay, even though the parking fees are not very high (table 6-6 and figure 6-7). Commuters with cycling as their alternative to driving a car are less willing to pay for parking than commuters with walking as their alternative.

Travel time by these modes may explain the findings. Travelling by bike a distance up to 5 km does not take much more time than travelling by car. On short distances, cycling is often a competitive alternative to driving a car. Walking the same distance takes relatively more time. Even on short distances walking might not be a competitive alternative to driving a car. Commuters with cycling as their alternative rather use their bike than pay for parking. While commuters with walking as their alternative are more willing to pay a parking fee than take a walk.

Table 6-6 Importance of parking fee per day for the decision to walk/cycle to work. Per cent. The Norwegian Marketing/SP-survey

Importance	NOK 10		NOK 15		NOK 20		NOK 30		NOK 40	
	Walk	Cycle	Walk	Cycle	Walk	Cycle	Walk	Cycle	Walk	Cycle
Great importance	37	57	54	73	57	71	80	88	76	87
Minor/no importance	63	43	46	27	43	29	20	12	24	13
Sum	100	199	100	100	100	100	100	100	100	100
Number	86	261	86	261	86	261	86	261	86	261

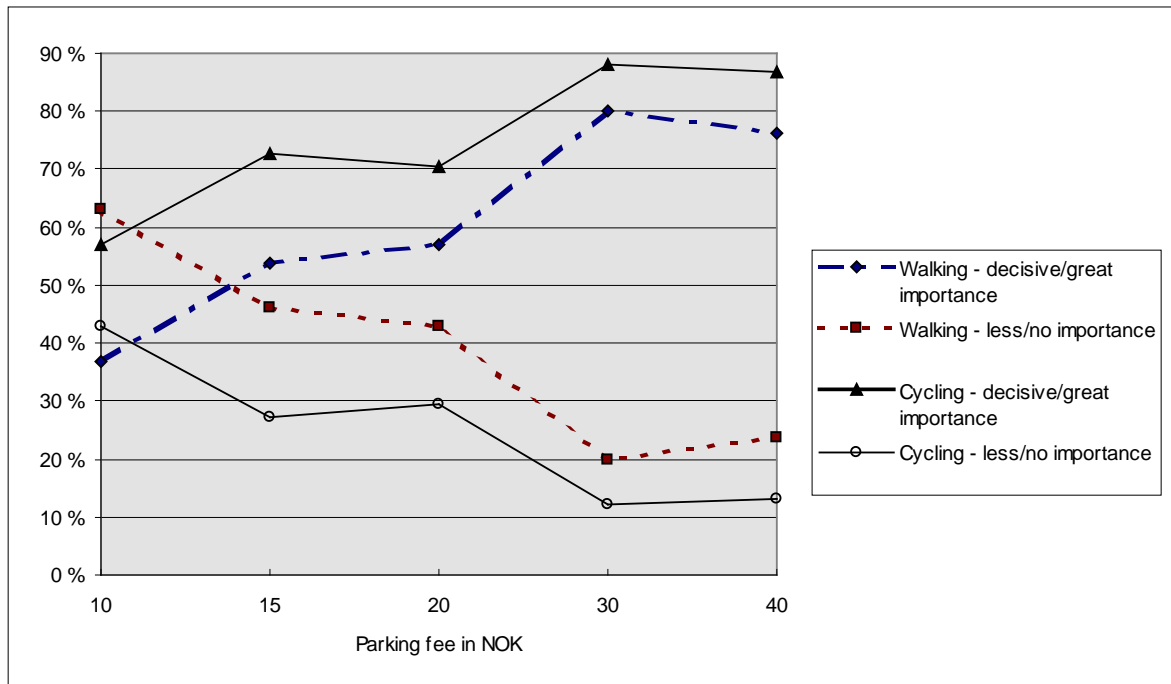


Figure 6-7 Importance of parking fee per day for the decision to walk/cycle to work. Per cent. Parking fee per day in NOK. Valid cases, walking=86, cycling=261. The Norwegian Marketing/SP-survey

6.5 City centres should be free of cars

Respondents in Finland, Austria, Italy and Spain were given a number of statements about possible measures. They should tell whether they agreed or not with the following statements:

- Walkers should have priority to car drivers at some crossings
- The city centre should be free of cars
- Car parking should be reduced
- Pavements should be broadened and roads narrowed
- Walkers should have priority to car drivers at any crossings.

The majority of the respondents, walcers as well as drivers, agreed to give walcers priority to car drivers at some crossings and to free the city centre of cars (table 6-7). Among walcers a higher share agreed to these statements than among drivers.

Reducing car parking is not popular. Most of the walcers and car drivers agreed less or did not agree at all to this measure. Not surprisingly, the drivers were even more negative to reduce car parking than walcers.

When it comes to measures like broadening the pavements and narrowing the roads and give walcers priority to car drivers at any crossings, the attitudes among walcers were not very clear. However, the majority of drivers agreed less or did not agree at all to these measures.

Table 6-7 Agreement to statements after modal category. Number of respondents. The attitude surveys

	Walcers should have priority to car drivers at some crossing		Walcers should have priority to car drivers at any crossing		The city center should be free of cars		Car parking should be reduced		Pavement should be broadened and road narrowed	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	26	54	20	29	33	50	8	20	14	21
Slightly agree	39	26	8	14	30	19	3	6	11	18
Rather agree	13	10	11	8	12	10	6	9	12	24
Less agree	7	4	22	29	10	9	21	25	25	18
Do not agree at all	13	6	37	20	13	12	60	40	36	19
Sum	98	100	98	100	98	100	98	100	98	100

Looking at the differences between the countries, the patterns are not quite clear (tables 6-8 - 6-12 in Appendix). In all countries walcers as well as drivers fully or slightly agree to give walcers priority to car drivers at some crossings and to free the city centre of cars. Except for the Austrian walcers, the majority of walcers and drivers agreed less or did not agree at all to reduce car parking. In Austria almost half of the walcers fully agreed to this measure.

The Austrian walcers seems to have a more radical attitude to implement measures to improve the conditions for walking and cycling. They are also much more in favour of broadening the pavements and narrowing the roads and give walcers priority to car drivers at any crossings than walcers in the other three countries. In Finland, Italy and Spain the attitudes towards these measures were rather negative -even among walcers - or in some cases not quite clear.

7 Is it possible to change short trip mode choice?

There are factors in favour of investing to improve walking and cycling conditions. The majority of the respondents in the attitude surveys agree that a decrease in the number of people driving is justified.

The Norwegian SP-data indicate that trips to work and to sports and exercise are easiest replaceable by bicycle. Grocery shopping trips could easiest be replaced by walking. Short trips by car where you deliver or fetch someone, like children to kindergarten, are not easily replaced by walking or cycling.

Commuters who usually drive their car and never cycle to work have the highest resistance to changing from car to bike. The parking fee have to be of the amount of nearly NOK 30 a day before they change travel behaviour. Respondents with a company car are willing to pay a parking fee of NOK 18 a day before they choose to cycle rather than drive their car to work.

Respondents with the highest probability for choosing bicycle in stead of driving a car are students and people with a mountain bike.

Physical and environmental conditions also have an effect on people's mode choice. The probability for using a bicycle is reduced by steep inclines or hilly surroundings, unsafe traffic conditions and rainy weather.

Parking restrictions, like a reduction in parking space and increased parking fees, may have a large effect on mode choice.

Commuters with the highest resistance to shifting from car use to walking are people with a company car. They are willing to pay a parking fee of NOK 36 per day before leaving the car at home. Parking space availability also play an important role for the choice driving a car versus walking.

Walking and cycling are often regarded as taking too much time to be a relevant alternative to driving a car on the journey to work.

The purpose of WALCYNG is to specify the conditions and measures that may contribute to the replacement of short car trips with walking and cycling.

In the chapters above we have analysed some of the attractions and barriers to walking and cycling and measures which are important to improve walking and cycling conditions.

An important question is what measures that might have best effects in replacing short trips with walking and cycling and what groups of road users show a potential for mode choice changes.

These are difficult questions to answer. In our surveys we have information indicating it is possible to change people's mode choice on short trips. This information is, however, based on hypothetical questions and may have some biases.

7.1 Short journeys to work could be replaced by bicycle

In the attitude surveys the respondents were asked whether or not they thought people could be persuaded to change from car use in favour of walking and cycling. The great majority of walkers and drivers in all the four countries approved such a change.

However, approval to the statement «modal split should be changed in favour of walking/cycling» does not indicate that the respondents themselves are willing to change their mode choice on short trips or whether or not this is possible. On the other hand, the results indicate that many people will support infrastructural investments to improve walking and cycling conditions.

In the Marketing/SP-survey the respondents were asked to choose the 3 purposes of short trips where they easiest would walk or cycle instead of driving a car. It seems that trips to work/school and to sports and exercise are most easy to replace by bicycle. Respectively, 22 per cent and 20 per cent would easily replace these short car trips with bicycle (figure 7-1).

Trips for shopping groceries, trips to sport and exercise and to entertainment (cinema, theatre, cafe/restaurant) would easiest be replaced by walking. Respectively 21 per cent, 17 per cent and 16 per cent would replace these short car trips with walking (figure 7-1).

Short car trips where you deliver/fetch someone, like children to kindergarten, are very difficult to replace by walking or cycling. This may be due to the fact that short car trips to the kindergarten are mainly part of a trip chain, and that the need for delivering or fetching someone is related to people who are not able to walk or bike themselves. Travel behaviour surveys from all over Europe show that more than 80 per cent of these trips are made by car (Solheim and Stangeby 1996).

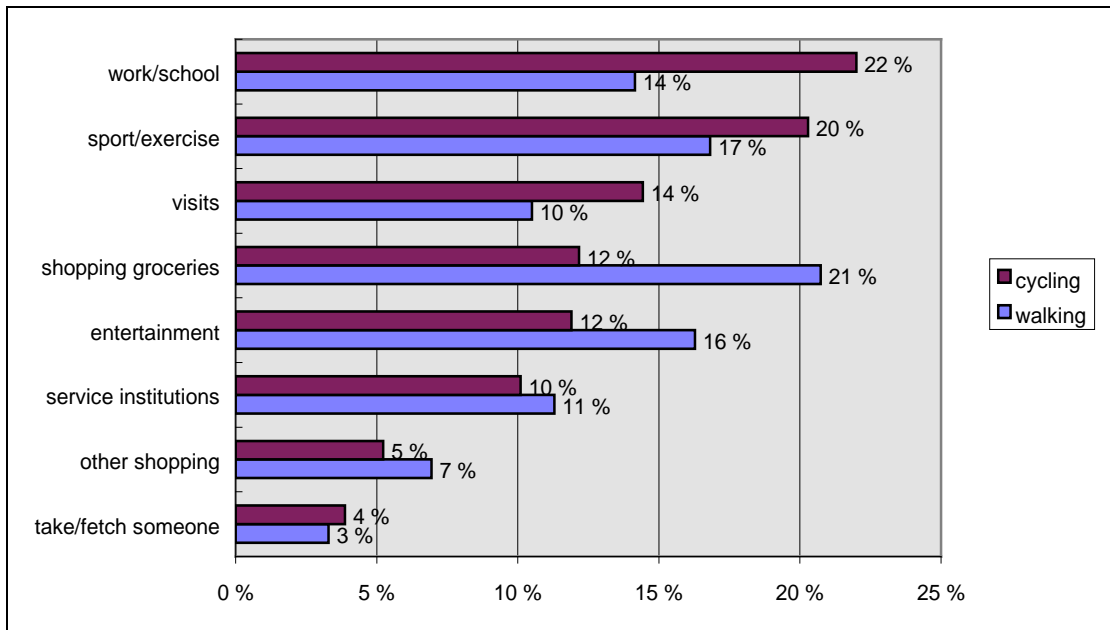


Figure 7-1 Short car trips by purpose that easiest would be replaced by walking/cycling. Per cent. The Norwegian Marketing/SP-survey

7.2 Choosing alternative transport modes

To evaluate effects of different measures on mode choice, the Norwegian respondents were asked to choose alternative transport modes on their journey to work. In this part of the Norwegian study we used Stated Preferences techniques.

The commuters were asked to remember the last time they went to work by car and imagine they were about to make the same journey again. This time they had to choose between walking/cycling and going by car. The physical conditions on the hypothetical journey were just the same as before, the same weather, temperature and time of the day. Any doings during the journey should also be taken into account. However, on the hypothetical journey we varied important standards of the journey.

Table 7-1 First and second alternative to car chosen on the last journey to work. Per cent. The Norwegian Marketing/SP-survey

Alternative to car	1. alternative	2. alternative*
No other alternatives	2	
Cycling	44	
Walking	16	
Public transport	39	
Cycling		25
Walking		7
Public transport		7
Sum	101	39
Number	380	

*The second alternative was only asked respondents with public transport as their first alternative
78 per cent of the commuters had made a journey to work by car last week (table 3-10) and were supposed to remember the journey well. The first alternative mode chosen on

this journey was cycling (44 per cent), public transport (39 per cent) and walking (16 per cent). Only 2 per cent had no alternatives to driving a car. For most respondents with public transport as their first alternative, cycling was the second alternative (table 7-1).

Calculations for the SP-analyses are found in Appendix.

7.3 People who always drive a car are not willing to change mode

The respondents carried through two different games, each with 9 different choices. Each choice gives one observation. Only respondents with walking or cycling as their first or second alternative to driving a car took part in the games, about 90 per cent of the sample. Of these 1 out of 4 had walking as their alternative, while 3 out of 4 had cycling as their alternative.

In the first game respondents with walking as their alternative had to choose between two different walking alternatives, while respondents with cycling as their alternative got to choose between two different cycling alternatives. In this game the following variables/standards varied:

- Facilities for showering/changing cloths at work
- Footpath/ cycle lane
- Time spent on the journey.

The varying factors are factors that may influence people's mode choice. They were chosen because they are familiar to many people's choices, but are of course only a small part of a complete list of factors influencing peoples mode choice.

Among these factors shower facilities and cycle lanes seemed to be important for cyclists. Cyclists value these measures as important as a 60-100 per cent reduction in travelling time on short trips (table 4 in Appendix).

In the second game the respondents had the choice between driving a car and walking/cycling. The factors with varying levels were the following:

- Facilities for showering/changing cloths at work
- Footpath/ cycle lane
- Facilities for parking
- Parking fee
- Time spent on the journey.

In this game an average of 1 out of 3 respondents chose to drive a car and 2 out of 3 chose going by bicycle or on foot. For the choice car versus cycling there was 2348

observations (choices), and for the choice car versus walking there was 774 observations (choices) (table 7-2).

Table 7-2 Mode choice in the 2. game. Model fit for the two alternatives. The Norwegian Marketing/SP-survey

Mode choice	Cycling or driving car-alt.		Walking or driving car-alt.	
Driving car	812	35%	317	41%
Cycling/walking	1536	65%	457	59%
Number of choices	2348		774	
Rho ² (zero) ¹	0.32		0.28	
Rho ² (cons.) ²	0.26		0.26	

¹ Model fit - all variables

² Model fit - excluding constant variable

Commuters who usually drive their car and never cycled to work showed the highest resistance for changing from car to cycling. The parking fee had to be nearly NOK 30 a day before they would change their travel behaviour. Respondents with a company car are willing to pay a parking fee of NOK 18 a day before they biked rather than drove their car on the journey to work. People with more than one car in the household, also have a high probability for choosing car at the journey to work. High access to cars is a common characteristic for those who are willing to pay a high parking fee before changing their travel behaviour.

Respondents with the highest probability for choosing bicycle in stead of driving a car are students and people with a mountain bike. In general the share of cyclists is higher among students than the other groups of the population. Many students use their bike because it is an economical way to travel. Mountain bikes are very often new bikes of good quality. People using mountain bikes usually like biking and consider it is fun.

Physical and environmental conditions also have an effect on peoples mode choice. The probability for using a bicycle is reduced by:

- steep inclines or hilly surroundings
- unsafe traffic conditions
- rainy weather.

Under one the conditions mentioned above the respondents are willing to pay a parking fee of NOK 6-12 a day before they change from driving a car to cycling.

Other measures that increase the probability for cycling instead of driving a car are reduced parking facilities or improved facilities for showering/changing cloths at work. Today 2 out of 3 respondents have free parking at work. 85 per cent have facilities for showering. Further improvements for showering will probably have no big effects on mode choice. On the other hand, restrictions on parking, like a reduction in the number of parking places and increased parking fees, may have a great effect on mode choice.

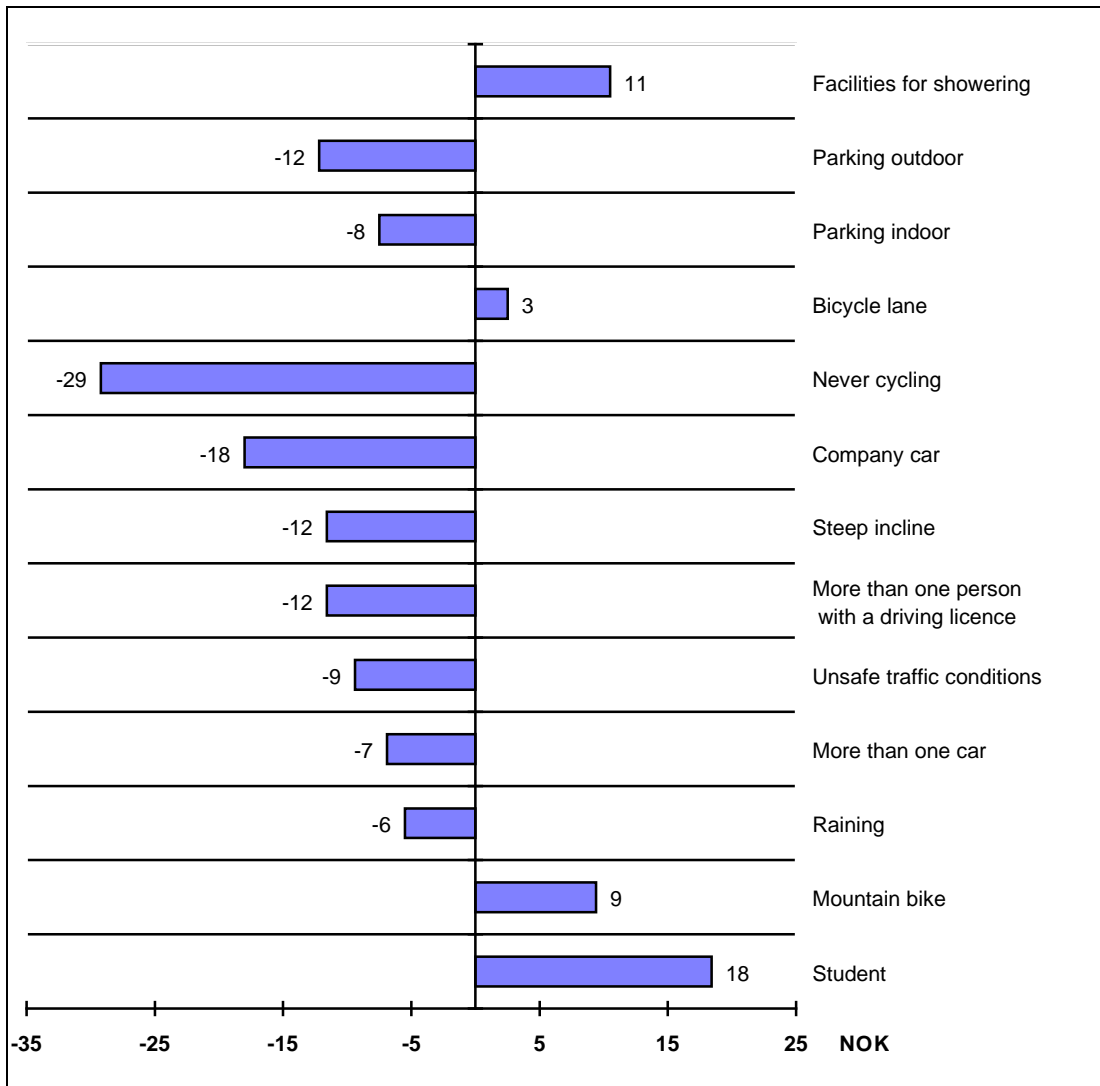


Figure 7-2 Average parking fee per day for changing mode from driving a car to go by bicycle on the journey to work. NOK/day. The Norwegian Marketing/SP-survey

7.4 Having a company car makes it difficult to change from driving a car to go on foot

Only a few variables have significant impacts for the choice driving a car versus walking (figure 7-3). People with the highest resistance to alter their mode choice from driving a car to walking are those with a company car. They indicate that they are willing to pay a parking fee of NOK 36 per day before changing mode of transport. In addition, parking facilities have a significant effect on the choice driving a car versus walking. People with an indoor parking place are willing to pay a parking fee of NOK 17 per day before they go to work on foot.

Among students we find the highest probability for walking instead of driving a car.

In contrast to the choice car versus bicycle, facilities for showering and cycle lanes do not show significant results for the choice driving a car versus walking.

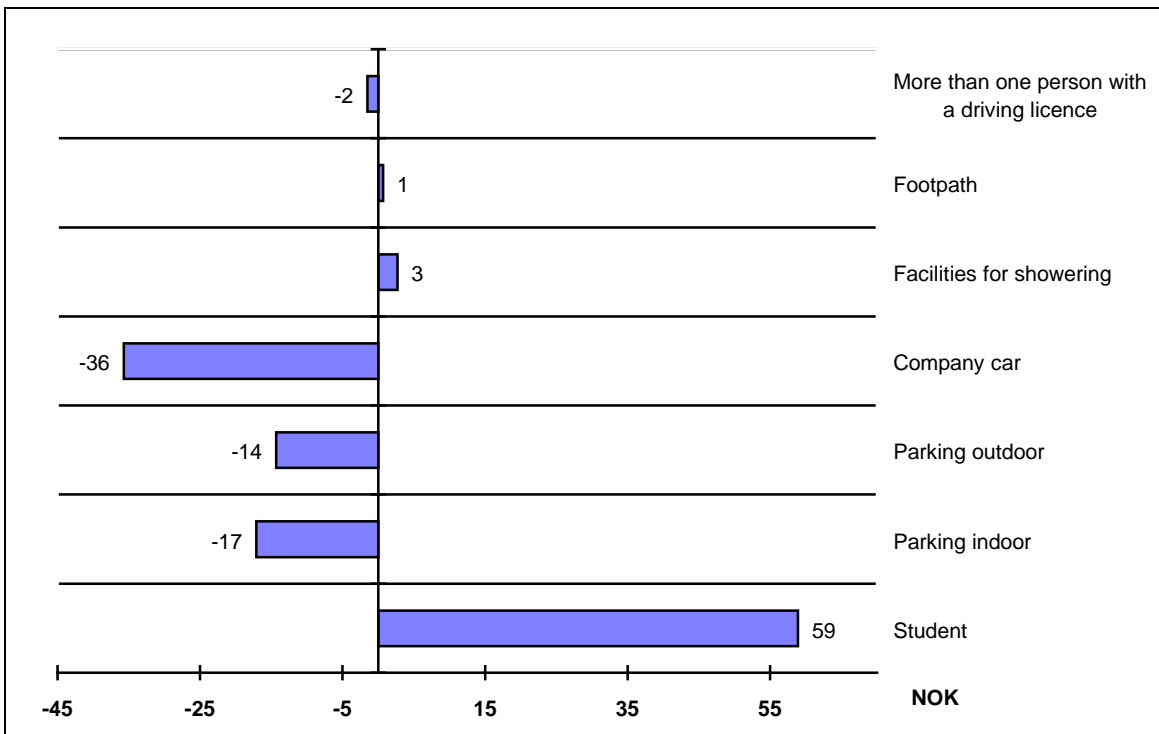


Figure 7-3 Average parking fee per day necessary for changing from driving a car to walking to work. NOK/day. The Norwegian Marketing/SP-survey

7.5 Walking has the highest value of time

Information of travel time with different modes makes it possible to calculate how the commuters value reduced travel time for the journey to work (table 7-3). The value of reduced travel time is influenced by the road users time budget and trip comfort. In general the value of reduced travel time is higher for slow modes of transport and transport modes with low trip comfort, but different groups of road users value their travel time differently.

Table 7-3 Value of time for different modes. NOK/hour. The Norwegian Marketing/SP-survey

Mode of transport	Value of time. NOK/hour	
	Car drivers with walking as their alternative	Car drivers with cycling as their alternative
Cycling		59
Walking	73	
Driving a car	6*	33

* Not significant (5 per cent level) confidence

We find that commuters who usually drive their car to work value their time to NOK 73 per hour when they go to work on foot and NOK 59 per hour when they are cycling. When driving a car, commuters with cycling as their alternative value their time to NOK 33 per hour, which is almost the same as the value of time found in other surveys (Stangeby, Hanssen and Norheim 1991).

The results indicate that walking and cycling often takes too much time to be a relevant alternative to driving a car on the journey to work. These results are similar to results from other value of time-surveys.

8 Conclusions

8.1 Measures are necessary to promote walcyng

In the industrialised countries use of car have become the most common mode of transport, for short as well as long trips. Most households have access to one or more cars and the majority of the population over the age of 18 have a driving licence. The general trends of car use have been confirmed in several studies, among them the WALCYNG studies in WP1 to WP5.

Access to transport is the most important factor influencing people’s mode choice. But other factors, like economical factors, use of time, geographical and physical conditions and people’s attitudes play an important role in different situations. Many short car trips could be replaced by walking or cycling if the conditions for the use of these modes were improved.

In the WALCYNG WP6 studies we find that walcers as well as drivers want to walk and cycle more often if the conditions for walcyng were improved. In Finland the authorities have spent a lot of resources to improve and extend the cycle lane network. The attitude surveys indicate a higher number of people biking in Finland than in Austria, Italy and Spain.

There are several benefits of walking and cycling. On the other hand, people walking and cycling meet a lot of barriers or obstacles. The most important benefits and barriers for walking and cycling are found in table 8-1 below:

Table 8-1 Benefits and barriers for walking and cycling

Benefits of		Barriers for	
Walking	Cycling	Walking	Cycling
Health aspects: Improving physical and mental health, relaxing, stressing down, good exercise		Inconvenience: Takes too much time	
Convenience: Independent, flexible, easy, reliable, pleasant		Physical barriers: Cannot carry heavy things	Infrastructural barriers: Insufficient road cycle network, unsafe crossings.
Environmental aspects: Getting fresh air, being out in the nature	Other aspects: Economically efficient, cheap		Environmental and geographical barriers: Hilly, bad weather, polluted air

In spite of the barriers and obstacles for walking and cycling, there is a potential to encourage more people to walk or cycle instead of using their cars on short trips. In order to release this potential a lot of measures to reduce barriers are necessary and possible to implement. The measures needed are dependent on the situation in the area and the target groups. We have divided these measures into four categories:

- Infrastructural measures
- Political measures
- Communication measures
- Other measures.

8.2 Infrastructural measures

Both in the attitude surveys in Finland, Austria, Italy and Spain and the Marketing/SP-survey in Norway infrastructural measures are mentioned most often to promote walking, but are also important factors to increase cycling.

Important infrastructural measures are improving and extending the bicycle network, constructing more pedestrian and bicycle roads, wider pavements, safe crossings like pedestrian bridges and subways, better lightening, smoother surfaces etc.

In many areas the infrastructural and physical conditions for walking and cycling are very poor. Pedestrians and cyclists have to share the road with car drivers and other motorised vehicles. Walking and cycling are considered very unsafe under such conditions. The feeling of insecurity lead many people to use their car. Pedestrians and cyclists are vulnerable road users, compared to car drivers. Infrastructural measures may reduce walcers' feeling of insecurity and increase walking and cycling as transport modes, not only as leisure activities.

8.3 Political measures

Political measures are mentioned most often to promote cycling. Among these measures are 30 or 40 km/h zones, increased gasoline prices, restricting hours for car driving, car free city centres, priority for walcers at crossings, laws restricting car driving, police control etc.

Most political measures are aimed at reducing car traffic. Car traffic are polluting the air with noise and particles making walking and cycling uncomfortable. Walcers' feeling of insecurity are influenced by the number of cars and motorised vehicles on the roads. Political measures to reduce car traffic may lead to a change in mode choice with more people choosing to travel on foot or by bike.

8.4 Communication measures

In our surveys communication measures are not mentioned very often to promote walking and cycling. However, communication measures are important for promoting walking and cycling as modes of transport.

Among the communication measures mentioned are better information, information campaigns, PR work, advertising, increasing awareness of walking and cycling etc.

Information about the possibilities for walking and cycling, cycle lane routes, time use when cycling short distances within cities versus use of a car, information about the advantages of walking and cycling for health, training and exercise, positive effects on the environment when replacing shorter car trips with walking and cycling etc. are important additional measures to the infrastructural and political measures. While infrastructural and political measures usually are expensive and take a long time to implement, communication measures and marketing are more easily implemented.

8.5 Use of WP6 results in the WALCYNG Marketing Model

The baseline in the WALCYNG project is the Marketing Model focusing on the users' and potential users' experiences. In WP6 the Marketing Model have been used to focus on attractions and barriers of walking and cycling and measures to be implemented to have more people walk or cycle short distances instead of using cars.

Results from the WP6 studies will be used in the following WALCYNG WPs and in the «WALCYNG Quality Scheme» (WQS) - a quality assessment scheme with recommendations for walking and cycling facilities developed to help planners, policy makers, interest groups and walcers to improve the conditions for walking and cycling.

References

- Brög, W. 1993
Mobilitätsstudien Wien 1993. Socialdata.
- Hakamies-Blomqvist, L. 1996
General problems of pedestrians and cyclists. WALCYNG Internal report I, No 3.
- Hydén, C and Nilsen, A. 1996
Products and efforts for pedestrians and cyclists. WALCYNG Internal report I, No 2.
- Norheim, B og Hanssen, J U. 1990
Stated Preferences som metode i transportplanleggingen. Litteraturgjennomgang og metodebeskrivelse. Oslo, Transportøkonomisk institutt. TØI notat 918/90.
- Pasanen, E. 1996
Safety problems of pedestrians and cyclists. WALCYNG Internal report I, No 4.
- Pearmain, D, Swanson, J, Kroes, E and Bradley, M. 1991
Stated Preference techniques. A guide to practice. Steer Davies Gleave, Richmond, and Hague Consulting Group, den Haag. ISBN 0-9515726-1-X.
- Praschl, Sholl-Kuhn and Risser. 1994
Die Diskrepanz zwischen Wissen und Handeln am Beispiel Verkehrsmittelwahl. Wien.
- Rauh, W. 1996
Straßen zum Radfahren. Wien, Verkehrsclub Österreich.
- Schneider, R. 1997
Summary and Synthesis of Area 1. WALCYNG Internal report I, No 5.
- Solheim, T and Stangeby, I. 1996
Short trips in European countries. WALCYNG Internal report I, No 1.
- Stangeby, I, Hanssen, J U and Norheim, B. 1991
Hva vet vi om kollektivtransportbrukerne? En kunnskapsoversikt. Oslo, Norges råd for anvendt samfunnsforskning (NORAS) Nasjonalt FoU-program for Kollektivtransport. Rapport nr 5

WALCYNG - WP6

Appendix

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Tables - attitude surveys

Table 2-1 Number of respondents in Finland by age, gender and modal category. The Finnish attitude survey

Age	Driver		Walcer		Total	
	Female	Male	Female	Male	Female	Male
Under 25 years	4	5	5	4	9	9
26-35 years	2	1	0	2	2	3
36-45 years	2	3	2	1	4	4
46-60 years	0	0	2	1	2	1
Over 60 years	4	4	5	3	9	7
Sum	12	13	14	11	26	24

Table 2-2 Number of respondents in Austria by age, gender and modal category. The Austrian attitude survey

Age	Driver		Walcer		Total	
	Female	Male	Female	Male	Female	Male
Under 25 years	4	4	3	5	7	9
26-35 years	2	3	4	4	6	7
36-45 years	1	2	0	0	1	2
46-60 years	1	0	1	0	2	0
Over 60 years	4	4	5	3	9	7
Sum	12	13	13	12	25	25

Table 2-3 Number of respondents in Italy by age, gender and modal category. The Italian attitude survey

Age	Driver		Walcer		Total	
	Female	Male	Female	Male	Female	Male
Under 25 years	4	4	4	4	8	8
26-35 years	1	2	0	1	1	3
36-45 years	4	2	2	2	6	4
46-60 years	0	0	2	2	2	2
Over 60 years	4	4	5	3	9	7
Sum	13	12	13	12	26	24

Table 2-4 Number of respondents in Spain by age, gender and driver/walcer. The Spanish attitude survey

Age	Driver		Walcer		Total	
	Female	Male	Female	Male	Female	Male
Under 25 years	3	4	4	5	7	9
26-35 years	2	3	3	3	5	6
36-45 years	1	2	1	1	2	3
46-60 years	1	2	2	0	3	2
Over 60 years	1	4	5	1	6	5
Sum	8	15	15	10	23	25

Table 2-5 Respondents in the Norwegian Marketing/SP-survey and the recruitment group by age and gender. Per cent

Age	SP-survey			Recruitment group		
	Female	Male	All	Female	Male	All
18-25 years	5	5	5	11	8	9
26-35 years	32	36	34	39	39	39
36-45 years	36	28	32	24	28	26
46-60 years	23	26	25	24	22	23
Over 60 years	3	5	4	3	3	3
Sum per cent	99	100	100	101	100	100
Number	185	193	378	607	500	1107

Table 2-6 Respondents education level s in Finland, Austria, Italy and Spain. Number of people. The attitude surveys

Education	Finland	Austria	Italy	Spain
Junior High School	19	23	6	11
High School	27	11	21	23
Academic degree	4	16	23	14
Total	50	50	50	48

Table 2-7 Level of education among the respondents in the Norwegian Marketing/SP-survey. Per cent

Education	SP-survey
Junior High School	3
High School	26
Academic degree	67
Other	5
Sum	101
Number	388

Table 2-8 Gross household income distribution. NOK 1000. Per cent. The Norwegian Marketing/SP-survey

Income of the household. NOK 1000	Per cent
Under NOK 100	5
NOK 1-200	7
NOK 2-300	22
NOK 3-400	17
NOK 4-500	21
NOK 5-600	15
NOK 600+	13
Sum	100
Number	388

Table 3-1 Number of respondents having a car available in Finland, Austria, Italy and Spain by modal category. The attitude surveys

How often	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Always	22	4	23	4	23	9	21	10
Most of the time	3	4	0	0	0	0	2	0
Sometimes	0	3	2	1	2	4	0	2
Very rarely	0	2	0	3	0	1	0	2
Has no car in use	0	1	0	6	0	9	0	1
No licence	0	11	0	11	0	2	0	10
Sum	25	25	25	25	25	25	23	25
Mode	always	no licence	always	no licence	always	always/ no car	always	always/ no licence

Table 3-4 Number of respondents using a car for short trips in Finland, Austria, Italy and Spain by modal category. The attitude surveys

How often car is used	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
More than 10 times a week	0	0	7	0	10	0	4	1
5-10 times a week	14	1	2	0	8	0	8	2
2-4 times a week	9	2	5	1	6	3	2	2
Once a week	1	1	4	0	1	1	0	5
Rarely	1	10	7	6	0	10	9	5
No licence	0	11	0	11	0	11	0	10
Don't know	0	0	0	7	0	0	0	0
Sum	25	25	25	25	25	25	23	25
Mode	5-10 times a week	No licence	More than 10 times a week/ rarely	No licence	More than 10 times a week	No licence	5-10 times a week	No licence

Table 3-5 Number of respondents walking in Finland, Austria, Italy and Spain by modal category. The attitude surveys

How often	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
More than 10 times a week	0	12	4	8	0	11	1	18
6-10 times a week	4	8	1	5	2	9	3	4
2-5 times a week	13	4	6	3	5	4	10	3
Once a week	5	0	2	3	4	0	1	0
Rarely	1	1	8	4	13	0	2	0
Never	2	0	4	2	1	1	6	0
Sum	25	25	25	25	25	25	23	25
Mode	2-5 times a week	more than 10 times a week	rarely	more than 10 times a week	rarely	more than 10 times a week	2-5 times a week	more than 10 times a week

Table 3-6 Number of respondents biking in Finland, Austria, Italy and Spain by modal category. The attitude surveys

How often	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
More than 10 times a week	0	9	0	4	0	1	0	1
6-10 times a week	0	4	0	3	0	2	0	1
2-5 times a week	8	6	1	2	0	2	1	3
Once a week	5	2	1	4	0	0	2	2
Rarely	4	0	10	2	5	2	5	5
Never	8	4	13	10	20	18	15	13
Sum	25	25	25	25	25	25	23	25
Mode	2-5 times a week/ never	more than 10 times a week	never	never	never	never	never	never

Table 3-7 Number of respondents in Finland, Austria, Italy and Spain that agree with the statement «I should walk more often than today». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	13	3	9	5	13	1	11	8
Slightly agree	7	3	1	1	6	1	10	6
Rather agree	0	1	7	3	2	10	1	3
Less agree	1	3	2	4	3	9	1	7
Do not agree at all	4	15	6	12	1	4	0	1
Sum	25	25	25	25	25	25	23	25
Mode	fully agree	do not agree at all	full agree	do not agree at all	fully agree	rather agree	fully agree	fully agree

Table 3-8 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «I should cycle more often than today». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	12	7	7	1	6	2	8	6
Slightly agree	11	4	4	3	4	3	10	4
Rather agree	0	0	1	4	4	4	2	4
Less agree	1	2	5	3	5	6	2	8
Do not agree at all	1	12	8	14	6	10	1	3
Sum	25	25	25	25	25	25	23	25
Mode	fully agree	do not agree at all	do not agree at all	do not agree at all	fully agree/ do not agree at all	do not agree at all	slightly agree	less agree

Table 4-1 Answers to the question «Do you like walking» in Finland, Austria, Italy and Spain after modal category. Numbers of respondents. The attitude surveys

Answer	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Yes	20	23	20	21	24	23	21	22
No	5	2	5	4	1	2	2	3
Sum	25	25	25	25	25	25	23	25

Table 4-2 Answers to the question «Do you like cycling » in Finland, Austria, Italy and Spain after modal category. Numbers of respondents. The attitude surveys

Answer	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Yes	24	25	16	20	17	19	19	17
No	1	0	9	5	8	6	4	8
Sum	25	25	25	25	25	25	23	25

Table 5-2 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «Facilities and preconditions for walking are not satisfactory». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	1	3	6	5	11	6	3	6
Slightly agree	11	9	3	3	12	11	4	2
Rather agree	2	1	3	8	1	2	7	4
Less agree	5	7	5	3	1	3	8	10
Do not agree at all	6	5	8	6	0	3	1	3
Sum	25	25	25	25	25	25	23	25
Mode	slightly agree	slightly agree	do not agree at all	rather agree	slightly agree	slightly agree	less agree	less agree

Table 5-3 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «Facilities and preconditions for cycling are not satisfactory». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	0	2	5	5	16	10	4	5
Slightly agree	0	3	9	10	3	5	5	8
Rather agree	0	0	8	6	4	5	4	1
Less agree	6	6	1	3	2	2	9	8
Do not agree at all	19	14	2	1	0	3	1	3
Sum	25	25	25	25	25	25	23	25
Mode	do not agree at all	do not agree at all	slightly agree	slightly agree	fully agree	fully agree	less agree	less agree

Table 6-8 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «Walcers should have priority to car drivers at some crossings». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	4	15	9	14	7	15	6	10
Slightly agree	15	7	2	5	11	5	11	9
Rather agree	0	0	6	3	5	4	2	3
Less agree	2	1	1	1	1	1	3	1
Do not agree at all	4	2	7	2	1	0	1	2
Sum	25	25	25	25	25	25	23	25
Mode	slightly agree	fully agree	fully agree	fully agree	slightly agree	fully agree	slightly agree	fully agree

Table 6-9 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «The city centre should be free of cars». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	6	14	10	14	9	16	8	6
Slightly agree	15	5	2	2	9	5	4	7
Rather agree	0	1	6	2	4	3	2	4
Less agree	1	2	1	3	1	0	7	4
Do not agree at all	3	3	6	4	2	1	2	4
Sum	25	25	25	25	25	25	23	25
Mode	slightly agree	fully agree	fully agree	fully agree	fully/ slightly agree	fully agree	fully agree	slightly agree

Table 6-10 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «Car parking should be reduced». The attitude surveys

Country and modal category	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	1	2	6	12	1	4	0	2
Slightly agree	0	1	1	0	2	2	0	3
Rather agree	0	1	3	4	1	2	2	2
Less agree	5	8	0	1	5	5	11	11
Do not agree at all	19	13	15	8	16	12	10	7
Sum	25	25	25	25	25	25	23	25
Mode	do not agree at all	do not agree at all	do not agree at all	fully agree	do not agree at all	do not agree at all	less agree	less agree

Table 6-11 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «Pavements should be broadened and roads narrowed». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	2	3	4	11	6	4	2	3
Slightly agree	4	7	1	4	4	4	2	3
Rather agree	2	1	4	5	4	5	2	13
Less agree	6	7	2	0	5	7	12	4
Do not agree at all	11	7	14	5	6	5	5	2
Sum	25	25	25	25	25	25	23	25
Mode	do not agree at all	slightly/less agree do not agree at all	do not agree at all	fully agree	fully agree/do not agree at all	less agree	less agree	rather agree

Table 6-12 Number of respondents in Finland, Austria, Italy and Spain who agree with the statement «Walcers should have priority to car drivers at any crossings». The attitude surveys

Agreement	Finland		Austria		Italy		Spain	
	Driver	Walcer	Driver	Walcer	Driver	Walcer	Driver	Walcer
Fully agree	2	5	5	13	3	9	10	2
Slightly agree	1	1	1	3	4	3	2	7
Rather agree	1	1	1	2	8	0	1	5
Less agree	1	7	4	3	7	11	10	8
Do not agree at all	20	11	14	4	3	2	0	3
Sum	25	25	25	25	25	25	23	25
Mode	do not agree at all	do not agree at all	do not agree at all	fully agree	rather agree	less agree	fully/less agree	less agree

Calculations for the Marketing/SP-analyses

*Table 1: Game 1a Choice between two different cycle-alternatives (T-ratio in parenthesis)
Final model N (Observations)= 2102*

	Weight	Relative travelling time
Showering facilities		
Decisive	2.138 (8.4)	38.6
Of great importance	1.714 (10.8)	30.9
Of minor importance	0.072 (0.7)	1.3*
Bicycle lane		
Decisive	2.895 (9.3)	52.3
Of great importance	1.466 (10.3)	26.5
Of minor importance	0.2094 (1.3)	2.8*
Travelling time	-0.0554 (-5.9)	1.0
Constant	0.0473 (1.0)	0.9*
Rho ² (0)	0.11	
Rho ² (const)	0.09	

*Not significant (5 % level) confidence

Table 2: Game 1b Choice between two different walking-alternatives (T-ratio in parenthesis?) Final model N (Observations)= 681

	Weight	Relative travelling time
Showering facilities		
Decisive	1.696 (5.2)	21.3
Footpath		
Decisive/great importance	0.7175 (3.1)	9.0
Travelling time	0.0794 (-7.5)	1.0
Constant	0.088 (1.1)	
Rho ² (0)	0.09	
Rho ² (const)	0.09	

*Not significant (5 % level) confidence

Table 3: Travel time ratio for alternative modes (bicycling or walking) and driving a car

Travel time ratio	Cycling		Walking	
	Count	%	Count	%
0-0.5	4	1.5%		
0.6-1.0	63	24.3%	3	3.5%
1.1-1.5	71	27.4%	10	11.6%
1.6-2.0	72	27.8%	7	8.1%
2.1-3.0	39	15.1%	38	44.2%
3.1-4.0	9	3.5%	17	19.8%
4.1-	1	.4%	11	12.8%
Average travel time ratio	N=259	1.7	N=86	3.0

Table 4: Average relative weight in relation to reduced travel time

	Facilities for showering		Footpath/Bicycle lane	
	walking	cycling	walking	cycling
Decisive		38.6		52.3
Decisive/great importance	21.3		9.0	
Great importance		30.9		26.5
Minor importance	0	1.3*	0	2.8*
No importance	0	0	0	0
Don't know	0	0	0	0
Average reduction in travelling time	3.2	11.6	3.7	21.1
Average travelling time	28	19	28	19
Percentage reduction	11%	61%	13%	111%

*Not significant (5 % level) confidence

Table 5: Model for the choice walking versus driving a car

	Estimate	"T" Ratio
Walking		
Showering facilities	0.13	0.7
Footpath	-0.04	-0.2
Time used for walking	-0.06	-8.3
Constant	1.54	5.3
More than one person with a drivers licence	-0.07	-0.4
Student	2.77	4.3
Company car	-1.68	-5.1
Raining		
Driving a car every day		
Driving a car		
Time used for driving	0.00	0.3
Parking fee	-0.05	-10
Parking facilities outdoor	0.67	3.1
Parking facilities indoor	0.80	3.6
Rho2 (0)	0.28	
Rho2 (const.)	0.26	
Number of observations	774	

Table 6: Model for the choice cycling versus driving a car

	MODEL A		MODEL B	
	Estimate	"T" Ratio	Estimate	"T" Ratio
Cycling				
Showering facilities	0.51	4.4	0.51	4.5
Bicycle lane	0.14	1.1	0.12	0.9
Time used for cycling	-0.04	-8.4	-0.05	-9.5
Constant	1.44	7.3	1.23	6.5
More than one person with a drivers licence	-0.68	-5.2	-0.56	-4.4
Student	0.61	2.1	0.89	3.2
Company car	-0.74	-3.9	-0.88	-4.7
More than one car	0.04	0.3	-0.34	-2.5
Never cycle	-2.13	-8.1	-1.42	-10.5
Mountain bike	0.45	4.1	0.46	4.2
Raining	-0.35	-2.4	-0.27	-1.9
Incline/hilly	-0.61	-5.2	-0.56	-4.9
Unsafe traffic conditions	-0.40	-3.7	-0.46	-4.2
Driving a car every day	-1.05	-8.4		
Driving a car				
Time used for driving	-0.03	-3.6	-0.03	-3.4
Parking fee	-0.05	-17.9	-0.05	-17.5
Parking facilities outdoor	0.62	4.7	0.59	4.6
Parking facilities indoor	0.42	3.1	0.37	2.8
Rho2 (0)	0.33		0.32	
Rho2 (konst)	0.28		0.26	
Number of observations	2348		2348	

Questionnaire - Attitude surveys

1. Demographical Questions

a. gender: female/male

b. Do you live in ?

c. How old are you?

2. Questions of Mode

a. Do you have a driving license?
yes / no

b. Do you have a car in your use?

- always
- most of the time
- sometimes
- very rarely
- no

c. Do you often drive short car trips under 6 km?

- rarely
- once a week
- 2-4 times a week
- 5-10 times a week
- more often - " -

d. How do you usually cover distances? (tick the appropriate box)

	on foot	by bike	as car passenger	by public transport	by car	others
never						
rarely						
once a week						
2-5 times a week						
6-10 times/week						
more often						

e. walcer/driver

2. Introduction

I should walk more often than today 1 2 3 4 5

I should cycle more often than today 1 2 3 4 5

3. Attractors/Barriers

Do you like walking? yes/no

positive:

negative:

Do you like cycling? yes/no

positive:

negative:

4. Improvements

a. What solutions should be found to make car drivers walk short routes more often ?

What solutions should be found to make car drivers cycle short routes more often ?

b. Please choose the three most important barriers, why walking is unattractive:

- A) bad upkeep of pedestrian ways
- B) lack of pedestrian ways
- C) subways
- D) long detours
- E) cyclists on the pavement
- F) badly designed traffic lights, long waiting times
- G) feeling of insecurity at night time due to badly lit up paths
- H) non-ability of transporting heavy things
- I) no shelter from rain, snow, etc. (weather)
- J) high speed of car traffic
- K) unattractive surroundings
- L) car noise and pollution
- M) ruthlessness of car drivers
- N) laziness
- O) walking takes a lot of time
- P) other

Please choose the three most important attractors for walking:

- A) healthy
- B) environment friendly
- C) a way of socializing with others
- D) a way to experience the environment, aesthetical experience
- E) getting fresh air, sun shine
- F) enjoyable exercise, relaxation

- G) easiness (no parking problems, car repair, no time tables, etc.)
- H) independence (no need for any technical resources)
- I) flexibility/liberty to move (walkers are less organised than other road users, they are not subjected to any driving regulations, direction of mode, etc.)
- J) reliability (no jams, easy to evaluate the time needed)
- K) economically efficient
- L) other

c. Please choose the three most important barriers, why cycling is unattractive:

- A) bad signing of cycle routes
- B) bad upkeep of cycle paths
- C) insufficient cycle road network
- D) high speed of car traffic
- E) non-ability of transporting heavy things
- F) car noise and pollution
- G) feeling of unsafety
- H) pedestrians on the way
- I) unattractive surroundings
- J) no shelter from rain, snow, etc. (weather)
- K) fear of theft, lack of secure parking
- L) ruthlessness of car drivers
- M) badly constructed traffic lights, long waiting times
- N) laziness
- O) other:

Please choose the three most important attractors for cycling:

- A) saving of time
- B) economically efficient

- C) independence (independent from any time tables, etc.)
- D) flexibility/liberty to move (if barriers appear, cyclists are able to get off their bike and push it)
- E) fun, enjoying the exercise
- F) easiness (no parking problems, car repair, etc.)
- G) environment friendly
- H) healthy
- I) getting fresh air, sun shine
- J) a way of experience the environment, an aesthetical experience
- K) a way of socialising with others
- L) other

5. Image / Awareness of Walcyng

a. Do you think the modal split should be changed in favour of walking?

- YES why?
- NO why not?

b. Do you think the modal split should be changed in favour of cycling?

- YES why? see above
- NO why not?

c. Please say, how much you agree with these statements.

- The possibilities for walking are not satisfying. 1 2 3 4 5
- The possibilities for cycling are not satisfying. 1 2 3 4 5
- Walcers should have priority to car drivers at any crossings. 1 2 3 4 5

- Walkers should have priority to car drivers at some crossings. 1 2 3 4 5
- Car parking should be reduced. 1 2 3 4 5
- Pavements should be broadened and roads narrowed. 1 2 3 4 5
- The city centre should be free of cars. 1 2 3 4 5
- I would not appreciate any measures in benefits for walkers, if car driving conditions are changed for the worse. 1 2 3 4 5

for car drivers only:

- I would resign of driving by car short trips, if conditions for walking are improved. 1 2 3 4 5

d. Please choose up to five characteristics, which suite for a walker/cyclist/car driver

walker

cyclist

car driver

6. Demographical Questions

A. Education

- junior high school
- high school
- academic degree

B. How big is your family's yearly gross income?

- 0 - 50 000 mk
- 50 000 - 100 000 mk
- 100 000 - 200 000 mk
- 200 000 - 300 000 mk
- 300 000 -

Questionnaire – Marketing/SP-survey

1. Telephone interview - recruitment

1. Telephone number: short journeys, for example journeys of up to 5 kilometres, on foot or on a bicycle?
2. Hello, this is XX and I am calling from YY. We are carrying out a survey for the Institute of Transport Economics on the possibility of switching from short car journeys to walking or cycling. May I please speak to whoever in the household is over eighteen years of age and who is gainfully employed or studying at a university or attending school? (If there are more than one, we would like to speak to the one whose birthday occurred most recently and who is at home today.)
3. How old are you?
(Note the number of years.)
- If under 18:
Check whether there is anyone in the household who is over 18 and who satisfies the recruitment criteria above.
4. Do you yourself hold a driving licence?
- Yes
No
No reply/don't know
- If no, out
5. Do you yourself own or dispose of a car, or does the household have a car that you can use? (All kinds of vehicle, also buses and lorries, are to be included.)
- Yes
No
No reply/don't know
6. Do you suffer from health problems which make it difficult for you to make
- Yes, difficulties with walking
Yes, difficulties with cycling
No
Don't know
- If yes to difficulties with walking or cycling, out
7. What do you regard as your main occupation, paid work, school/studying, housework at home, or do you have some other main occupation or are you drawing National Insurance benefits?
- Gainfully employed
Studying, attending school
On National Insurance
Work at home
Other
- If on National Insurance, working at home or otherwise occupied, out
8. Do you go to a regular workplace, or does your workplace vary, or do you work at home?
- Permanent workplace
Varying workplace
Permanently employed at or near home (permanent place of residence)
No answer/don't know
- If employed at home, out

9. How far is it from home to your place of work/school/place of study? (State number of kilometres.)

If further than 5 kms., out

If the interviewee does not know the distance, the interviewer can check this by measuring the horizontal distance in a straight line from the interviewee's home to his/her workplace. The interviewee must in such a case state where he/she lives and works.

10. How often do you drive yourself to work/school in the summer half of the year?

Daily
At least once a week
At least once a month
Less often
Never

If never driving to work/school, out

11. Would you like to go on taking part in our survey by answering some questions on the possibility of making short journeys on foot or on a bicycle instead of by car?
For you to participate in the next part of our survey, we must arrange a time and a place for an interview which takes about twenty minutes.
(Agree on the time and place for an interview.)

12. Interview number
(the number given to this interview agreement will later be linked to the PC interview)

2. Questionnaire for the SP survey. PC-based interview at home

1. Is this a test interview?

Yes
No

2. Enter the interviewee's serial number

No....

The Institute of Transport Economics is cooperating with European researchers on a survey of the possibilities of making short journeys on foot or by bicycle instead of by car. By short journeys we mean journeys of up to 5 kms. In this connection, we would like to ask you some questions on your priorities with regard to better facilities for walking/cycling.

3. What do you regard as your main occupation?

Gainfully employed
Student/school pupil

Let us begin with some questions about journeys you make to school/to work.

4. Which main means of transport did you use last time you went from home to school/work?

Give only one answer

Drove a car
Took public transport
Walked
Cycled
Was taken by car
Other

5. How often do you drive to work/school in the summer half of the year?

Daily
At least once a week
At least once a month
Less frequently
Never

6. What parking facilities are available close to your school/workplace?

You may choose more than one alternative

Free parking, outdoors
Free parking, indoors
Parking for a fee, outdoors
Parking for a fee, indoors
No parking
Don't know

If there are parking facilities:

7. Can you be sure of finding a parking space when you drive to school/work?

Yes
No

If gainfully employed:

8. Has your employer met any of the costs to you of buying a car which can be used for PRIVATE journeys?

Yes, all of them
Yes, some
No

9. Does your employer meet any of your expenses for PRIVATE car journeys?

Yes, all of them
Yes, some
No

If the answer to question 4 was not "Cycled":

10. Do you own or have disposal of a bicycle which you can use to/from school/work?

Yes
No

If you answered "Cycled" to question 4 or "Yes" to question 10:

11. What kind of bicycle do you have at your disposal?

Off-road bicycle
Racing bicycle
Ordinary bicycle
Other
Don't know

12. How many gears does the bicycle have?

Less than 3 gears
3-5 gears
6-10 gears
11 gears or more
Don't know

13. How old is the bicycle?

Less than 3 years old
3-5 years old
6-10 years old
11 years old or more
Don't know

14. How often do you cycle to work/school in the summer half of the year?

Daily
At least once a week
At least once a month
Less often
Never

If you cycle:

15. What are the three most important reasons why you CYCLE to school/work?

Exercise
Cheapness
The environment
Easiness
Parking problems
Poor public transport
Fresh air
No special reason
Other 1
Other 2
Other 3

16. Has any special place been reserved for parking bicycles close to your school/work?

Yes
No
Don't know

If you answered "Yes" to question 16:

17. What kind of bicycle parking facility has been provided?

Outdoor, no roof
Outdoor, roofed
Indoor
Don't know

All interviewees:

18. How often do you walk to work/school in the summer half of the year?

Daily
At least once a week
At least once a month
Less often
Never

If you walk:

19. What are the three main reasons why you WALK to school/work?

Exercise
Cheapness
The environment
Easiness
Parking problems
Poor public transport
Fresh air
No special reason
Other 1
Other 2
Other 3

All interviewees:

20. Is it possible to change clothes/have a shower when you get to school/work?

Yes, change/shower
Yes, change
No
No answer/don't know

Those who have never driven to work skip to the concluding questions

Let us now consider the LAST JOURNEY ON WHICH YOU DROVE A CAR FROM HOME TO SCHOOL/WORK.

21. How long ago did you make the journey?

Today
Last week
In the past fortnight
In the past month
Over a month ago
No answer/don't know

An interviewee who does not remember a particular journey can be asked to imagine a journey to/from work or school, with the normal time of departure and travelling time. In such cases, the questions on the weather, temperature etc. can not be answered.

22. At what time of day did you start the journey?

(START)
(Time)

23. Did you have any other errands or tasks on your way to or from school or work that day?

No
Take/fetch children/other
Shopping
Other...
No answer/don't know

24. What was the weather like when you began your journey? (VAERET)

Good/slightly overcast
Cloudy/dry
Might rain
Rain/showers
Other
No answer/don't know

25. What was the temperature when you began your journey? (CELSIUS)

Over 20 degrees
10-20 degrees
5-10 degrees
0-5 degrees
Frost
No answer/don't know

26. How long did it take you to reach school/work from home?

The question concerns actual travelling time, including walking from the parking place/garage. Time spent on errands on the way must not be included.

Minutes from door to door...
Interval 0-60 minutes.

27. If you could not have driven, how would you have made the journey?

Cycled
Walked
Taken public transport
Other...
No alternatives

If you walked or cycled, go to question 30

If you went by public or other transport:

28. If for that journey you had had to choose between walking and cycling, what would you have chosen?

Cycling
Walking
Neither

If you chose "Walking" or "Cycling", go to question 30. If you chose "Neither", go to the concluding questions.

If your answer to question 27 was "No alternatives":

29. What is the reason why you had no alternative to going by car that day?

Quicker (to drive)
Taking/fetching children
Taking/fetching others
Shopping
Private errands
Awkward luggage
Unsuitable clothes
Bad weather
Tiring (to walk/cycle)
Poor health
Steep/uphill
Needed the car at work
Heavy traffic
The time of the journey
Other

If your answer to question 27 was "No alternatives" and you answered question 29, go to the concluding questions.

Everyone else:

30. What was the most important reason for making that journey by car?

Quicker (to drive)
Taking/fetching children
Taking/fetching others
Shopping
Private errands
Awkward luggage
Unsuitable clothes
Bad weather
Tiring (to walk/cycle)
Poor health
Steep/uphill
Needed the car at work
Heavy traffic
The time of the journey
Other

31. How long would the journey have taken you if you had walked/cycled?

Minutes from door to door...

Only include actual travelling time.

Interval 0-120 minutes.

32. How would you assess the incline (ALTSTIG) on the road on which you would have walked/cycled TO/FROM school/work?

Steep

Some incline

Little incline

Level/no incline

No answer/don't know

33. On the main part (HOVEDDELEN) of the journey from home to school/work, what are the conditions like for pedestrians/cyclists?

Difficult

Average

Easy

Don't know

34. Is there a bicycle lane/pavement/footpath along most of that route?

Yes

No

Don't know

35. When you walk/cycle from home to school/work, do you regard the traffic conditions as safe or unsafe (ALTFORH)?

Very safe

Safe

Unsafe

Very unsafe

Don't know

Now think back to the last time you went to work by car. Imagine that you are about to make the same journey again:

You left at START o'clock, when the weather was VAERET and the temperature was CELSIUS.

You have the same tasks to carry out on the way to/from school/work as you had on the day you described.

First we would like you to choose between two CYCLE/WALK alternatives.

The incline along the route along which you would walk or cycle is ALTSTIG.

Travel along the main part of the route you will be taking on foot or on a bicycle to school/work is FRAM. Traffic conditions are ALTFORH.

Now choose the means of transport you prefer on the basis of the features shown on the screen. In each game we will vary the features of the journey several times.

GAME 1: CHOICE BETWEEN DIFFERENT CYCLING OR WALKING ALTERNATIVES

Game 1a: Cycle - Cycle

Cycling distance	Level 1	Level 2	Level 3
Shower/changing facilities	No	Yes	
Bicycle lane	No	Half the way	All the way
Journey time (minutes)	-25%	Basic ¹	+25%

¹ Stated journey time by bicycle

Game 1b: Walk - Walk

Walking distance	Level 1	Level 2	Level 3
Shower/changing facilities	No	Yes	
Pavement/footpath	No	Half the way	All the way
Journey time (minutes)	-25%	Basic ¹	+25%

¹ Stated journey time on foot

Now let us take a closer look at the choice between WALKING/CYCLING and GOING BY CAR to school/work.

We shall look first at some specific measures which could affect your choice of means of transport to school/work. The measures may be implemented by your school/employer or by the authorities.

We shall ask you about the influence of the measures on your choice of means of transport to school/work, i.e. whether they are:

- Decisive
- Of great importance
- Of minor importance
- Of no importance.

Do not consider how likely or practicable the measures are, but only how you think they would affect your choice of transport.

36. How important would facilities for showering/changing at school/work be for your decision to cycle/walk?

- Decisive
- Of great importance
- Of minor importance
- Of no importance
- Don't know

37. If there was a footpath/bicycle lane (varied) all the way to school/work, how important would that be for your decision to cycle/walk?

- Decisive
- Of great importance
- Of minor importance
- Of no importance
- Don't know

38. If it cost (NOK 10-40) (varied at random) per day to park a car at school/work, how important would that be for your decision to cycle/walk to school/work?

- Decisive
- Of great importance
- Of minor importance
- Of no importance
- Don't know

39. If there was a locked and burglary-proof bicycle shed, how important would that be for your decision to cycle/walk to school/work?

- Decisive
- Of great importance
- Of minor importance
- Of no importance
- Don't know

Now think back again to the last time you went to work by car. Imagine that you are about to make the same journey again, but that you now have a choice between CYCLING/WALKING and GOING BY CAR.

You left at START o'clock, when the weather was VAERET and the temperature was CELSIUS.

You have the same tasks to carry out on the way to/from school/work as you had on the day you described.

The incline along the route along which you would walk or cycle is ALTSTIG.

Travel along the main part of the route you will be taking on foot or on a bicycle to school/work is FRAM. Traffic conditions are ALTFORH.

Now choose the means of transport you prefer on the basis of the features shown on the screen. In each game we will vary the features of the journey several times.

GAME 2: CHOICE BETWEEN WALKING/CYCLING OR GOING BY CAR ON THE LAST JOURNEY TO WORK ON WHICH THE INTERVIEWEE WENT BY CAR

Game 2: Walking/cycling - Car

Distance	Level 1	Level 2	Level 3
Shower/changing facilities	Yes	No	
Car parking	NOT SURE of parking	SURE of OUTDOOR space parking	SURE of INDOOR parking
Footpath/Bicycle lane	No	Half the way	All the way
Parking fee per day	Free	Cheap (NOK 15-45)	Expensive(NOK 30-60)
Journey time			
Walking/cycling	-25%	Basic(1)	+25%
By car	-25%	Basic - car	+25%

(1) Stated journey time for pedestrian and cyclist respectively

ON THE WAY TO SCHOOL/WORK

For those who give walking as their alternative to going by car on the journey in question:

40. What do you consider the most important improvements to make for you to WALK instead of going by car?

Which 3 factors would you give priority to?

- More footpaths
- A wider pavement
- Ban on cycling on pavements
- Pedestrian subways/crossings
- Less car traffic
- Other 1...
- Other 2...
- Other 3...
- None
- No advice to give

For those who give cycling as their alternative to going by car on the journey in question:

41. What do you consider the most important improvements to make for you to CYCLE instead of going by car to school/work?

Which 3 factors would you give priority to?

- More cycling lanes
- Traffic lights at crossings
- Smoother road surface
- Lower kerbs
- Subways/crossings
- Better road signs and markings
- Secure bicycle parking
- Less car traffic
- Other 1...
- Other 2...
- Other 3...
- No advice to give

For everyone:

CONCLUDING QUESTIONS

The questions we now want to ask have to do with whether or not you might WALK or CYCLE instead of going by car on journeys for various purposes, all of which are less than 5 kms. one way.

We shall be looking at journeys for the following purposes:

To school/work
Shopping for groceries?
Other shopping trips?
Taking or fetching (children or others)?
Visits to service institutions (doctor, dentist, post office, bank etc.)?
Journeys relating to your own sporting activities/exercise?
Entertainment (cinema, theatre, café, restaurant)?

42. To what extent would you consider it possible to replace short car journeys by WALKING for the following purposes? Grade the various journey objectives in order. Choose the 3 for which you think it would be easiest to WALK instead of going by car.

Remember that we are still only considering short journeys, of less than 5 kms. One way.

Shopping for groceries?
Other shopping trips?
Visits?
Taking or fetching (children or others)?
Visits to service institutions (doctor, dentist, post office, bank etc.)?
Journeys relating to your own sporting activities/exercise?
Entertainment (cinema, theatre, café, restaurant)?

43. To what extent would you consider it possible to replace short car journeys by CYCLING for the following purposes? Grade the various journey objectives in order. Choose the 3 for which you think it would be easiest to CYCLE instead of going by car.

Remember that we are still only considering short journeys, of less than 5 kms. One way.

Shopping for groceries?
Other shopping trips?
Visits?
Taking or fetching (children or others)?
Visits to service institutions (doctor, dentist, post office, bank etc.)?
Journeys relating to your own sporting activities/exercise?
Entertainment (cinema, theatre, café, restaurant)?

In conclusion, we would like to ask you some questions about you and your household.

44. How many children (0-12 years of age) live in your household?

Number...

45. How many adolescents (13-17 years of age) live in your household?

Number...

46. How many adults (aged over 18) live in your household, including yourself?

Number...

47. How many persons in the household have driving licences, including yourself?

Number...

48. How many cars does the household have at its disposal?

Number, including any company cars...

49. What was the highest level of education you completed?

Basic school
Upper secondary school
College/university
Other...

If gainfully employed:

50. Which is the best description of your occupation?

- Unskilled worker or apprentice
- Skilled worker, foreman
- Lower level salaried employee, e.g. shop assistant, storeman, clerk, in public service
- Professional, e.g. teacher, executive officer, nurse, engineer
- Senior post in the private or public sector
- Self-employed
- Other occupation

For everyone:

51. What roughly was your household's gross (pre-tax) income in 1995?

(Give the figure in whole thousands.)

52. Gender of the interviewee

- Male
- Female

Thank you very much for your help!