The Cycling Mode Share in Cities

The cycle mode share as a target value
The so-called modal split provides information about people’s preferred mode choices based on the trips they make. It usually distinguishes between car and public transport use as well as cycling and walking. Across Germany, there are large differences in terms of the mode share for cycling. On a Europe-wide scale, Germany ranks only third in terms of cycle use, clearly lagging behind the two frontrunners, but with a strong upward trend (see CyE A-1). Nevertheless, German cities vary severely regarding this trend as well as cycling levels, as shown in the graph above.

With a cycling mode share of around 40%, the cities of Oldenburg and Münster are the top traditional cycling strongholds in Germany. The national average is only around 10% (Mobility in Germany, MiD 2008). According to the German government’s new strategy, it is realistic to increase the cycle mode share in cities from 11% in 2008 to 16% in 2020 (National Cycling Plan NRVP 2020 replacing NRVP 2012; see CyE O-1). But what makes these cities so attractive for cycling?

Profile of German frontrunners Oldenburg and Münster
With a population of approx. 160,000, the city of Oldenburg is one of the higher-order centres in North-western Germany, known to be cycle-friendly. It has, due to the high number of bicycles, indeed more bicycles than residents. The bicycle is the most favoured means of transport. More than 50% of Oldenburg’s residents – young and old – use the bicycle for trips to the city centre.

This, among other things, was the outcome of a survey commissioned by the city of Oldenburg and conducted by the University of Oldenburg named after Carl von Ossietzky. The survey was carried out in 2010 among 1,099 residents. It also generated modal split data that provide a remarkable picture of travel patterns among residents of Oldenburg: cycling accounts for 42.7% of all trips within the city. Hence, cycling levels are almost as high as the level of car use, which is 43.6%. Levels of walking and public transport use are relatively low accounting for 9.1% and 4.7% respectively. The

Cover image: Cyclists in Berlin. © Jörg Thiemann-Linden

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city of Oldenburg places great importance on cycling promotion and therefore benefits from the cycling levels that are already high and also have a positive effect on the city’s targets regarding its climate policies, urban planning, and family-friendly profile. Cycling levels are highest among younger residents, such as pupils and students. Bicycle use is higher among women than men and also depends on weather conditions. Interestingly even in bad weather conditions the proportion of people who cycle is above average in Oldenburg. The high proportion of older people who cycle is also astonishing.

The city of Münster is a distinctive university and administrative city located in North Rhine-Westphalia in Western Germany and with a population of nearly 300,000, Münster is almost double the size of Oldenburg. Münster became known in Germany as a cycling city ever since it repeatedly ranked first in the survey known as Fahrradklimatest (‘Cycling Climate Test’) conducted, at irregular intervals, by the German Cyclists’ Federation ADFC, the national cycling organisation. The cycling logo for Münster also featured prominently at the city’s anniversary celebrations a few years ago.

Based on the data generated by the survey, the Fahrradklimatest identifies the most bike-friendly city. 2004 was the last time Münster was the only city to be marked ‘excellent’. The city also has an effective cycling policy in place. The entire Münster shopping city is closed to private motorised traffic. Münster’s old fortification wall, a 4.5 km (2.8 miles) long green belt around the historic city known as the promenade is a ‘ring road’ that is highly attractive to and for the exclusive use by cyclists; today this is a cycle highway that is more than 50 years old.

A number of special regulations are to ensure that cycling across Münster becomes easier and more comfortable. These provisions include separate bike lanes (especially at large intersections), traffic lights for cyclists as well as designated bicycle streets where priority is given to cyclists. In addition, the city’s many one-way streets are open to cyclists in both directions. Conventional cycle facilities such as cycle paths exist along virtually all main roads. The city’s modal split also shows a marked trend towards cycling. In a survey conducted in 2007, 47% of respondents said they mainly use the bicycle, 34% the car, and 13.9% public transport. The remaining 6.1% account for walking. A few years ago cycling levels surpassed the level of car use in Münster.

Large differences within cities

Modal split data vary not only for different cities, but cycling levels may also differ considerably for individual boroughs within cities.

In Germany’s capital Berlin, for example, bicycle use differs greatly for each of the city’s 12 boroughs. The inner-city borough Friedrichshain-Kreuzberg has a population with a high proportion of young adults who shape their own new values away from conservative patterns. It is therefore not surprising that cycling frequency is high, especially among the young generations, and the cycle mode share is highest in the central borough Friedrichshain-Kreuzberg, accounting for 21%. The cycle mode share is second highest in Pankow, a large borough in north-eastern Berlin where 17% of trips are made by bicycle. Pankow borders with Friedrichshain-Kreuzberg in the south and is also partly characterised

Sources
Research project "Mobility in Cities" (SrV) – webpage: http://www.tu-dresden.de/die_tu_dresden/fakultaeten/vkw/ivs/vip
Research project "Mobility in Germany" (MID) – webpage: www.mobilitaet-in-deutschland.de/engl 2008/
Research project "Mobility in the Hannover Region" (MiR) – webpage: www.hannover.de/de/wirtschaft/mobilitaet/RH_Nahverkehr/aktmeld/verkehrerhebung.html (German)
by the young population of central Berlin. In the re-
mainning inner-city, western boroughs cycling levels are
still relatively high, between 13-14%. There is, howev-
er, potential for growth in cycle travel in these Berlin
boroughs. The location of universities and lower-order
centres ensure short distances that offer potential for bi-
cycle use. Cycling levels are lowest, 6-7%, in the east-
er Berlin boroughs and only slightly higher in Berlin’s
western, suburban boroughs where 8-9% of trips are
made by bicycle.

Growth in cycle travel in large cities:
Berlin/ Munich/ Hanover Region

In Germany, the modal split data for metropolitan re-
gions clearly show a trend towards cycling. Until now
it was said to be difficult to encourage people living in
big cities and metropol to cycle, but over the last ten
years, cycle travel in metropolitan regions has increased
and at the same time private motorised traffic has de-
clined. In Berlin, bicycle use increased over the course
of ten years, from 10% in 1998 to 13% in 2008, repre-
senting growth of a respectable 3% in Germany’s larg-
est city. At the same time, the percentage of private mo-
torised traffic decreased by 6%, now accounting for just
about a third of trips in Berlin (Mobility in Cities, SrV
2008). In Munich, the trend towards cycling was even
more significant. By 2008, the cycle mode share had in-
creased from 10% (2002) to an incredible 14%, repre-
senting a growth of 4% in only six years. It is remarka-
ble that this 4% increase in cycle travel was exclusive-
ly at the expense of motorised individual transport. In
Munich, the proportion of trips by motorised individual
transport was reduced by the very same 4% whereas the
proportion of trips by public transport and walking did
not change between 2002 and 2008, representing 28%
and 21% respectively (see graph right above).

In the Hanover metropolitan region, similar to growth in
Berlin, cycling levels have increased by 3% in 9 years,
from 12% in 2002 to 15% in 2011. Public transport use
has increased by the same percentage, also up from
12%. Private motorised traffic and walking decreased by
3%. Despite this reduction, almost half of all trips (49%)
in the Hanover region are still by motorised individual
transport. Levels of walking are remarkably low. This is
due to the fact that the data was generated not by look-
ing at the individual city but the entire region (Mobility
in the Hanover Region, MiR 2011).

What are the factors that have
an impact on cycling levels?

Given the significant differences in cycle mode share
between German cities, it becomes important to under-
stand what factors cause cycling levels to be higher in
some cities and lower in others. There are still questions
that remain unanswered. For example, as to what ex-
tent does topography matter? Because presumably bicy-
cle use is more pleasant in a flat area than in a hilly lo-
cation (but if so, what accounts for the relatively high
mode share for cycling in hilly cities in Switzerland?).
Similarly, a climate with mild winters is considered to
have a positive impact on bicycle use (but if so, why do
Sweden and Finland have so many cycling cities?).

Another crucial factor is the settlement structure. In a
compact city all day-to-day travel destinations can be
reached by bicycle. In large and extensive settlements,
destinations may be far away and people often use the
car. However, some of these areas still have high cycling
levels. May this be in order to replace poor public trans-
port? In this context it has been shown that cycle levels
are high especially in medium-sized cities where all in-
frastucture facilities can easily be reached by bicycle
from most residential areas.

An essential factor is also the social structure of the lo-
cal population as some societal milieus show a spe-
cial affinity for bicycles. Hence, in cities and boroughs
where these milieus prevail, the cycle mode share is
Conclusion

The cycle mode share is an important indicator for the relevance of cycling in a city/town or municipality. It is influenced by a variety of factors; their impacts are hard to differentiate and quantify. There is clear evidence, however, that policy-makers can bring about significant positive changes through systematic and consistent cycling promotion. In order to measure the development of cycling in cities/towns, less complicated methods are also available (see CyE O-8). Traffic counts performed every few years at certain central locations in the city/town require only a reasonable number of personnel. By conducting the bicycle traffic counts working with instructors, often pupils can earn a little bit while at the same time they become more aware of cycling traffic in their own city/town. The data collected by these traffic counts provide indicators only for the specific locations but not for the entire city/town. Detailed data can be generated over a longer period of time by automatic cycle counters placed along cycle facilities.

The city of Cologne, for example, operates automatic cycle counters placed along the inner-city bridges over the Rhine and at central places. In combination with weather data, the data collected by these counters reveals, for example, how small the impact of different weather conditions is on day-to-day travel. Despite the often rainy weather in the first half of 2012, cycling levels in Cologne had increased by around one third compared with the first half of 2009. In absolute terms, 1.9 million cyclists were counted in the first half of 2009 compared with far more than 2.5 million in the first half of 2012.

How to measure cycling levels?

Measuring the levels of cycling and walking allows experts, policy-makers and the public to identify the overall proportion of non-motorised (largely ‘invisible’) travel. Identifying these proportions helps to avoid diverging presumptions about the share and relevance of cycling. In monitoring, regular indices are used to assess whether political targets for transport development are still met. A more thorough evaluation tries to identify which qualities of cycling traffic have developed well or not so well and whether the strategy to promote cycling needs revising. Germany is among those countries with a long tradition of comprehensive nation-wide mobility studies, conducted as household travel-behaviour surveys (for results of the study MiD 2008 see also CyE A-1). The studies Mobility in Germany (MiD) and Mobility in Cities (SrV) are based on representative surveys conducted mainly via telephone interview or by written questionnaire. Carried out by the Technische Universität Dresden, SrV is specifically designed to generate data for individual cities and boroughs; the results for each of the individual cities and boroughs can then be put in relation with results from the other cities and boroughs.

If a more nuanced picture (for example of mode shares by age group or trip purpose) is needed, however, household travel-behaviour surveys are rather complex. In this case, they will always include data on all means of transport. Hence, modal split results for smaller municipalities and districts are rather seldom. In order to measure the development of cycling in small towns, less complicated methods are also available (see CyE O-8). Traffic counts performed every few years at certain central locations in the city/town require only a reasonable number of personnel. By conducting the bicycle traffic counts working with instructors, often pupils can earn a little bit while at the same time they become more aware of cycling traffic in their own city/town. The data collected by these traffic counts provide indicators only for the specific locations but not for the entire city/town. Detailed data can be generated over a longer period of time by automatic cycle counters placed along cycle facilities.