

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

Contents

—	The cycle mode share as a target value	1
—	Profile of German frontrunners Oldenburg and Münster	1
—	Large differences within cities	2
—	Growth in cycle travel in large cities: Berlin/ Munich/ Hanover Region	3
—	What are the factors that have an impact on cycling levels?	3
—	How to measure cycling levels?	4
—	Conclusion	4

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.

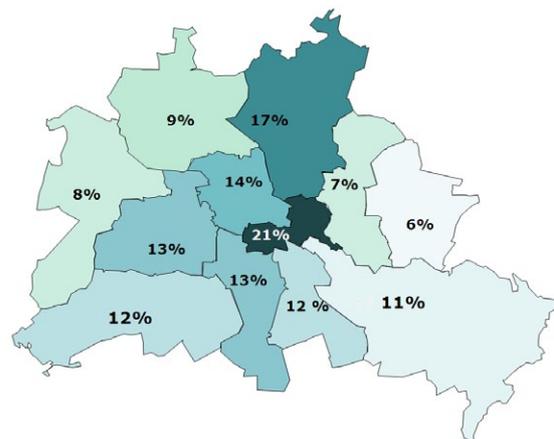


Inner city of Münster. © Jörg Thiemann-Linden

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.



Berlin cycling mode share by administrative district. Source: SrV2008, Figure: Burkard Horn, SenStadt Berlin

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/

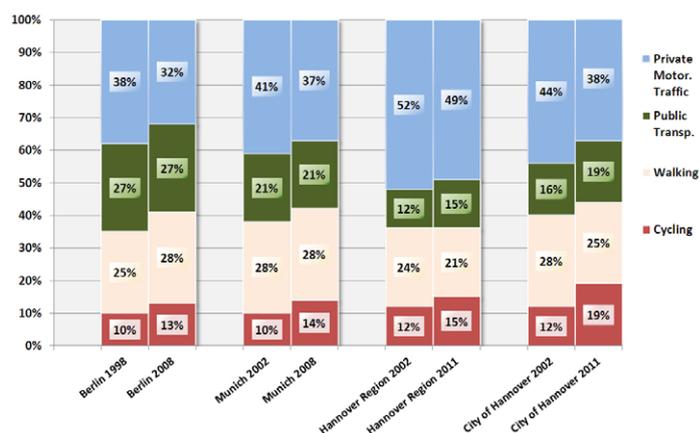
Research project "Mobility in the Hannover Region" (MiR) – webpage: www.hannover.de/de/wirtschaft/mobilitaet/RH_Nahverkehr/aktmeld/verkehrserhebung.html (German)

by the young population of central Berlin. In the remaining inner-city, western boroughs cycling levels are still relatively high, between 13-14%. There is, however, 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 bicycle use. Cycling levels are lowest, 6-7%, in the eastern 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 regions clearly show a trend towards cycling. Until now it was said to be difficult to encourage people living in big cities and metropolis to cycle, but over the last ten years, cycle travel in metropolitan regions has increased and at the same time private motorised traffic has declined. In Berlin, bicycle use increased over the course of ten years, from 10% in 1998 to 13% in 2008, representing growth of a respectable 3% in Germany's largest city. At the same time, the percentage of private motorised 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 increased from 10% (2002) to an incredible 14%, representing a growth of 4% in only six years. It is remarkable that this 4% increase in cycle travel was exclusively 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 looking at the individual city but the entire region (Mobility in the Hanover Region, MiR 2011).



Development of cycling modal share in German metropol regions. Sources: SrV 2008, MiR 2011; Figure: Difu

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 understand 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 extent does topography matter? Because presumably bicycle use is more pleasant in a flat area than in a hilly location (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 transport? In this context it has been shown that cycle levels are high especially in medium-sized cities where all infrastructure facilities can easily be reached by bicycle from most residential areas.

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

"Cycling Climate Test" - ADFC project webpage, including study results:
www.adfc.de/verkehr--recht/gut-zu-wissen/fahrradklimatest-2005/adfc-fahrradklimatest-2005-ergebnisse (German)

"How the Oldenburgers move" – Study from the Carl von Ossietzky University about everyday traffic in the city of Oldenburg:
www.oldenburg.de/fileadmin/oldenburg/Benutzer/PDF/41/OL-Verkehrsmittelumfrage-PRINT2010-LOW.pdf (German)

usually high. This relationship is most evident in the traditional university cities: The German cities of Münster, Oldenburg, Freiburg and Greifswald are known both as university and cycling cities. In addition, there is another relevant factor that seems abstract and hard to grasp at first. In some cities, a proper 'bicycle culture' has evolved in recent decades. In these cities, cycling has traditionally been part of day-to-day life and often also the local identity as well as the attitude towards life that comes with it. A local bicycle culture that has evolved over time often provides a good basis for the systematic and consistent integration of cyclists' requirements into local policies and planning. The provision of good infrastructure, such as cycle paths, parking facilities, or bicycle-friendly public transport is undoubtedly a decisive factor if many city dwellers are to use the bicycle. However, non-infrastructure 'soft measures' also play a role.

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 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.

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 underpin and evaluate such political measures, sound methods are needed to assess and explain bicycle use.



Funded by



Federal Ministry
of Transport, Building
and Urban Development

More information on the topic can be found in
CyE A-1 Bicycle Use in Germany
CyE O-8 Cycling Quality Management and Evaluation

"Cycling Expertise" is available online:
www.nrvp.de/cye

Imprint

Publisher: German Institute of Urban Affairs (Difu) gGmbH
Zimmerstraße 13-15, 10969 Berlin
Department for Mobility and Infrastructure
Editors: Jörg Thiemann-Linden, Nathalie Bohrmann
cycling-expertise@difu.de