



Daniel Sauter, Urban Mobility Research, Februar 2008



Mobilität von Kindern und Jugendlichen

Fakten und Trends aus den Mikrozensen
zum Verkehrsverhalten 1994, 2000 und
2005

Mobilité des enfants et des adolescents

*Constats et tendances tirés des microrecensements de 1994, 2000 et 2005
sur le comportement de la population en matière de transports*

The findings at a glance

Analysis of the data on the travel behaviour of children and adolescents not only reveals new facts for 2005, but also interesting developments over time since 1994. The most significant trends include, in brief:

- Walking to/from school shows a marked increase in French-speaking Switzerland, in contrast to the period 1994 – 2000 where it declined. This reversal in trend could partly be due to the various activities and campaigns to encourage walking to school.
- A ray of hope for walking in general. After many years of decline – especially with regard to discrete walking trips – there are signs that the percentage of trips made on foot among children and adolescents is no longer declining, and may even be gaining some ground.
- Marked drop in bicycle traffic. One of the most striking changes is the decline in bicycle use between 1994 and 2005, by over 40 per cent. This means that in only 11 years, the percentage of bicycle trips among children and adolescents has dropped by nearly half. This involves both genders, all age groups from 6 to 20 years, all linguistic regions and all travel purposes.
- Increased possession of passes for public transportation. Markedly more adolescents aged 16 - 20 years had passes for public transportation in 2005 than in 1994. Just under three fourths of them had at least one pass.
- The number of young adults possessing a driver's license for motorcycles and cars has declined between 2000 and 2005, by around 20 per cent for both categories of vehicle. In the previous period this figure showed a distinct increase.
- The degree of motorization among adolescents has declined. Although in specific age categories, the moped was replaced by the newly authorized small motorcycle (motor scooter), overall – where adolescents between the ages of 14 and 20 years are concerned – the availability of a motorized means of transportation (moped, motorcycle, car) declined.
- Micro-mobility devices play only a secondary role in the everyday activities of children. The so-called micro mobility devices, which have been much talked about in recent years and include such means as mini-scooters, kickboards, skateboards and inline skates, account for only 6 per mil of all stages. The only group to make slightly greater use of this form of mobility are the youngest children, for trips to and from school and leisure time activities.
- Use of "mom's taxi" to get to and from school is highest in suburban, peri-urban and affluent areas, as well as in French-speaking Switzerland. At the start of primary school, 10 per cent of all trips to and from school take place as a ride in the car. In French-speaking Switzerland, in high-income communities and in multi-car households, the percentage is more than twice as high.
- Not owning a car or owning a car greatly influences the choice of mode of transportation. The number of cars in a household has a fundamental, heretofore underestimated, influence on transport utilization by children and adolescents. The share of motorized trips increases directly proportional to the number of cars in the household, while walking and cycling decreases proportionally – also on short distance trips.
- A problematical trend with regard to health; but a status quo with regard to environmental and climate protection. Since 1994, the number of physically active trips made by children declined sharply, due to the drop in bicycle use. So far, the choice of mode of transport has not continued to worsen from an ecological point of view – due *inter alia* to a levelling-off since 2000 of the percentage of motorized trips.
- Still great potential for walking and bicycling. There is still great potential in terms of more walking and cycling. Many motorized trips – especially for leisure activities – are still of less than 3 kilometres and lie within ideal walking or cycling distance. For adolescents going to and from school, the number of trips combined with public transport can still be expanded considerably.

Summary

Children and adolescents are differently mobile in everyday life than the adult population. The most important means of locomotion for children are their own two feet and the bicycle, particularly to and from school. In the case of adolescents, public transport plays a more important role on these trips. For leisure activities, children and adolescents make proportionately more trips by motorized means of transportation.

According to the mobility analysis* conducted three years ago, which was the first of its kind dealing with this age group, motorized travel, which mainly consists of transporting children by car, showed a marked increase, a phenomenon which has already been observed in other countries. At the same time, the share of cycling dropped, whereas walking remained stable and reliance on public transportation showed a moderate increase. The following analysis continues the time series with data from the 2005 microcensus on travel behaviour and thus makes it possible to identify and interpret developments and trends over a longer period of time.

Mobility conditions and access to mobility

For the first time in 2005, data were gathered on the extent to which the pedestrian mobility of persons surveyed was limited by physical factors. The data show that in the case of children and adolescents, only a small percentage are unable to get about independently on foot or can only do so with great difficulty, necessitating, for example, the use of a wheel chair.

In 2005, 84 per cent of children and adolescents had access to a bicycle. This figure is slightly less than in previous years, but is still quite high. Four fifths had a bicycle parking space at home. Half of these parking places were easily accessible, enclosed and lockable. The other half only offered one or two of these features.

Markedly more adolescents aged 16 – 20 years had passes for public transportation in 2005 than in 1994. Just under three fourths of them had at least one pass. In contrast, the number of operators' licenses for motorcycles and automobiles among adolescents dropped by 20 per cent between 2000 and 2005. In the previous period, this figure showed a distinct increase.

Previously, young people often used a moped instead of a bicycle. mopeds are, however, showing a steady decline in popularity. Since 2002, adolescents 16 and over have the possibility of using the so-called "small" motor cycle (motor scooter). Among 16 to 17 year-olds, the decline in moped use was compensated by the small motorcycle, but when all age groups between the ages of 14 and 20 years are taken into consideration, the availability of a motorized means of transportation (moped, motorcycle, car) actually dropped. At the same time, a large proportion – 44 per cent – of children and adolescents live in households owning two or more cars, compared to only around 8 per cent living in car-free households. The proportion of the car-free households stabilized in 2005, after declining between 1994 and 2000; the percentage of multi-car households continued to progress only slightly.

On an average day, around 90 per cent of children and adolescents are mobile. Only in 2000 was this percentage slightly higher. The travel purposes had not changed between 1994 and 2005. The lion's share of children's mobility consists of travel to and from school, at just under 50 per cent, and travel to and from leisure activities, at 40 per cent. In the case of some adolescents, travel to and from work replaces travel to and from school.

* cf. Daniel Sauter "Mobilität von Kindern und Jugendlichen: Vergleichende Auswertung der Mikrozensus zum Verkehrsverhalten 1994 und 2005" [Children and adolescent mobility: comparative analysis of the 1994 and 2005 travel behaviour microcensus]. Report for the Federal Office of Sports, Switzerland (BASPO), Magglingen, December 2005. The report can be downloaded from this webpage: www.langsamverkehr.ch

Trend in relation to travel to and from school

The majority of primary and secondary school children make the trip to or from school between three and four times per day, and continue to return home at noon. In recent years the number of trips has declined slightly, which may be due to increased reliance on school lunches or day-care facilities in schools.

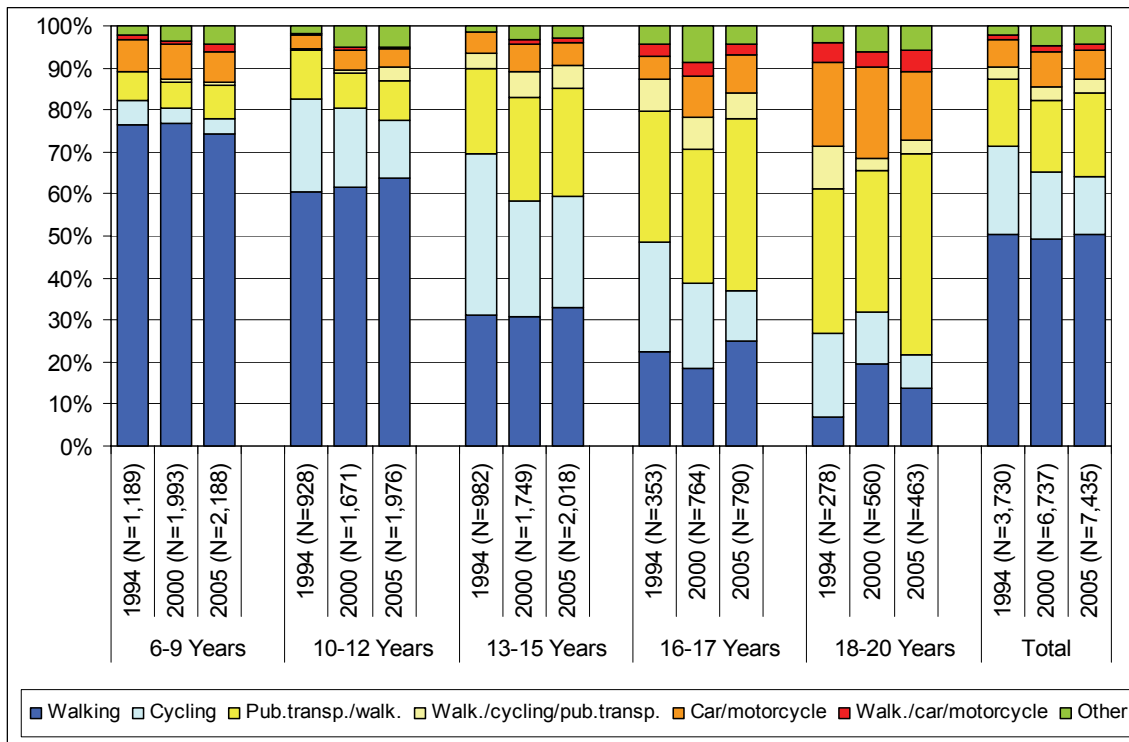
The distance and travel time between home and school for primary school children have changed little since 1994. In contrast, distances for adolescents have increased sharply. The travel time from home to school for students at secondary school level has also increased, particularly in German-speaking Switzerland. But for two thirds of the secondary school children, the distance continues to be less than three kilometres. For two thirds of primary schoolchildren, the distance is even less than one kilometre.

Walking is still the most important mode of transport during the period of compulsory schooling. In Switzerland, 7 out of 10 primary school children still walk to school; at the secondary level, the ratio is around one third. While these averages show little change since 1994 in Switzerland overall, the percentages in French-speaking Switzerland are increasing significantly again, after having declined in the period 1994 – 2000. This may be due, among other things, to the various walking promotion activities and campaigns.

Cycling to and from school continued to decline markedly between 2000 and 2005. Since 1994, it has dropped by around one third, and even by more than one half among older adolescents. The decline of bicycle use was greater for girls than for boys, and in French-speaking Switzerland more marked than in German-speaking Switzerland. In French-speaking Switzerland, bicycle use on trips to and from school has become practically insignificant. Striking is the fact that the bicycle share is especially declining over short distances of up to three kilometres.

The bicycle is for the most part being replaced by public transport. For adolescents over the age of 16 years, the public transport share has risen by more than one third to between 40 and 50 per cent. This may be partly attributable to the increase in the distance to school locations. The increased reliance on public transportation is somewhat less among primary and secondary school children. Percentages related to this mode of travel are especially increasing in rural areas.

Children and adolescents' choice of transport mode to/from school, 1994, 2000 and 2005 by age
(Basis = 3,730, 6,737 and 7,435 trips respectively)



Source: Swiss Federal Statistical Office and Federal Office for Spatial Development: Microcensus on Travel Behaviour

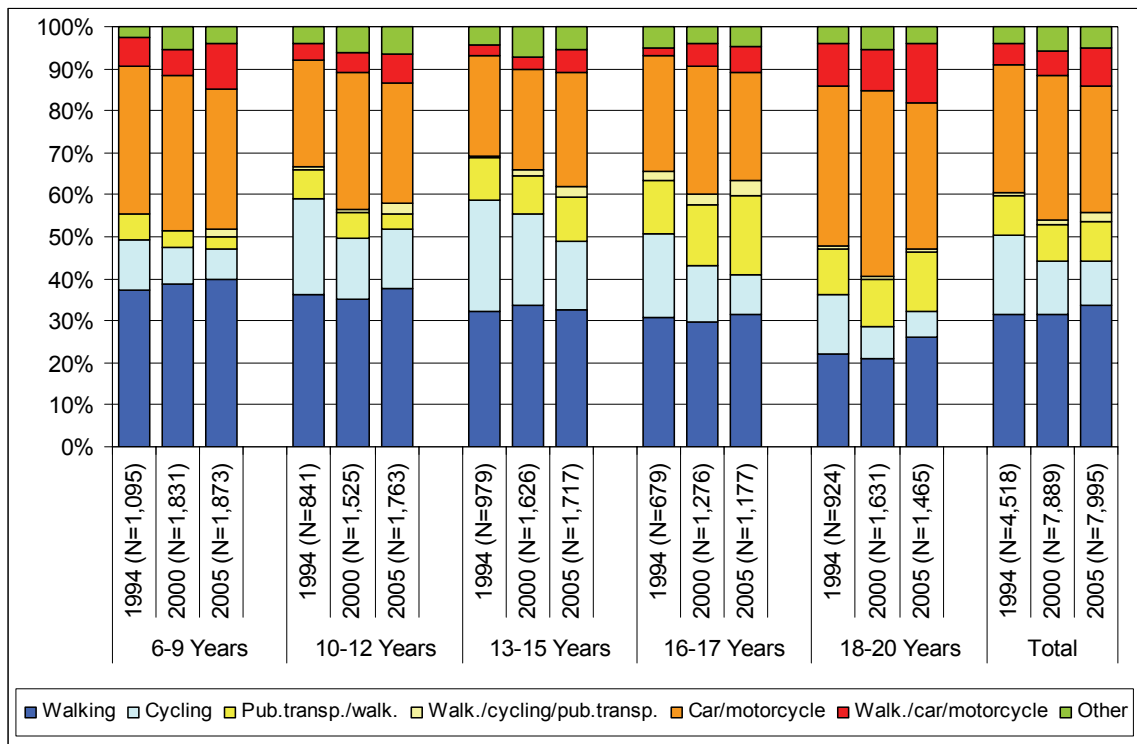
After increasing between 1994 and 2000, the proportion of trips by motor vehicle to and from school dropped again slightly. Overall it is still higher in 2005 than in 1994, however. At the start of primary school, 10 per cent of all trips to and from school take place as a ride in the car. These “mom’s taxis” are more prevalent in affluent suburban, peri-urban and urban areas where several cars per household are available, as well as in French-speaking Switzerland. In high-income communities as well as in households with two or more cars, the percentage of children who are driven to school is twice the mean. Among the youngest children, the percentage of motorized trips to and from school in these cases is as high as one third. In addition, the percentage of children driven to school by car in French-speaking Switzerland is twice as high as in the German-speaking part.

Trend in relation to leisure activities

The distances travelled for leisure activities since 1994 changed little. Short trips in the 3 kilometre range have only marginally increased in length while longer trips have not increased at all. As before, slightly more than half of trips by children and adolescents for leisure purposes are 3 kilometres or less, and just under one third are even less than one kilometre. On the other hand, the mean travel time has continued to increase. The largest increase is among younger children, especially after 2000. The fact that the time travelled has increased while the number of trips and distances have remained unchanged, indicates that the average speed has dropped.

The increase in the percentage of walking-“only” trips between 1994 and 2005 was low, but statistically significant. The proportion of trips made on foot especially increased among young women, and among children and adolescents in cities and suburbs. The percentage of short trips on foot for leisure purposes also increased. Children and adolescents from car-free households clearly rely on walking more frequently than those from households owning one or more cars.

Children and adolescents’ choice of transport mode to/ from leisure activities 1994, 2000 and 2005 by age
(Basis = 4,518, 7,889 and 7,995 trips respectively)



Source: Swiss Federal Statistical Office and Federal Office for Spatial Development: Microcensus on Travel Behaviour

Since 1994 the percentage of bicycle trips for leisure activities declined markedly – by nearly half. This decline is slightly higher among adolescents over 16 years of age than among younger adolescents, and higher among girls and young women compared to boys and young men. Across all age groups, only around 10 per cent of trips for leisure activities are still made by bicycle compared to just under 20 per cent in 1994. Cycling has lost points with regard to both short and long distances. The decline is observable both in towns and in rural areas, but the decline in towns between 2000 and 2005 was primarily in the suburbs and to a lesser degree in city centres.

The percentage of trips for leisure activities using public transport rose considerably, particularly among adolescents; in the case of younger children, on the other hand, it declined slightly. The trend is different depending whether French-speaking or German-speaking Switzerland is concerned. The proportion of trips involving public transport in German-speaking Switzerland increased; it declined in the French-speaking part of the country. For Switzerland as a whole, the percentage of trips made by public transport in city centres remains stable, but declined in rural areas and increased in suburban areas, where it essentially takes over the share formerly held by cycling. Outside of the suburbs, the role of public transport for the leisure activities of children and adolescents is practically nil.

After increasing sharply between 1994 and 2000, the percentage of motorized travel has since remained stable, also for leisure activities. However, the period 1994 to 2005 showed an increase overall. This is more pronounced among females than among males. The proportion of motorized travel grew sharply in rural areas; but remained the same in city centres and suburbs, however. The further away from urban centres people live the larger the share of motorized travel for leisure purposes. Motorized travel is particularly frequent among children and adolescents living in suburban and peri-urban areas, as well as those in rural areas and high-income communities. The share of motorized trips for leisure activities increases directly proportional to the number of vehicles in a household. The trend holds no matter what the place of residence – city, suburb, countryside – and no matter what the distance. Even for short trips, car use increases markedly with the number of cars in the household, while walking and cycling show an equally marked decline.

Additional details with regard to trends in slow traffic

Walking

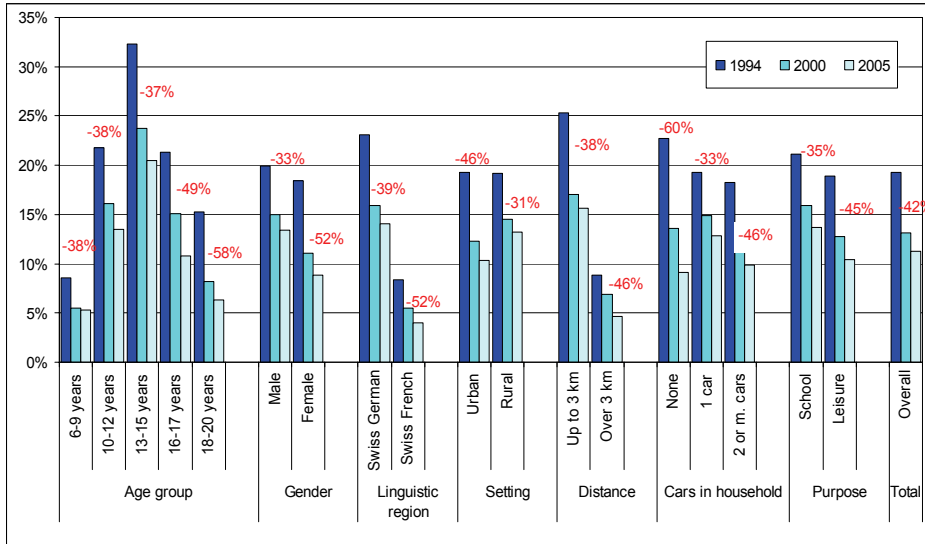
After many years of decline – especially in the case of single walking trips – there are indications that the proportion of foot travel among children and adolescents is not dropping any further and may even be gaining ground. This is true especially for leisure activity-related trips and in some instances for trips to and from school (in French-speaking Switzerland, for example); to a somewhat greater extent in cities and in suburbs than in rural areas; and among adolescents more than among pre-adolescents. Overall, children and adolescents make 37 per cent of all trips exclusively on foot. Added to this are another 27 per cent that are combined with another mode of transportation. Thanks to the more refined recording of stages in the 2005 microcensus, trips made on foot to the bus stop or car park are now captured more accurately. The data show the importance of walking both as a mode of locomotion on its own and as an important means of connection between one form of transportation and another. This confirms that walking and (to a lesser degree) cycling are together by far the most important components of mobility for children and adolescents up to the age of 18 years.

Micro-mobility devices

The so-called micro-mobility devices, which have been much talked about in recent years and which concern devices such as mini-scooters, kickboards, skateboards and inline-skates, play only a minor role in the daily life of children and adolescents. Their share in all stages amounts to a mere 6 per mil. They are only used to a somewhat more significant extent by the youngest children for trips to and from school and for leisure activities.

Cycling

One of the most striking developments concerns the over 40 per cent drop in the cycling percentage between 1994 and 2005. This means that in only 11 years, the proportion of cycling trips among children and adolescents has diminished by nearly half. This applies to both genders, all age groups from 6 to 20 years, all linguistic regions, all settings (urban/rural) and all purposes.



Bicycle proportion/decline per age group, gender, linguistic region, setting, distance, No. of cars in household and purpose: 1994, 2000 and 2005 (Basis = 9,847, 18,631 and 18,785 trips by children and adolescents 6 to 20 years old, all purposes)

The percentages show the change for the entire period, i.e. between 1994 and 2005

Source: Swiss Federal Statistical Office and Federal Office for Spatial Development: Microcensus on Travel Behaviour

This decline is the result of two inter-related trends. Firstly, fewer children and adolescents use bicycles and, secondly, active cyclists, that is, those who had at least one cycling stage on the day surveyed, use the bicycle less often and cycle shorter distances. The result is a drop in the number of cycling stages, distances and time travelled. Among children and adolescents, the use of the bicycle has thus not only declined as a percentage in comparison to other modes of transportation, but also lost ground as a means of locomotion in its own right.

This occurred despite numerous efforts in recent years to promote cycling (for example, the Cycling in Switzerland foundation, car-free days, free bike rental in cities, etc.) There still are, however, large gaps with regard to infrastructures, and the promotion of cycling for everyday use is negligible. This may explain two of the possible reasons for the decline. It may also be that changes in cycling's image, past experiences (negative), and social shifts described below have contributed to the decline. For example, the reduction in traffic safety education and cycling tests in schools, the introduction of bus passes for school children at reduced prices, and increased consciousness of the risks of cycling, coupled with non-existent or insufficient cycling infrastructures (dangerous intersections, lack of theft and vandalism-proof bike parks) and changed aesthetic ideals, clothing fashions, and habits all may account for the decline in cycling.

Walking and cycle potential

The potential for more walking and cycling remains considerable. The large share lost by cycling to motorized travel and public transport in recent years alone gives an indication of this potential. Many destinations are still within ideal walking or cycling distance. One third of all trips for leisure purposes are less than one kilometre and half are less than three kilometres. Nonetheless, 20 per cent of these trips are made by motorized vehicle. In the case of trips to and from school, which are generally relatively short, there is potential, especially among adolescents, to combine cycling with public transport. The drop in the motorization level in this age group since 2000 represents a particularly good opportunity to increase the amount of walking and cycling, because children and adolescents from car-free households are more physically active and more environmentally conscious when they travel than those from car-owning households.

Approaches, areas of intervention and needed research

In order to reverse the bicycle-utilization trend among children and adolescents and to further promote walking, various intervention measures are proposed. Of crucial importance is the need to substantially improve infrastructures for both modes of locomotion, particularly in suburban and peri-urban areas, dangerous locations and especially, on routes to school. Particular emphasis needs to be placed on adequate bike parks, for example, at schools. At the same time, a positive image of both modes of transport needs to be promoted, especially by rekindling among adolescents the pleasure of walking and cycling. Independence, inquisitiveness and joy of living are important characteristics of their lifestyle and can be directly associated with cycling and walking. Moreover, it is important to recognize the contribution of walking and cycling with regard to environmental and climate protection and to health; to promote environmentally friendly lifestyles by creating favourable general conditions; and to keep distances to destinations short, for example to and from school, in order that trips on foot or by bicycle continue to be possible.

The analysis of the data raises the question concerning the reasons underlying the trend described, especially with regard to cycling. It is therefore proposed, firstly, to survey children and adolescents using qualitative and quantitative methods, in order to ascertain the causes of these changes and the reasons for the differences between linguistic areas and genders. Secondly, the framework conditions need to be analysed together with the importance granted to walking and cycling at the political and administrative levels, as well as among planning experts. In particular, it would be useful to assess the causes of this trend, as well as the obstacles to, and the potentialities and perception of these two modes of transport, in order to adopt adequate institutional and structural measures.

For future surveys it is proposed that data regarding the travel behaviour of children under the age of 6 years also be gathered. Since data on the non-targeted mobility (physical activity and play) among children and adolescents are lacking, a separate, systematic survey should be conducted. In future micro-censuses, the accompaniment of children and adolescents to and from school and leisure activities needs to be better identified, and the way leisure activities are categorized needs to be modified. Last but not least, questions related to attitudes of people towards means of transportation, particularly towards walking and cycling, need to be included in the survey. The restructuring of the population census provides the opportunity to survey larger samples, making in-depth evaluations feasible.